COURSE 5
National Environmental Law and Policy-II
## Course 5: National Environmental Law and Policy-II

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Land Acquisition Act, 1894

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1.1 Introduction

Land acquisition refers to the process by which the government acquires private property for public purpose without the consent of the land owner, which is different from a market purchase of land. “Land Acquisition” literally means the acquisition of land for some public purpose by a government agency from individual landowners, as authorised by the law, after paying a government-fixed compensation to cover losses incurred by landowners from surrendering their land to the concerned government agency. In India, a new Act, The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 was passed by the Parliament in 2013 to repeal the Land Acquisition Act. The 2013 Act is a legislation that regulates land acquisition and provides laid down rules for granting compensation, rehabilitation and resettlement to the affected persons in India. The Act has provisions to provide fair compensation to those whose land is taken away, brings transparency to the process of acquisition of land to set up factories or buildings, infrastructural projects and assures rehabilitation of those affected. The Act establishes regulations for land acquisition as a part of India’s massive industrialisation drive driven by public-private partnership. The Act came into force from 1 January 2014.
But before we go into details of the new Act, let us examine the history and nuances of Land Acquisition Act in India. The Land Acquisition Act was enacted in the year 1894. This Act was passed by the British Government continued with some amendments in 1967 and 1984. The Act sought to set out the circumstances and the purposes for which private land can be acquired by the Central/State Government. The procedure to be followed in making an acquisition under the Act is briefly as follows:

STAGE I

♦ Publication of a preliminary notification by the Government and in a particular locality is needed or may be needed for a public purpose or for a company. S. 4(1).
♦ Entry of authorised officers on such land for the purpose of survey and ascertaining whether it is suitable for the purpose in view S. 4 (2).
♦ Filing of objections to the acquisition by persons interested and enquiry by Collector. S. 5-A.

STAGE II

♦ Declaration of intended acquisition by Government. S 6(1)
♦ Publication of declaration as required by the Act. S.6(2)
♦ Collector to take order from the Government for acquisition and land to be marked out, measured and planned. Sections 7 & 8.

STAGE III

♦ Public notice and individual notices to persons interested to file their claims for compensation. S. 9.
♦ Enquiry into claims by Collector. S. 11
♦ Award of Collector. S. 11-15
♦ Reference to Court. S. 18-28.

STAGE IV

♦ Taking of possession of the land by the Collector. S.16. A property designates to those things commonly recognized as an entity over which a person or a group has exclusive rights. In the strict legal sense, property is an aggregate of rights which are guaranteed and protected by the law of the land.
♦ Payment of Compensation. S. 31-34.
Prior to 1984, the Land Acquisition Act, 1894 was not applicable to the States of Jammu and Kashmir and Rajasthan, Kerala and Nagaland which had their own self-contained Land Acquisition Acts. These Acts differed in some respects from the Act of 1894 but the broad scheme was generally the same. In 1984 the Land Acquisition (Amendment) Act was passed which made the Land Acquisition Act, 1894 applicable to the whole of India except Jammu and Kashmir which enjoys a special position under the Constitution and still continues to be governed by the States (Jammu and Kashmir) Land Acquisition Act, 1990.

Apart from the Land Acquisition Act, 1894, which is directly and exclusively concerned with the acquisition of land by the Government there are a large number of other laws (Central as well as States) which permit the Government to acquire land for specific purposes such as planned development of industries, slum clearance, town planning/improvements, implementation of municipal housing schemes etc. Instances of such Acts are:

♦ The Forest Act, 1927
♦ The Coal Bearing Areas (Acquisition & Development) Act, 1957;
♦ The Slum Areas (Improvement & Clearance) Act, 1956;
♦ The Delhi Development Act, 1957;

State Amendments

This Act has been enacted by the Central Government. However, the state Governments have the power to amend its provisions. (Article 246 of the Constitution read with item 42 of List III in the Seventh Schedule to the Constitution). This means that within the territory of each State the Act will be applicable in the amended form.

The State Government can make any amendments they want as long as such changes are not opposed to the provisions as they stand in the Act. For example, the Act requires that the award of the Collector must be made within a specified time limit. Now, suppose a State Government amended this provision so that there was no such time limit and the Collector could take as long as he liked, such an amendment would be ineffective because it would be opposed to and defeat the object that the Central Government had in mind viz. to ensure that each stage of the acquisition proceedings is completed within a reasonable time-frame. Therefore, the Central provision would continue to be operative. (Article 254(1) of the Constitution).
Under certain circumstances an amendment which is inconsistent with the provisions of the Central Act may still be a valid one (Article 254 (2) of the Constitution). However, the Central Government has the power to modify such an amendment or to declare it as invalid (provision to Article 254 (2) of the Constitution). Though the procedure for acquiring property in each stage is broadly that prescribed by the Act, there are regional variations with regard to matters such as:

The authority who has the power to set in motion the acquisition proceedings, the manner in which notices must be publicized, persons on whom notices must be served etc.

### 1.2 The Land Acquisition (Amendment) Act, 1984

After amendment of 1967, the Act was drastically amended in 1984 by the Central Government with the objective of minimizing the undue delays that characterize acquisition proceedings and to provide for payment of compensation on a realistic scale. The Amendment Act of 1984 has resulted in:

- The setting down of a time limit for the completion of all formalities between the issue of the preliminary notices u/s 4(1) and the issues the declaration of acquisition u/s 6(1). First proviso to S. 6(1).
- The setting down of a time limit within which the Collector must make hi; award. S. 11-A.
- Payment of 12 p.a. interest for the period commencing from the date( of the notice u/s 4(1) and ending with the date of the Collector’s award S 23(1-A).
- Payment of solatium (i.e. compensation for loss, suffering or injuret feelings) at an increased rate of 30 of the market value of the acquired land, S. 23(2). Prior to this amendment solatium was payable at the rate of 15 of the market value awarded

- The provision of an opportunity to those dissatisfied with the Collector’ award to apply to him for a redetermination of the compensation payable to them on the basis of an order for higher compensation obtained by an one of them from the Reference Court S. 28-A.

However, this Amendment Act has created far more disadvantage for the people; it has conferred greater discretionary powers on the Government for acquiring land under S.17.
1.3 Proposed Amendments to the Act post 1984

The Land Acquisition Act was sought to be amended in the year 1999. The Bill was scheduled to be introduced in Lok Sabha in 1999 itself. However, due to severe opposition the Act could not see the light of the day. Later on in 2007, another attempt was made to amend the said Act.

A new amendment bill was drafted by the Rural Development Ministry in the year 2007. The Land Acquisition (Amendment) Bill, 2007, was introduced in the Lok Sabha and was later on referred to the Parliamentary Standing Committee on Rural Development, headed by Lok Sabha Member Of Parliament Mr. Kalyan Singh. The Standing Committee reviewed the bill as well as invited suggestions on the proposed amendments in the land acquisition bill. The main feature of the bill is that it seeks to broaden the definition of ‘public purpose’ to balance the concerns of land-losers with what “is useful for the general public.” In the proposed Land Acquisition Amendment Bill 2007, “public purpose” has been classified into three categories:

♦ Strategic purposes, relating to the defence forces or work “vital to the state”
♦ Public infrastructure: Electricity, communication, water supply, mining, “public facilities”
♦ Projects “useful for the general public”.

While the draft of the Bill did away with the earlier clause that put restrictions on the government from acquiring land for companies, it has introduced a new element in the definition of “public purpose” to cover cases of “persons” that will include “any company or association or body of individuals whether incorporated or not where land is required for purposes useful for the general public.” The Rural Development Ministry had suggested that this be restricted to those cases where at least 90% of the land has already been purchased.

On the issue of compensation, the draft Bill said that the rate should not be less than the price fixed by the state government or average of higher prices paid in 50% of land sale cases during the previous three years, whichever is higher. The draft also provides that conversion of land to intended category of use should be factored in while fixing the prices. The Land Acquisition (Amendment) Bill, 2007 provided for a fair compensation at a market value as well as the alternative mechanisms for disposal of land compensation disputes in a time-bound manner.

This bill has also attracted a lot of opposition. Those who were against the bill said that though the bill seeks to omit compulsory land acquisition for projects such as
those of Special Economic Zones (SEZs), and enhance compensation for the land, the bill would make it difficult for those who acquire land for a particular purpose and use it for something else making huge commercial gains in the bargain.

The Land Acquisition (Amendment) Bill, 2007, was introduced in the Lok Sabha and was later on referred to the Parliamentary Standing Committee on Rural Development, headed by Lok Sabha Member Of Parliament Mr. Kalyan Singh. The Standing Committee on Commerce had also submitted its report on *The Functioning of Special Economic Zones in June 2007*. The report includes recommendations related to both land acquisition and compensation.

Box 1 provides a “Comparison of Standing Committee Recommendations and the Land Acquisition (Amendment) Bill, 2007”

<table>
<thead>
<tr>
<th>Issue</th>
<th>SEZ Standing Committee Recommendations</th>
<th>Land Acquisition Bill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verification of land</td>
<td>State government and gram panchayat should verify type of land and hold a public notice for objections to the stated type of land to prevent manipulation of land records</td>
<td>No specific public process stated; Collector is responsible for ‘updating of land records, classification of land and its tenure, survey and standardization of land and property values’</td>
</tr>
<tr>
<td>Type of land</td>
<td>Use only waste and barren lands for SEZs; only in unavoidable situations use single-crop, rain-fed land; ban use of double or multi-crop irrigated land</td>
<td>No mention</td>
</tr>
<tr>
<td>Limitations on land</td>
<td>Prevent developers from acquiring more land than necessary by prescribing maximum area for various types of SEZs and 50% of area should be used as “processing area”</td>
<td>No specific limitations stated; land unused for 5 years shall return to the appropriate government</td>
</tr>
<tr>
<td>Consent of landholders</td>
<td>With the exception of land acquisition for national security, the affected parties should give their consent</td>
<td>Owners of notified land may file an objection with the Collector within 30 days of notification; the appropriate government shall decide on all objections; rehabilitation plans shall be discussed in the gram sabhas</td>
</tr>
<tr>
<td>Inform affected persons</td>
<td>Land acquisition law should inform affected persons of the purpose for acquisition, its implications, and resettlement provisions</td>
<td>Land acquisition proceedings and compensation details shall be available publicly; rehabilitation plan shall be created in consultation with affected families and circulated publicly</td>
</tr>
<tr>
<td>-------------------------</td>
<td>---------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Unused land or failed projects</td>
<td>Lease the land so land owners receive a lump sum and periodic rent. If SEZ fails or dissolves, land goes back to the original owner</td>
<td>No provision for leasing of land; land unused for 5 years shall return to the appropriate government</td>
</tr>
<tr>
<td>Land ownership</td>
<td>Land should be leased to the developer, even if the state government acquires the land</td>
<td>If 70% of land is already purchased, company can acquire 30% if project is for ‘public purpose’</td>
</tr>
<tr>
<td>Calculation of compensation</td>
<td>Compensation should be calculated on prevailing market rates</td>
<td>Compensation based on market rates, intended use of the land, standing crops, and the higher average of either neighboring property, land purchased for the project, or minimum value from sale deeds</td>
</tr>
<tr>
<td>Market rates</td>
<td>State governments should devise a system of periodic market surveys to determine periodic market rates</td>
<td>Collector to determine market value based on minimum land value in the Indian Stamp Act, average sale price for similar type of land in the vicinity, and any land acquired for the same project</td>
</tr>
<tr>
<td>Shares in company</td>
<td>Offer equity shares in the developers company</td>
<td>Acquiring companies can offer land owners 20-50% of compensation amount in shares or debentures</td>
</tr>
</tbody>
</table>
1.4 Land Acquisition (Amendment) Act 2007: An Analysis

The Land Acquisition Act, 1894 addressed the process of land acquisition in India and was last amended by the Land Acquisition Amendment Act, 1984. The Act took a broad definition of ‘public purpose’ permitting a diverse range of projects. A number of Supreme Court cases have highlighted concerns related to fair compensation, valuation of land, definition of ‘public purpose’ and other issues related to land acquisition. Citing problems with the principal Act, the government introduced the Land Acquisition (Amendment) Bill, 2007. The said bill passed on 11 April 2007 and enforced as an Act.


This Act amended the Land Acquisition Act to abolish the use of a statutory date in determining the basic compensation for land that is compulsorily acquired on or after 12 February 2007 and to provide that the basic compensation will instead be the market value of the land as at the date of its acquisition.

However, the market value of the acquired land cannot exceed the price which a bona fide purchaser might reasonably be willing to pay for the land. The market value of the land is to be arrived having regard (but not only) to the zoning and density requirements and any other restrictions imposed by or under the Planning Act at the date of acquisition, and any restrictive covenants in the title of the acquired land. However, no account is to be taken of any potential value of the land for any other use more intensive than what is permissible by or under the Planning Act as at the date of its acquisition.

The Land Acquisition Act was also amended so that when accessing the market value of acquired land, it will no longer be prohibited to take into account any increase in value arising from any improvement to the land within two years before the date the land is declared to be required for a public purpose, or from development in the neighbourhood by the provision of roads, drains, electricity, water, gas or sewerage or social, education or recreational facilities within seven years preceding that date.

The special compensation provisions were for acquired land which is used as a burial ground and acquired land that is devastated or affected, directly or indirectly, by fire, explosion, thunderbolt, earthquake, storm, tempest, flood or any act of God, have also been abolished. Such land, if acquired, would have to be assessed no differently from other acquired land.
The compensation for land acquired before 12 February 2007 continued to be governed by the existing law at that time.

The Act also makes improvements and establishes new procedures for the compulsory acquisition of land to simplify the acquisition process.

**Analysis of Act of 2007** - Land acquisitions have raised a number of concerns related to fair compensation, valuation of land, definition of ‘public purpose’ and other issues. The Land Acquisition (Amendment) Act, 2007 amends The Land Acquisition Act, 1894. The Act redefines ‘public purpose’ as land acquired for defence purposes, infrastructure projects, or for any project useful to the general public where 70% of the land has already been purchased. It bars acquisition for companies except under the 70% per cent condition. except under the 70 per cent condition.

The Act expands the rights of those displaced by land acquisition, and limits the ability to acquire land for public purpose. It also establishes the Land Acquisition Compensation Disputes Settlement Authority at the state and national levels to arbitrate all disputes resulting from land acquisition proceedings. This Act was introduced in conjunction with the Rehabilitation and Resettlement Bill, 2007 to address land acquisition, compensation, and resettlement of displaced persons.

**Key features**

*Public Purpose*

♦ The principal Act permits land acquisition if the land is to be used for a ‘public purpose’ project. ‘Acquisition’ refers to forcibly obtaining land without consent of the land owner. ‘Public purpose’ includes land needed for village-sites, town or rural planning, land for residential purposes for poor or displaced due to natural calamities, land for planned development (including education, housing, health and slum clearance), or land needed by a state corporation. The new amendment Act changes ‘public purpose’ to allow land acquisition only for (i) strategic naval, military, or air force purposes, (ii) public infrastructure projects, or (iii) for any purpose useful to the general public where 70% of the land has already been purchased from willing sellers through the free market.

♦ The new amendment Act defines ‘infrastructure’ as any project relating to electricity, construction of roads, highways, bridges, airports, rail, mining activities, water supply, sanitation and sewerage, and any other notified public facility.

♦ Currently, private land may be acquired on behalf of a company for a ‘public purpose’ project. The Act prohibits land acquisition for companies unless they have already purchased 70% of the land needed.
Table 1.2: Definition of Public Purpose in Other Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Act and Year</th>
<th>Definition / Some Circumstances</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>Land Administration Law, Article 21 (1988)</td>
<td>Economic, cultural, national defence construction projects, public works projects</td>
</tr>
<tr>
<td>Brazil</td>
<td>The Constitution, Article 5, 182 &amp; 184 (1988)</td>
<td>Public use, social interest, or for purposes of agrarian reform of rural property which is not performing its social function</td>
</tr>
<tr>
<td>Mexico</td>
<td>The Expropriations Law (1936)</td>
<td>Infrastructure development, conservation of history or culture, national security, public benefit, equitable distribution of wealth preservation ecological balance and natural resources</td>
</tr>
<tr>
<td>South Africa</td>
<td>Expropriation Act, No 63, Definitions Article 2 (1975)</td>
<td>Public purpose and certain other purposes if the purpose is connected with the administration of the provisions of any law by an organ of State</td>
</tr>
<tr>
<td>US</td>
<td>The Constitution, 5th Amendment, existing case law including Kelo v City of New London, 2005</td>
<td>Private property can be taken for public use; has been interpreted to include property development</td>
</tr>
<tr>
<td>UK</td>
<td>Town and Country Planning Act (1990)</td>
<td>Planning and public purposes if it is suitable for and required for development, redevelopment or improvement; or is required for a purpose which it is necessary to achieve in the interest of proper planning of an area</td>
</tr>
<tr>
<td>Singapore</td>
<td>The Land Acquisition Act, Section 5 (1966)</td>
<td>Public purpose, by any person, corporation, or statutory board for public benefit or public interest projects, or for any residential, commercial or industrial purposes</td>
</tr>
</tbody>
</table>

Social Impact Assessment Study

- If land acquisition results in the displacement of 400 families in the plains or 200 families in the hills or tribal areas, the government must conduct a social impact assessment. The study will include the effects of displacement, a Tribal Development Plan, and provisions for infrastructure development in resettlement areas.
Process for Land Acquisition

♦ ‘Appropriate government’ was determined by the location of the acquired land and the intended project. The principal Act gave jurisdiction over land acquired for Union purposes to the central government and for any other projects to the state government. This Act included multi-state land acquisition projects as central government jurisdiction.

♦ To identify land needed for a public project, the government must issue a notification. The notification must be published in the Official Gazette and in two daily newspapers circulating in that locality. After a notification is published, the government is authorised to conduct work on the land to determine its suitability for an intended project. Any objections must be registered with the Collector’s office.

♦ If the land is suitable, the government must issue a declaration stating the land will be used for public purpose. The declaration must be issued within one year of notification; otherwise a fresh notification cannot be made for an additional year. If this time expires again, notification cannot be issued for five years. No individual shall make transactions or encumbrances on notified land until the final declaration is made or compensation is paid.

♦ The Act states acquisition costs will include suffering or loss, payment for damages to the land during acquisition, cost of land needed for displaced residents, cost of infrastructure development at resettlement sites, and administrative costs of acquisition and resettlement. These costs must be borne by the entity acquiring the land.

♦ The Collector must make details of the land acquisition process, including compensation amounts, publicly available.

Assessing Market Value of the Land

♦ In the principal Act, the Collector only needs to determine the current price value of the land for compensation amounts. The new amendment Act requires the Collector to take the highest value of: (i) the minimum land value for the area as specified in the Indian Stamp Act, 1899; (ii) the average sale price of at least 50% of the higher priced sales of similar land in the village or vicinity; or (iii) the average sale price of at least 50% of the higher priced land purchased for the project. The value of trees, plants, or standing crops damaged must also be included.
In the event that a price is not available or the land is in an area where land sales have been previously restricted, the state government shall set the floor price per unit of land. This price will be determined by average prices of at least 50% of the higher priced land in the vicinity.

While determining compensation, the Collector must also factor in the intended use of the land and the value of such land in the current market.

Compensation

In 1984 Act, the term ‘person interested’ includes those who are claiming land compensation and those interested in an easement (limited right of use of the land) on the land. The Act proposes to expand the definition to include tribal and other traditional forest dwellers who have lost any traditional rights as well as individuals with tenancy rights under state law.

In addition, if any damages are incurred on land excluded from acquisition proceedings, the appropriate owner must be compensated within six months.

Payment for acquired land must be made within one year from the date of the declaration. The Collector can extend this time limit by six months with a penalty of 5% per month. If payment has not been made within one year nor has the Collector granted an extension, the land acquisition proceedings shall lapse.

After the compensation amount is determined, the Collector must ensure that payment occurs within 60 days. Possession of land shall not be taken unless full compensation is paid or tendered to the land owner.

Land owners whose property has been acquired under urgency shall be compensated an additional 75% of the market value of the land.

If the acquisition is for a company, shares or debentures of 20-50% of the compensation amount must be offered through these options. The interested person may either accept this offer or opt for a full cash settlement.

Restrictions on Acquired Land

Land acquired can be transferred only for a public purpose and with prior approval from the appropriate government.

Acquired land that is unused for 5 years from the date of possession shall be returned to the appropriate government.
Whenever acquired land is transferred to another individual, 80% of the difference between the consideration received and the original acquisition cost shall be shared among the original land owners and their heirs.

**Land Acquisition Compensation Disputes Settlement Authorities**

- Currently, all land acquisition cases are referred to civil courts for a decision. The Act establishes the Land Acquisition Compensation Disputes Settlement Authority at both the state and national levels to adjudicate all land acquisition disputes within six months. The Act gives these Authorities the same powers as a civil court and deems all proceedings of the Authorities as judicial proceedings. The government may form more Authorities or benches.

- In the event of a dispute, the land owner must file a written complaint with the Collector. The Collector shall refer any dispute cases to the Authority within 15 days from the receipt of the complaint. If the Collector fails to act, the land owner may petition the Authority directly to request the Collector to file the reference within 30 days.

- If the Authority decides in favour of the land owner, they shall award compensation for (i) market value of the land, (ii) property damages, (iii) damages to the land owner, (iv) damages to the land owner’s salary, movable, or immovable property, (v) expenses incurred by the owner for change or residence or business, and (vi) any damages resulting in a loss of profits from the time of declaration to possession of the land. In the Act, the Authority awards a sum of 12% of market value from the publication of notification to the date of possession or compensation paid. Furthermore, the land owner receives an additional sum of 30% of the market value. The Act increases this sum to 60% of market value.

**Civil Jurisdiction** - The Act granted the Land Acquisition Compensation Disputes Settlement Authority the powers of a civil court. The Authority consists of 2-3 persons with the qualification of either a district court judge, an officer of at least District Collector rank, or an officer of at least Director rank in the state government’s law department. Three issues arise from this composition.

First, this Authority is a judicial body but could be entirely staffed by members without judicial qualifications or experience. Second, this could also lead to a situation where a state government official decides on a case in which the state government (as acquirer) is the defendant. Third, this provision may be unconstitutional as the Constitution separates the executive and the judiciary. The Competition Commission of India was formed in 2002 but not operationalised due
to a writ petition filed in the Supreme Court. The petition challenged the Commission’s powers, which were both judicial and regulatory. In response to the writ petition, the central government introduced an amendment to the Competition Act, 2002 establishing separate regulatory and adjudicatory bodies.

Civil courts are barred from entertaining any disputes or issuing any injunctions relating to land acquisition. With the barring of civil jurisdiction, it is unclear whether there is a mechanism by which a party may challenge the qualification of a project as ‘public purpose.’

Compensation

♦ **Percentage of Sale Deeds used to compute market value:** The Act prescribes three criteria to determine the market value of the land and requires the Collector to adopt the highest of the three computed values. The criteria refer to recently concluded sale prices for similar land, ascertained from “not less than 50%” of the transactions, “where higher price has been paid”. This clause is ambiguous. If the intention is that the average should be taken from the highest priced 50% transactions, taking a larger proportion of transactions would include lower priced ones, and would reduce the average value.

♦ **Compensation as shares or debentures:** The Act required the company to offer shares ‘or debentures’. By accepting shares, the land owner may be able to participate in any significant benefit to the company from the project. However, if the land owner accepts debentures, he receives only a fixed return; he is effectively lending money to the company to purchase his own land.

**Land Resold by Acquiring Body**

Under the Act, if the acquired land is resold, the acquiring entity must calculate the difference between the new sale price and the original acquiring price. The entity is required to distribute 80% of this difference to the original land owners or their heirs. There could be three distinct issues while implementing this clause.

First, the Act does not set a specific time limit for the application of this clause after the original acquisition. Therefore, the acquirer must keep track of the original owners and their heirs in perpetuity so that they can be paid in case of a future sale. Second, the new sale price of the land may be difficult to calculate if it is part of a larger deal. For example, if the original purchase was for a project undertaken by a corporate entity and this entire corporate is taken over by new owners, it may not be feasible to calculate the price paid for this particular piece of land. Third, in cases in which the company has invested in developing the land it is not clear
whether the original acquisition price would be adjusted upwards for the cost of development.

Urgency

The Act made special provisions for land taken in the case of ‘urgency.’ However, neither the new amendment Act nor the principal Act defines the term ‘urgency.’ A Karnataka government circular in 1967 noted, “Government have observed that, of late, there is a steady increase in the number of proposals that are being received from the Deputy Commissioners recommending for invoking the urgency clause for land acquisition, on the ground that a particular irrigation project, formation of a road, construction of tank etc., has to be executed according to the time schedule fixed.

Unused Land

Acquired land that is unused for 5 years shall be returned to the appropriate government. This clause helps deter acquisition of land unless it is required in the immediate term. However, it may not provide such disincentive for cases in which the land is being acquired for a government project.

Easement

Both the principal Act and the amendment Act stated that a ‘person interested in an easement affecting the land’ shall be considered a ‘person interested.’ The term ‘easement’ is not defined in this Act or in the Act. It is defined in the Indian Easement Act, 1882 and the Limitation Act, 1963 but the definitions are significantly different in these two Acts. This could lead to ambiguity during implementation.

Financial Estimates

The Act required the establishment of authorities at the central and state levels to settle compensation disputes. The financial memorandum does not provide estimates of the funding requirement for these authorities.

1.5 The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013

This Act replaced the nearly 120-year-old Land Acquisition Act, 1894, enacted during British rule. The bill was introduced in Lok Sabha in India on 7 September 2011. Out of the 235 members who voted on the bill, 216 backed it while 19 voted against
it. The Act was passed on 29 August 2013 in the Lok Sabha (lower house of the Indian parliament) and on 4 September 2013 in Rajya Sabha (upper house of the Indian parliament). The bill received the assent of the Mr. Pranab Mukherjee, the President of India, on 27 September 2013. The Act came into force from 1 January 2014.

**Background and Rationale of the Act**

Before having passed, the present Act was drafted to basically repeal and replace the Land Acquisition Act, 1894. The Act provides for land acquisition as well as rehabilitation and resettlement. The aims and objectives of the Act include:

- To ensure, in consultation with institutions of local self-government and Gram Sabhas established under the Indian Constitution, a humane, participative, informed and transparent process for land acquisition for industrialisation, development of essential infrastructural facilities and urbanisation with the least disturbance to the owners of the land and other affected families
- Provide just and fair compensation to the affected families whose land has been acquired or proposed to be acquired or are affected by such acquisition
- Make adequate provisions for such affected persons for their rehabilitation and resettlement
- Ensure that the cumulative outcome of compulsory acquisition should be that affected persons become partners in development leading to an improvement in their post acquisition social and economic status and for matters connected therewith or incidental thereto.

The process for land acquisition involves a Social Impact Assessment survey, preliminary notification stating the intent for acquisition, a declaration of acquisition, and compensation to be given by a certain time. All acquisitions require rehabilitation and resettlement to be provided to the people affected by the acquisition. The nuances of granting compensation are as follows:

- Compensation for the owners of the acquired land shall be four times the market value in case of rural areas and twice in case of urban areas.
- In case of acquisition of land for use by private companies or public private partnerships, consent of 80 per cent of the displaced people will be required.
- Purchase of large pieces of land by private companies will require provision of rehabilitation and resettlement.
The provisions of this Act do not apply to acquisitions under 16 existing legislations including the Special Economic Zones Act, 2005, the Atomic Energy Act, 1962, the Railways Act, 1989, etc.

The rationale of enacting this legislation was that the Government of India believed there was a heightened public concern on land acquisition issues in India. A particular concern was that despite many amendments, over the years, to India's Land Acquisition Act of 1894, there was an absence of a cohesive national law that addressed fair compensation when private land is acquired for public use, and fair rehabilitation of land owners and those directly affected from loss of livelihoods. The Government of India believed that a combined law was necessary, one that legally requires rehabilitation and resettlement necessarily and simultaneously follow government acquisition of land for public purposes.

Forty-Fourth Amendment Act of 1978 omitted/repealed Art 19(1) (f) with the net result being:

The right not to be deprived of one's property save by authority of law has since been no longer a fundamental right. Thus, if government issues a fiat to take away the property of a person, that person has no right to move the Supreme Court under Art 32.

Moreover, no one can challenge the reasonableness of the restriction imposed by any law the legislature made to deprive the person of his property.

Some of the major highlights of the Act are as follows:

a) Public purpose

- Land may be acquired only for public purpose. The Act defines public purpose to include: defence and national security; roads, railways, highways, and ports built by government and public sector enterprises; land for the project affected people; planned development; and improvement of village or urban sites and residential purposes for the poor and landless, government administered schemes or institutions, etc. This is broadly similar to the provisions of the 1894 Act.

- In certain cases consent of 80 per cent of the project affected people is required to be obtained. These include acquisition of land for (i) use by the government for purposes other than those mentioned above, and (ii) use by public-private partnerships, and (iii) use by private companies.
b) Process of land acquisition

- The government shall conduct a Social Impact Assessment (SIA) study, in consultation with the Gram Sabha in rural areas (and with equivalent bodies in case of urban areas). After this, the SIA report shall be evaluated by an expert group. The expert group shall comprise two non-official social scientists, two experts on rehabilitation, and a technical expert on the subject relating to the project. The SIA report will be examined further by a committee to ensure that the proposal for land acquisition meets certain specified conditions.

- A preliminary notification indicating the intent to acquire land must be issued within 12 months from the date of evaluation of the SIA Report. Subsequently, the government shall conduct a survey to determine the extent of land to be acquired. Any objections to this process shall be heard by the Collector. Following this, if the government is satisfied that a particular piece of land must be acquired for public purpose, a declaration to acquire the land is made. Once this declaration is published, the government shall acquire the land. No transactions shall be permitted for the specified land from the date of the preliminary notification until the process of acquisition is completed.

- In case of urgency, the above provisions are not mandatory. The urgency clause may be used only for defence, national security, and in the event of a natural calamity. Before taking possession of land in such cases, 80 per cent of the compensation must be paid.

c) Compensation to the land owners

The compensation for land acquisition is determined by the Collector and awarded by him to the land owner within two years from the date of publication of the declaration of acquisition. The process of determination of compensation is given below.

- First, the market value of the acquired land is computed as the higher of (i) the land value specified in the Indian Stamp Act, 1899 for the registration of sale deeds; or (ii) the average of the top 50 per cent of all sale deeds in the previous three years for similar type of land situated in the vicinity.

- Once the market value is calculated, it is doubled for land in rural areas. There is no doubling of value in urban areas. Then, the value of all assets attached to the land (trees, buildings, etc) is added to this amount. On this amount, a 100 per cent solatium, (i.e., extra compensation for the forcible nature of acquisition), shall be given to arrive at the final compensation figure.
Land owners whose property is acquired using the urgency provisions shall be given an additional 75 per cent of the market value of the land.

d) Process of Rehabilitation and Resettlement

- The Act requires Rehabilitation and Resettlement to be undertaken in case of every acquisition. Once the preliminary notification for acquisition is published, an Administrator shall be appointed. The Administrator shall conduct a survey and prepare the Rehabilitation and Resettlement scheme. This scheme shall then be discussed in the Gram Sabha in rural areas (equivalent bodies in case of urban areas). Any objections to the Rehabilitation and Resettlement scheme shall be heard by the Administrator. Subsequently, the Administrator shall prepare a report and submit it to the Collector. The Collector shall review the scheme and submit it to the Commissioner appointed for Rehabilitation and Resettlement. Once the Commissioner approves the Rehabilitation and Resettlement scheme, the government shall issue a declaration identifying the areas required for the purpose of Rehabilitation and Resettlement. The Administrator shall then be responsible for the execution of the scheme. The Commissioner shall supervise the implementation of the scheme.

- In case of acquisition of more than 100 acres, an Rehabilitation and Resettlement Committee shall be established to monitor the implementation of the scheme at the project level. In addition, a National Monitoring Committee is appointed at the central level to oversee the implementation of the Rehabilitation and Resettlement scheme for all projects.

- In case the land is being privately purchased (100 acres in rural areas and 50 acres in urban areas), an application must be filed with the Collector who shall forward this to the Commissioner for approval. After the application has been approved, the Collector shall issue awards as per the R&R scheme.

Rehabilitation and Resettlement entitlements

- Every resettled area is to be provided with certain infrastructural facilities. These facilities include roads, drainage, provision for drinking water, grazing land, banks, post offices, public distribution outlets, etc.

- The Act also provides the displaced families with certain Rehabilitation and Resettlement entitlements. These include, among other things, (i) land for a house as per the Indira Awas Yojana in rural areas or a constructed house of at least 50 square metres plinth area in urban areas; (ii) a one-time allowance of
Rs 50,000 for affected families; and (iii) the option of choosing either mandatory employment in projects where jobs are being created or a one-time payment of Rs 5 lakh or an inflation adjusted annuity of Rs 2,000 per month per family for 20 years.

Other provisions

♦ A Land Acquisition and Rehabilitation and Resettlement Authority shall be established for settling any disputes relating to the process of acquisition, compensation, and Rehabilitation and Resettlement.

♦ There shall be no change of ownership of acquired land without prior permission from the government. Land may not be used for any purpose other than for which it is acquired.

♦ Acquired land which has been unused for 10 years from the date of possession shall be returned to the Land Bank of the government. If any unused acquired land is transferred to another individual, 20 per cent of the appreciated land value shall have to be shared amongst the original land owners.

♦ The government may temporarily occupy and use any piece of waste or arable land for a public purpose. This occupation may be for a period of not more than three years. The compensation of such land may be decided mutually by the owner of the land and the Collector. Any disagreement on matters relating to compensation or the condition of the land on being returned shall be referred to the Land Acquisition and R&R Authority.

♦ In any district, land acquisition will be restricted to a maximum of five per cent of irrigated multi-crop land.


1.6 Conclusion

The new Act aims to balance the need for land for development with fair compensation to the land owners and Rehabilitation and Resettlement for the affected families. The table below highlights some of the significant changes from the 1894 Act.
Table 1.3: Comparison of some key features between the 1894 Act and the 2013 Act

<table>
<thead>
<tr>
<th>Issue</th>
<th>1894 Act</th>
<th>2013 Act</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Purpose</td>
<td>Includes several uses such as infrastructure, development and housing projects. Also includes use by companies under certain conditions.</td>
<td>No significant change.</td>
</tr>
<tr>
<td>Consent from affected people</td>
<td>No requirement.</td>
<td>Consent of 80% of displaced people required in case of acquisition for private companies and public-private partnerships.</td>
</tr>
<tr>
<td>SIA</td>
<td>No provision.</td>
<td>SIA has to be undertaken in case of every acquisition.</td>
</tr>
<tr>
<td>Compensation</td>
<td>Based on the market value.</td>
<td>Market value doubled in rural areas and not in urban area.</td>
</tr>
<tr>
<td>Market Value</td>
<td>Based on the current use of land. Explicitly prohibits using the intended use of land while computing market value.</td>
<td>Higher of: (a) value specified for stamp duty, and (b) average of the top 50% by recorded price of sale of land in the vicinity.</td>
</tr>
<tr>
<td>Solatium</td>
<td>30%</td>
<td>100%</td>
</tr>
<tr>
<td>Resale of land</td>
<td>No provision.</td>
<td>Prior permission of the government required.</td>
</tr>
<tr>
<td>Sharing of profit</td>
<td>No provision.</td>
<td>If the acquired land is unused and is transferred, 20% of the profits shall be shared with the original land owners.</td>
</tr>
<tr>
<td>R&amp;R</td>
<td>No provision for R&amp;R.</td>
<td>Rehabilitation and Resettlement necessary for all affected families. Minimum Rehabilitation and Resettlement entitlements to be provided to each affected family specified.</td>
</tr>
</tbody>
</table>

1 Sources: Land Acquisition Act, 1894 and Land Acquisition and Rehabilitation and Resettlement Bill, 2011; PRS.
Some key issues with the Act are:

- It is not clear whether Parliament has jurisdiction to impose rehabilitation and resettlement requirements on private purchase of agricultural land.
- The requirement of a Social Impact Assessment for every acquisition without a minimum threshold may delay the implementation of certain government programmes.
- Projects involving land acquisition and undertaken by private companies or public private partnerships require the consent of 80 per cent of the people affected. However, no such consent is required in case of PSUs.
- The market value is based on recent reported transactions. This value is doubled in rural areas to arrive at the compensation amount. This method may not lead to an accurate adjustment for the possible underreporting of prices in land transactions.

The Land Acquisition (Amendment) Bill, 2007 and the The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Bill, 2007 (before the enactment of 2013) were referred to the Standing Committee on Rural Development. The Committee made recommendations, some of which were not included or have been incorporated with certain modifications in the 2013 enactment.

Table 1.4: Some recommendations of the Standing Committee not fully incorporated in the 2013 Act

<table>
<thead>
<tr>
<th>Issue</th>
<th>Standing Committee Recommendations</th>
<th>2013 Act</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits for the displaced people</td>
<td>Benefits should be doubled at every subsequent displacement.</td>
<td>No such provision.</td>
<td>Not incorporated.</td>
</tr>
<tr>
<td>SIA</td>
<td>There should be discretion in deciding whether an SIA is necessary below a specified threshold.</td>
<td>SIA has to be undertaken in case of every acquisition.</td>
<td>Incorporated with some modifications.</td>
</tr>
<tr>
<td>Compensation by way of issuing shares and debentures</td>
<td>The issue of shares and debentures is not practical and should be over and above the admissible compensation.</td>
<td>Shares can be issued as part compensation. It cannot exceed 25% of the market value of the land.</td>
<td>Not incorporated.</td>
</tr>
<tr>
<td>Dispute Settlement Authority</td>
<td>The Authority should consist of at least three persons, including the chairperson.</td>
<td>The Authority consists of only one person.</td>
<td>Not incorporated.</td>
</tr>
<tr>
<td>----------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>-------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Rate of interest (if compensation not paid before taking possession)</td>
<td>Rate of interest should be increased from nine percent to 15 percent.</td>
<td>If compensation is not paid before taking possession, a nine percent interest shall be levied. In case of any default, the interest is 15 percent.</td>
<td>Incorporated with some modifications.</td>
</tr>
</tbody>
</table>
2 \textbf{Tenure and Property Rights and Community Rights}

\textbf{Chapter Contents} \hspace{2in} \textbf{Page Nos.}

2.1 Introduction
2.2 Property Rights
2.3 Tenure Rights
2.4 Land Rights and Resource Tenure System
2.5 What are Customary Rights and Community Rights?
2.6 Property Rights and Resource Governance
2.7 Access Tenure Regime
2.8 Land Tenure as an Effective Tool for Development
2.9 Agrarian Reforms
2.10 Access/Tenure Regimes Governing Forest Areas, Protected Areas and Sanctuaries
2.11 Conclusion

\textbf{2.1 Introduction}

Secure land tenure and resource rights are key drivers of biodiversity and sustainable natural resource management. Where these rights are poorly defined and/or poorly enforced, natural resources and ecosystems can be quickly degraded because incentives to protect resources are weak or absent. This insecurity can lead to overgrazing of pastureland, poaching of wildlife, deforestation, ineffective watershed management, and poorly planned extractive industry investments, among other outcomes. Degradation and misuse of resources limit prospects for long-run economic growth and the diversified livelihood options that come from more effective natural resource management, particularly in the tourism sector and in fisheries and forestry.
Tenure and Property Rights and Community Rights

On the other hand, recognizing and securing rights over land and natural resources fosters stewardship. When individuals, communities and other groups, and legal entities have secure rights to land and resources, incentives shift in positive directions. Rather than poach or overuse, secure land and resource rights provide people with incentives to conserve resources because they are better able to capture future investment returns. Strengthening land and resource rights and improving enforcement capacity can help conserve biodiversity and natural resources as well as improve livelihoods and local governance.

A property designates to those things commonly recognized as an entity over which a person or a group has exclusive rights. In the strict legal sense, property is an aggregate of rights which are guaranteed and protected by the law of the land.

The question now lies that what all are the entities that may constitute a property. The term property “includes not only ownership and possession but also the right of use and enjoyment for lawful purposes.”

Property may be classified into movable property that is, goods, articles, etc., and immovable property, that comprises of land and/or building. Another kind of property is the Intellectual Property which reflects the idea that its subject matter is the product of the mind or the intellect. These could be in the form of Patents, Trademarks, Geographical Indications, Industrial Designs, Layout-Designs (Topographies) of Integrated Circuits, Plant Variety Protection and Copyright.

A distinction is often made between “real property” or “immovable property” on the one hand, and “personal property” or “movable property” on the other hand. In the first case, property would include land and fixtures (buildings, trees, etc) that would be regarded as immovable. In the second case, property would include objects not considered fixed to the land, such as cattle, etc.

Tenure is a term normally associated to, but not limited to, an immovable property, i.e. land and building. It is the act, right, manner or term of holding something. In terms of property it refers to the way in which a property is owned. It is not just ownership but a collection of rights and responsibilities to a range of renewable and non-renewable resources. Tenure systems pertaining to a property may range from a farmland, forest, grazing land, river, wildlife, fishery, or any other resource. Each resource has a particular physical quality and a technical constraint on its use.

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1 Black's Law Dictionary, 5th edition, 1979


2.2 Property Rights

Property Rights are defined as the rights that pertain to the permissible use of resources, goods and services in relation to a property. A property right is the exclusive authority to determine how a property is to be used, whether that property is owned by government or by individuals.

In simple terms, property rights nothing more than different degrees of legitimized control over the property. These degrees of legitimized control are reflected by three different types of property rights, namely,

1) Ownership rights – Ownership is a bundle of rights. It usually consists of right to use the property, right to change its form or substance, right to transfer all or partial rights over the property in favor of another person and the right to dispose off the property. It includes the right to sell or mortgage the land, to convey the land to others through intra-community reallocations, to transmit the land to heirs through inheritance, and to reallocate use and control rights.

2) Usage rights – Right to usage of a property may arise due to an absolute right over the property or because of a partial right. It includes right to possess or use the property.

3) Developmental rights – Right to alter, change or modify the property is included in the developmental rights over the property.

Ownership right is the most effective right. A property ownership is said to be most effective in three cases:

1) Where the concept of private ownership is politically and socially acceptable.

2) Where the resource to be conserved is easy to demarcate and defend, such as in case of local level conservation of land, soil, forests, marine resources or water.

3) Where the use of resource within the demarcated boundary does not generate significant spillover effects on others.2

A resource is a component that can be used for subsistence, sustenance or help. It acts as a reserve of supply or support. However, it is difficult to divide a resource as in the case of wildlife, critical watershed and ecologically significant habitats. In such cases it would be appropriate to use communal property rights instead of ownership.

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Tenure and Property Rights and Community Rights

With respect to the degree of ownership, a property may be further subdivided into three types, common, government and private.

Common property belongs to all people in common; it is that which all have an equal right to use and enjoy.

Government property belongs to the state and is subject to the direction of the government.

Private property is that which a person or group of persons, natural or artificial, have the exclusive right to own, profit from and dispose of as they see fit. However, private property is also subject to limitations imposed by the government.

In practice, multiple rights can be held by several different persons or groups. This has given rise to the concept of “a bundle of rights”. Different rights to the same parcel of land, such as the right to sell the land, the right to use the land through a lease, or the right to travel across the land, may be pictured as “sticks in the bundle”. Each right may be held by a different party. The bundle of rights, for example, may be shared between the owner and a tenant to create a leasing or sharecropping arrangement allowing the tenant or sharecropper the right to use the land on specified terms and conditions. Tenancies may range from formal leaseholds of 999 years to informal seasonal agreements. If the farm is mortgaged, the creditor may hold a right from the “bundle” to recover the unpaid loan through a sale of the mortgaged property in the case of default. A neighbouring farmer may have the right from the “bundle” to drive cattle across the land to obtain water at the river.

Box 2.1: Examples of Property Rights

♦ A right to use the land.
♦ A right to exclude unauthorized people from using the land.
♦ A right to control how land will be used.
♦ A right to derive income from the land.
♦ A right to protection from illegal expropriation of the land.
♦ A right to transmit the rights to the land to one’s successors, (i.e., a right held by descendants to inherit the land).
♦ A right to alienate all rights to the entire holding (e.g., through sale), or to a portion of the holding (e.g., by subdividing it).
♦ A right to alienate only a portion of the rights, e.g., through a lease.
♦ A residuary right to the land, i.e., when partially alienated rights lapse (such as when a lease expires), those rights revert to the person who alienated them.
♦ A right to enjoy the property rights for an indeterminate length of time, i.e., rights might not terminate at a specific date but can last in perpetuity.
♦ A duty not to use the land in a way that is harmful to other members of society, (i.e., the right is held by those who do not hold the right to use the land).
♦ A duty to surrender the rights to the land when they are taken away through a lawful action, (e.g., in a case of insolvency where the right is held by the creditors, or in the case of default on tax payments where the right is held by the state).

Modern property rights are based on conceptions of ownership and possession as belonging to legal persons, even if the legal person is not a natural person. In most countries, corporations, for example, have legal rights similar to those of citizens. Therefore, the corporation is a juristic person or artificial legal entity, under a concept that some refer to as “corporate personhood”.

Since land is a limited resource and property rights include the right to exclude others, land rights are a form of monopoly. Those without land rights must enter into legal agreements known as land use agreements with the owners of the land. If a person enters or makes use of a land not belonging to him, or without a proper land use agreement, it would amount to trespassing.

Property rights are protected in the current laws of most states, usually by their constitution or by a legislation. Property rights are defined as a bundle of entitlements defining the owner’s rights, privileges and limitations for use of a resource. A land can be identified under two broad property types, namely, Public property and Private property. A public property is a property owned by legal persons or business entities whereas, a private property is a state owned or publicly owned and available possession.

Protection on right to property is also prescribed under Article 17 of the United Nations’ Universal Declaration of Human Rights as well as in the European Convention on Human Rights (ECHR), Protocol 1.
Tenure and Property Rights and Community Rights

For a long time, Private property in India was looked upon with the utmost disdain and was considered the root cause of disharmony among fellow citizens. However for countries that have astutely embraced capitalism, property rights form one of the three most important pillars for running the system successfully, the other two being free trade and liberty.

If we observe carefully, we will find that the numerous disputes we encounter relating to resources arise from the fact that no one owns them or perhaps because everyone owns them, as in the case of public property. It is not difficult to see that people care for their own property much more than they care for the public property. Many of the environmental problems we face today, ranging from pollution, the depletion of rainwater forest or animal species becoming extinct, are largely due to the absence of formal property rights.

Take India, for example. The Indian Constitution does not recognise property right as a fundamental right. In the year 1977, the 44th amendment eliminated the right to “acquire, hold and dispose of property” as a fundamental right. However, in another part of the Constitution, Article 300 (A) was inserted to affirm that “no person shall be deprived of his property save by authority of law”. The result is that the right to property as a fundamental right is now substituted as a statutory right. The amendment expanded the power of the state to appropriate property for “social welfare purposes”.

2.3 Tenure Rights

Tenure is the act, right, manner or term of holding something. In terms of immovable property such as land, tenure refers to the relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land. It is an body of rules invented by societies to regulate and manage how property rights to land are to be allocated within societies.

Land tenure is one of the tools used by the government to allocate and regulate property rights. It defines how access is granted to rights to use, control, and transfer land, as well as associated responsibilities and restraints. In simple terms, land tenure systems determine who can use what resources for how long, and under what condition. However, it is very essential to note that when we talk about land here, it includes other natural resources such as water and trees as well.

Let us now a few tools of land regulations used by the government to regulate property rights
1) Land Tenure

Land Tenure is a political, economic social and legal institutional structure that determines:

♦ How individuals and groups secure access to land and associated manage land resources. The resources include trees, minerals, pasture, and water.

♦ Who can hold and use these resources, for how long and under what conditions. Land tenure may also have both spatial and temporal dimensions and are typically defined through statutory or customary law.

Normally, the sovereign holds the land in its own right. All private owners are either its tenants or sub-tenants, but their rights are as good as ownership rights. This system is prevalent in India as well. The term “tenure” is used to signify the relationship between tenant and lord, not the relationship between tenant and land.

Land tenure is often categorised as:

♦ **Private:** the assignment of rights to a private party who may be an individual, a married couple, a group of people, or a corporate body such as a commercial entity or non-profit organization. For example, within a community, individual families may have exclusive rights to residential parcels, agricultural parcels and certain trees. Other members of the community can be excluded from using these resources without the consent of those who hold the rights.

♦ **Communal:** a right of commons may exist within a community where each member has a right to use independently the holdings of the community. For example, members of a community may have the right to graze cattle on a common pasture.

♦ **Open access:** specific rights are not assigned to anyone and no-one can be excluded. This typically includes marine tenure where access to the high seas is generally open to anyone; it may include rangelands, forests, etc, where there may be free access to the resources for all. (An important difference between open access and communal systems is that under a communal system non-members of the community are excluded from using the common areas.)

♦ **State:** property rights are assigned to some authority in the public sector. For example, in some countries, forest lands may fall under the mandate of the state, whether at a central or decentralised level of government.
2) **Land policy**

Land policy is the tool employed to outline a set of goals and measures for meeting objectives related to land: tenure, use, management, property rights and administration, and administrative structures.

Land policy is formulated keeping in mind the development goals. It is linked to various other policies such as agriculture policy, housing policy, urban policy, rural policy, forest policy, etc. It concerns itself with sustainable and optimum use of resources.

3) **Land management**

Land Management is the process of managing the use and development of land resources in a sustainable way, in urban, suburban, rural as well as other lands. Land resources are used for a variety of purposes which interact and may compete with one another; therefore, it is desirable to plan and manage all uses in an integrated manner.

### 2.4 Land Rights and Resource Tenure System

In India, more than one and a half billion people amounting to about 70% of the population depend directly on the land and environment for survival. Land is the life resource of the majority of people whose subsistence directly depends on the water, forests and the soil. The urban poor on the other hand, live in communities that have been settled for a substantial period of time. Development of the community includes access to a means of livelihood, to education, to health care, all of which stand to be disrupted in cases of eviction. Certain land and resource tenure systems have been identified so as to secure land rights of the underprivileged sections of the society. Some rights have been recognized for the sustainable and optimum use of the limited resources such as land. They are:

1) **Customary and recorded rights**

Customary rights are the traditional rights that have been exercised by a local community for subsistence, cultural and religious purposes. These rights may not formally be recognized by any statute or legislation but may have been exercised for generations by the members of a local community.

An example of a customary property right is the rights vested in tribals to carry out forest activities such as grazing, native cultivation, vegetation, etc. the National Forest Policy of 1988 recognizes certain customary rights of local communities and
proposes that holders of the customary rights must be motivated to identify themselves with the protection and development of forests from which they derive benefits.

Recorded rights, on the other hand, are formally recognized statutory rights vested in individuals or communities over a property. They are formally recorded rights documented in statutory instruments and have a legal backing.

2) Individual and community rights

Individual rights pertain to a situation where rights over a property are vested exclusively over an individual or a group of individuals who have come together voluntarily. When an individual or a group of individuals hold absolute rights over a property (if such absolute right is recognised by the law of the land) or if such right is not recognized (e.g. in India where the sovereign holds absolute rights over land) then, limited rights that are exclusive in nature and vested only upon such an individual or group of individuals).

In case of community rights, the members of a community collectively own a local resource. The decisions of the use of the resource are made through a community institution. Though individual members do have their own private rights, but such rights are regulated by a community institution for the well being of the community as a whole.

Private Property right regimes are believed to create incentives for the management of resources. However, they could also encourage erosion of the resources. Many a times if property regimes are flawed or are not implemented properly, they may fail miserably to provide solutions to preserve resource erosion. Some experts also argue that if property laws are more favorable towards the State or individuals, neglecting the community ownership rights, then erosion of natural resources is inevitable.

3) Easements and Concessions

Easement is a right to access a property for a specific use. Common forms of easement are for utilities and similar required access. Easement is defined under Section 4 of the Indian Easement Act, 1882. Section 4 of the Act provides as follows:

Section 4. ‘Easement’ defined. — An easement is a right which the owner or occupier of certain land possesses, as such, for the beneficial enjoyment of that, to do and continue to do something, or to prevent and continue to prevent something being done, in or upon, or in respect of certain other land not his own.
Tenure and Property Rights and Community Rights

Dominant and servient heritages and owners. — The land for the beneficial enjoyment of which the right exists is called the dominant heritage, and the owner or occupier thereof the dominant owner; the land on which the liability is imposed is called the servient heritage, and the owner or occupier thereof the servient owner.

Explanation. — In the first and second clauses of this section the, expression “land” includes also things permanently attached to the earth; the expression “beneficial enjoyment” includes also possible convenience, remote advantage, and even a mere amenity; and the expression “to do something” includes removal and appropriation by the dominant owner, for the beneficial enjoyment of the dominant heritage, or any part of the soil of the servant heritage, or anything growing or subsisting thereon.

Illustrations

a) A, as the owner of a certain house, has a right of way thither over his neighbour B’s land for purposes connected with the beneficial enjoyment of the house. This is an easement.

b) A, as the owner of a certain house, has the right to go on his neighbour B’s land, and to take water for the purposes of his household, out of a spring therein. This is an easement.

c) A, as the owner of a certain house, has the right to conduct water from B’s stream to supply the fountain in the garden attached to the house. This is an easement.

d) A, as the owner of a certain house and farm, has the right to graze a certain number of his own cattle on B’s field, or to take, for the purpose of being used in the house, by himself, his family, guests, lodgers and servants, water or fish out of C’s tank, or timber out of D’s wood, or to use, for the purpose of manuring his land, the leaves which have fallen from the trees in E’s land. These are easements.

e) A dedicates to the public the right to occupy the surface of certain land for the purpose of passing and re-passing. This right is not an easement.

f) A is bound to cleanse a watercourse running through his land and kept it free from obstruction for the benefit of B, a lower riparian owner. This is not easement

Concession is a contractual right to carry out a certain activity in an area, not being one’s own, such as to explore or develop its natural resources. They are different from easements since in easements the right to use or access a property is not a contractual right.
How is a land tenure system made applicable?

A land tenure system is made applicable through effective land administration. Land administration, whether formal or informal, comprises an extensive range of systems and processes to administer:

- **Land rights**: the allocation of rights in land; the delimitation of boundaries of parcels for which the rights are allocated; the transfer from one party to another through sale, lease, loan, gift or inheritance; and the adjudication of doubts and disputes regarding rights and parcel boundaries.

- **Land-use regulation**: land-use planning and enforcement and the adjudication of land-use conflicts.

- **Land valuation and taxation**: the gathering of revenues through forms of land valuation and taxation, and the adjudication of land valuation and taxation disputes.

Information on land, people, and their rights is fundamental to effective land administration since rights to land do not exist in a physical form and they have to be represented in some way. In a formal legal setting, information on rights, whether held by individuals, families, communities, the state, or commercial and other organizations, is often recorded in some form of land registration and cadastre system. In a customary tenure environment, information may be held, unwritten, within a community through collective memory and the use of witnesses. In a number of communities, those holding informal rights may have “informal proofs” of rights, i.e., documents accepted by the community but not by the formal state administration.

An enforcement or protection component is essential to effective land administration since rights to land are valuable when claims to them can be enforced. Such a component allows a person’s recognized rights to be protected against the acts of others. This protection may come from the state or the community through social consensus. A stable land tenure regime is one in which the results of protective actions are relatively easy to forecast. In a formal legal setting, rights may be enforced through the system of courts, tribunals, etc. In a customary tenure environment, rights may be enforced through customary leaders. In both cases, people may be induced to recognize the rights of others through informal mechanisms such as community pressures. People who know their rights, and know what to do if those rights are infringed, are more able to protect their rights than those who are less knowledgeable.
Land administration is implemented through set of rules or procedures to manage information on rights and their protection, such as:

- Procedures for land rights include defining how rights can be transferred from one party to another through sale, lease, loan, gift and inheritance.

- Procedures for land use regulation include defining the way in which land use controls are to be planned and enforced.

- Procedures for land valuation and taxation include defining methodologies for valuing and taxing land.

Efficient procedures allow transactions to be completed quickly, inexpensively, and transparently. However, in many parts of the world, formal land administration procedures are time-consuming, bureaucratically cumbersome and expensive, and are frequently non-transparent, inaccessible to much of the rural population, and are handled in languages and forms that people do not understand. In such cases, high transaction costs may result in transfers and other dealings taking place off-the-record or informally.

Finally, land administration requires actors to implement the procedures. In customary tenure regimes, the customary leaders may play the principal role in land administration, for example in allocating rights and resolving disputes. In a more formal setting, land administration agencies may include land registries, land surveying, urban and rural planning, and land valuation and taxation, as well as the court systems. Where customary tenure has been recognised by the State, functional linkages are being developed between government and customary land administration bodies.

### 2.5 What are Customary Rights and Community Rights?

Modern property rights are based on conceptions of ownership and possession as belonging to legal persons, even if the legal person is not a natural person. In most countries, corporations, for example, have legal rights similar to those of citizens. Therefore, the corporation is a juristic person or artificial legal entity, under a concept that some refer to as “corporate personhood”.

Since land is a limited resource and property rights include the right to exclude others, land rights are a form of monopoly. Those without land rights must enter into legal agreements known as land use agreements with the owners of the land. If a person enters or makes use of a land not belonging to him, or without a proper land use agreement, it would amount to trespassing.
Property rights are protected in the current laws of most states, usually by their constitution or by a legislation. Property rights are defined as a bundle of entitlements defining the owner’s rights, privileges and limitations for use of a resource. A land can be identified under two broad property types, namely, Public property and Private property. A public property is a property owned by legal persons or business entities whereas, a private property is a state owned or publicly owned and available possession.

Protection on right to property is also prescribed under Article 17 of the United Nations’ Universal Declaration of Human Rights as well as in the European Convention on Human Rights (ECHR), Protocol 1.

For a long time, Private property in India was looked upon with the utmost disdain and was considered the root cause of disharmony among fellow citizens. However, for countries that have astutely embraced capitalism, property rights form one of the three most important pillars for running the system successfully, the other two being free trade and liberty.

If we observe carefully, we will find that the numerous disputes we encounter relating to resources arise from the fact that no one owns them or perhaps because everyone owns them, as in the case of public property. It is not difficult to see that people care for their own property much more than they care for the public property. Many of the environmental problems we face today, ranging from pollution, the depletion of rainwater forest or animal species becoming extinct, are largely due to the absence of formal property rights.

Take India, for example. The Indian Constitution does not recognise property right as a fundamental right. In the year 1977, the 44th amendment eliminated the right to “acquire, hold and dispose of property” as a fundamental right. However, in another part of the Constitution, Article 300 (A) was inserted to affirm that “no person shall be deprived of his property save by authority of law”. The result is that the right to property as a fundamental right is now substituted as a statutory right. The amendment expanded the power of the state to appropriate property for “social welfare purposes”.

Common properties are resources, which are accessible to the whole community or village to which no individual has exclusive ownership or properties right. The common properties resources much subjected to individual use but no individual can own position over this rather it is used by a number of stake holders who has independent right to use.
The significance of common property resources lies in their capacity to meet the basic needs of the villagers. If utilized properly, the common property resources could generate substantial income for the villagers. But the main hurdle in this is the absence of ownership feeling among the villagers. Every one's property becomes no one's property and to break this feeling the ownership of the common property should be handed over to a people's institution which have social acceptance and legal reorganization. The success of common property management through people's institution is reflected through Haldikundi village committee.

Land rights and related resource rights are of fundamental importance to the world's indigenous people for a range of reasons, including: the religious significance of the land, self-determination, identity and economics.

Common-pool resource (CPR), also called a common property resource, is a type of good consisting of a natural or man made resource system (e.g. an irrigation system or fishing grounds), whose size or characteristics makes it costly, but not impossible, to exclude potential beneficiaries from obtaining benefits from its use. Unlike pure public goods, common pool resources face problems of congestion or overuse, because they are subtractable. A common-pool resource typically consists of a core resource (e.g. water or fish), which defines the stock variable, while providing a limited quantity of extractable fringe units, which defines the flow variable. While the core resource is to be protected or entertained in order to allow for its continuous exploitation, the fringe units can be harvested or consumed.

A common property regime is a particular social arrangement regulating the preservation, maintenance, and consumption of a common-pool resource. The use of the term “common property resource” to designate a type of good has been criticized, because common-pool resources are not necessarily governed by common property regimes.

Examples of common-pool resources include irrigation systems, fishing grounds, pastures, forests, water and the atmosphere. A pasture, for instance, allows for a certain amount of grazing to occur each year without the core resource being harmed. In the case of excessive grazing, however, the pasture may become more prone to erosion and eventually yield less benefit to its users. Because their core resources are vulnerable, common-pool resources are generally subject to the problems of congestion, overuse, pollution and potential destruction unless harvesting or use limits are devised and enforced.

The use of many common-pool resources, if managed carefully, can be extended because the resource system forms a positive feedback loop, where the stock variable
continually regenerates the fringe variable as long as the stock variable is not compromised, providing an optimum amount of consumption. However, wanton consumption leads to deterioration of the stock variable, thus disrupting the flow variable for good.

Common-pool resources may be owned by national, regional or local governments as public goods, by communal groups as common property resources, or by private individuals or corporations as private goods. When they are owned by no one, they are used as open access resources. Having observed a number of common pool resources throughout the world, Elinor Ostrom noticed that a number of them are governed by common property regimes - arrangements different from private property or state administration - based on self-management by a local community. Her observations contradict claims that common-pool resources should be privatized or else face destruction in the long run due to collective action problems leading to the overuse of the core resource.

Common property resource management: Pastoral resources are predominantly common property resources that are by nature difficult to partition. While in some cases community institutions and conventions govern such resources, in others “open access” can lead to overuse and degradation. Governments face the choice of individualizing the resources or strengthening community institutions to better govern them. Though simpler, individualization excludes many—especially the poor. Community management systems traditionally protect access rights for the poor, women, pastoralists, and others. Because common property management is more complex, it is important that the state empower communities through legal provisions, institutional arrangements, and capacity building for decisionmaking and enforcement. Also important is ensuring that indigenous systems—including customary tenure—that contribute to sustainable use of resources are recognized.

Gender relations: Not only do women produce and prepare food, they also transmit knowledge and skills relating to food, agriculture, and natural resource management. While often regarded as the keepers of the environment, under many land tenure systems women do not hold primary rights to land but instead gain access through male relatives. Security of tenure in private, communal, and other forms of land ownership can encourage women to invest in the land, adopt sustainable farming practices, and better take care of other resources.

Natural resource conflicts: Activity- and actor-led land and natural resource conflicts are a cause for concern.

\[^{3}\] Tragedy of Commons
2.6 Property Rights and Resource Governance

Both statutory and customary tenure systems are under stress in the face of global demographic growth, growing food scarcity, and environmental degradation of land, fisheries, and forest resources—compounded by the forces of global climate change. When resource tenure and property rights are insecure, the potential for sustainable resource management is undermined. However when the rules and institutions governing the use, transfer, and ownership of resources are secure, then the foundations are in place for sustainable resource management. The empirical evidence by various researchers in the past has proved that the causal relations between tenure security and sound resource management complements the principles and best practices for responsible governance of natural resources.

In May 2012, a committee constituted by Food and Agriculture Organization of the United Nations (FAO) on World Food Security endorsed the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries, and Forests in the Context of National Food Security. The Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security promote secure tenure rights and equitable access to land, fisheries and forests as a means of eradicating hunger and poverty, supporting sustainable development and enhancing the environment. They were officially endorsed on 11 May 2012, and since then, implementation has been encouraged by G20, Rio+20, United Nations General Assembly and Francophone Assembly of Parliamentarians. Consistent with the Millennium Development Goals, these voluntary guidelines articulate the principles and practices that can improve governance of tenure and sustainable use of land and other natural resources within the overarching goal of fostering food security—a core USAID objective articulated in the USAID Policy Framework 2011-2015.

Building upon these voluntary guidelines, we can analyse the interface between tenure, governance, and resource management and ways in which various agencies around the world including USAID can incorporate good tenure governance into natural resource management policies and programs. In looking at the linkages between tenure security and the resource assets of forests, arid and semi-arid grasslands, wildlife, and freshwater and marine resources, this brief shows how formal recognition and protection of legitimate rights to the natural resource base are critically important incentives for conservation and sustainable use, management, and governance of resources.
a) FORESTS

The Food and Agriculture Organization (FAO) estimates that over 80 percent of the world’s forests are publicly owned with the remaining held by local communities and municipalities. Mexico and Papua New Guinea are important exceptions because local communities and indigenous groups own the vast majority of the forests. FAO data also show that the overall rate of deforestation remains alarmingly high. Approximately 5.2 million hectares per year were lost (an area about the size of Costa Rica) between 2001 and 2010, with most public forests suffering from large-scale illegal logging and other extractive activities. Primary forests are under severe threat from rising global demand for timber and other forest resources. In the face of threats of forest loss, many countries are taking measures to improve governance of their remaining forest assets. In some cases, national polices favor decentralized forest governance by devolving management responsibilities to regional and local governments. Other countries promote co-management of forests between government and local communities. Some African and Asian countries take a more radical approach by simply devolving authority for forest management to indigenous user groups. Devolution to user groups themselves may be reducing illegal extraction while improving forest conditions and conservation of biodiversity, but numerous challenges remain.

In Mexico, communities (called ejidos) own 60 to 70 percent of the forests. Ejidos enjoy inalienable rights to their communal forests, but may choose to transfer common land title to commercial or civil corporations for economic ventures. There are no restrictions on subsistence use, and ejidos may develop forestry enterprises to generate income. Communities are required to submit federally approved 10-year forest management plans before commercializing timber production. According to the 2002 Revenue Law, communities are not taxed if engaged in extractive industry, but they are charged 50 percent of profits when producing finished products. Since these reforms, many ejidos have developed community forest enterprises. As a result of greater security over commercial forest rights, hundreds of ejidos have organized themselves into forest companies with their own processing capacity. Some ejidos invest timber profits to establish sawmills, furniture factories, spring water bottling plants, and pine resin distilleries. Several ejidos are choosing to engage in production of certified timber to ensure sustainability.

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4 FAO, 2011, p. 3
5 White and Martin, 2002
6 Bray, 2010, p. 3.
8 Forster et al., 2004, p. 37
9 Rainforest Alliance, 2011
Devolution of resource management authority to local communities may be leading to improved forest conditions. In Mexico, successful community forestry enterprises are showing positive natural resource impacts and are contributing to local development. A national study of 733 municipalities in eight states found that municipalities with higher percentages of community forests reduce the gross and net rates of deforestation, and increase the rate of forest recovery\textsuperscript{10}. Other regional and national-level studies show that communities with forestry enterprises perform similarly to protected areas with respect to forest cover, and that long-inhabited extractive communities perform as well as uninhabited strict protected areas under low colonization pressure\textsuperscript{11}. Through a comparison of land use and land cover change maps derived from satellite images, researchers studying deforestation in 19 community forests and 11 protected areas in Mexico and Guatemala found that deforestation rates were higher in protected areas than in community forests between 1988 and 2005, although the differences were not significant.

In Nepal, forest management has devolved to user groups through the community forestry initiative. Community forestry user groups (CFUGs) can use and manage forest resources, but the state retains ownership over the land. Communities have the right to sell some non-timber forest products (NTFPs), but in several areas, they do not have rights to sell timber or other high-value resources. As of April 2012, about 17,700 CFUGs had been formed nationwide (over 1,000 exclusively by women), governing nearly 30 percent of Nepal’s total forest area, and engaging 38 percent of all households in Nepal\textsuperscript{12}. CFUGs are involved in local value-added processing and marketing of multiple forest products. These include community-based wood depots and sawmills, small furniture workshops, large numbers of handicraft producers (which in the Kathmandu Valley alone produce in excess of US $1.0 million per year), medicinal and aromatic plant producers estimated to produce US $8.6 million per year, and numerous other small paper, resin, and dye producers\textsuperscript{13}. Recently, under the Forest Stewardship Council (FSC) certification scheme, 21 community forests of the Dolakha and Bhajhang districts have certified about 14,086 hectares.

While comprehensive and detailed ecological research is limited, Landsat imagery and field studies show improved governance of community forests and improved livelihoods. In particular, in the Kabhre and Sindhupalchok districts of central Nepal, research shows that shrub and grass lands have been converted into

\textsuperscript{10} Bray, 2010, p. 3
\textsuperscript{11} Bray et al., 2008
\textsuperscript{12} Kanel, 2012, p. 7
\textsuperscript{13} Asia Network for Sustainable Agriculture and Bioresources, 2009, pp. 22-23
productive forests, and forest area increased from 7,677 to 9,678 hectares (37.5 percent) between 1978 and 1992\textsuperscript{14}. In a mountain watershed of Kabhre district, a study showed reduction in the number of forest patches from 395 to 175, and an increase in net forest area by 794 hectares between 1976 and 2000 (Gautam et al., 2003, p. 93). Another analysis of five community forests over a 10-year period (1993–2003) found that tree and sapling density increased. Similarly, a four-year study conducted in four districts of the Koshi Hills engaged in community forestry shows a 20 percent decline in grazing in community forests compared to that within public forests, a 29 percent increase in basal area, and 51 percent increase in number of tree stems. Devolution of forest rights has also had numerous other livelihood and development benefits. Communities are meeting many subsistence needs for timber, firewood, and fodder for livestock; generating income through NTFP enterprises; providing employment; strengthening social capital; and enhancing their leadership capacity as CFUG members take on positions in various political and civil society organizations. However, continuing government restrictions against selling high-value forest products have prevented communities from engaging in income-generating opportunities as in the case of the Mexican ejidos.

The success of community forestry in Nepal is well recognized, but evidence of exclusion of poor households from the benefits of the scheme has been noted repeatedly. As a result of the critique, government revised the Forest Act in 1993 to allow for a leasehold forestry provision, allocating land to households below the poverty line. Leaseholders are granted long-term exclusive use rights to degraded forestlands under a 40-year lease free of charge; these leases can be renewed for an additional 40 years. All benefits from forest enterprises go directly to the leaseholders. As of August 2011, about 6,700 leasehold forest groups had been formed, covering an area of 62,745 hectares\textsuperscript{15}. Unlike community forests, leasehold forest groups do not have rights over existing forests, but they do have rights over the forest or agricultural products they produce. Evaluation of leasehold forestry is showing mixed results. Some have experienced increases in ground cover, species diversity, and tree density; in others, overgrazing has diminished forest cover. Many leasehold groups are experiencing an improvement in their economic status and food security due to free access to fuel wood, fodder, and other products derived from forests. However, enforcement remains a major challenge, as many leasehold forests are located on lands historically considered as open access community spaces. Poor households are finding it difficult to exclude external users, a problem exacerbated by the leaseholders’ lower social status.

\textsuperscript{14} Kanel, 2006, p. 30
\textsuperscript{15} USAID, 2012, p. 45
Despite these successes, the statutory requirements of forest devolution impose overly demanding rules on forest user groups involved in preparing management plans, monitoring forest health, or setting up the organizational framework of the management committee. Community forestry groups confront high costs and delays in obtaining approval from government for permits. Government policies and administrative practices continue to give preference to large-scale producers and processors, establish market rules that burden small-scale producers (such as various requirements for legal permits, high taxes on extraction, and value-added forest products), or set prices that undervalue forest resources. Unfortunately, local communities lack access to technical and financial support needed to establish forest enterprises.

B) Semi-arid and Arid Grasslands

The world’s drylands occupy 40 percent of the entire land area, and 100-200 million people make their living on these arid and semi-arid regions through pastoralism (the practice of extensive grazing on drylands for livestock production). Customary land tenure systems operate in many dryland areas, and communal tenure is a common feature with overall authority for land vested in traditional leaders. Resource rights are generally identified with group membership (e.g., clan or tribe). Many pastoralist groups move seasonally from home areas to dry season territories while accessing buffer zones bordering competing groups. Carefully negotiated rules ensure access to seasonal rivers, wooded areas, and dry season grazing areas reserved for times of drought. Areas utilized by pastoral communities tend to change with the seasons and over the years, depending on climatological variations and the nature of negotiations between competing communities. Control over livestock water points like seasonal ponds, wells, and boreholes is a prime determinant of access to semi-arid and arid pastures. Ownership of water sources is usually vested in the collective rather than in individual households. Today, approximately 10 to 20 percent of drylands are degraded due to conversion to other land uses such as agriculture. With climate change and an increasing frequency of droughts, the vast expanses of dry lands will continue to grow. Some countries are strengthening customary tenure and systems of governance by granting individual (Botswana) or collective leaseholds to rangelands (Mongolia, some Sahelian West African countries), granting individual ownership to rangelands (Tunisia), and allocating collective ownership rights (Kenya). These initiatives illustrate how the voluntary guideline principles of recognizing and safeguarding legitimate rights to resources help improve pasture management and reduce poverty, food insecurity, vulnerability, and conflict.

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16 Global Dryland Initiative [GDI], 2003a, p. 2
In Mongolia, the government has initiated leasing of pastures and hayfields ("possession certificates") to recognize customary tenure. Leases are given out to herder groups, rather than to individuals. District governors are responsible for allocating winter-spring pastures to herder groups, based on proposals received from lower administration levels. The district-level representative assembly can set herd size limits for winter pastures, and can set and impose grazing fees. Local governments are now able to set and enforce the rules governing seasonal movements of livestock and reduce unsanctioned or out-of-season grazing. With long-term group contracts, possession certificates, and co-management arrangements, governance of pastures has improved. Studies by the FAO suggest that these tenure arrangements are protecting grazing lands against overstocking and the underlying free-for-all competition for grasslands—factors contributing to the degradation of pastures. Moreover, the leasing arrangements have provided herders with incentives to settle in underused and unused pastures. Granting of 15 to 60 year possession rights over winter and spring shelters, vegetable plots, and hayfields has encouraged herder groups to implement simple and efficient pasture management measures such as pasture rotation, restoration of abandoned crop fields, involvement in participatory pasture monitoring and research, and establishment of sustainable financing mechanisms to pasture improvement. Mongolia pasture reforms are showing many benefits. In some cases, growth in income was higher among middle- and low-income households. The government scheme has helped improve women’s participation in governance and income-generating activities. Additionally, the development of herder group microcredit and diversification of revenue sources through processing livestock products or other activities (vegetable gardening, ecotourism) allowed women to accrue significant profit and diversify their food supply.

In West Africa, several governments over the past two decades have created legal frameworks to recognize and protect pastoralists’ rights of access to natural resources: Niger in its Rural Code (1993), Burkina Faso (2002), Guinea (1995), Mauritania (2000), and Mali (2001). These codes and laws on pastoralism recognize mobility as the key strategy for pastoralist resource management. Mali’s Pastoralist Charter protects grazing lands and cattle corridors from agricultural encroachment and secures herders’ access to strategic seasonal resources. Pastoralist laws also enable and regulate multiple and sequential use of resources by different stakeholders (e.g., herders’ access to cultivated fields after harvest), and define the role that pastoralists can play in local conflict resolution. Some problems remain,

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17 FAO, 2007, p. 9
18 Cotula et al., 2004, p. 25
however. Pastoralist laws have not been accompanied by implementing regulations (Mali), nor have the necessary governance institutions been put in place (Niger). The legislation on pastoralism is linked to policies and administrative structures favoring decentralization. Because communes—often dominated by the interests of sedentary populations—have the responsibility for natural resource management, pastoralists are sometimes excluded from decision-making on land uses. The new pastoralist codes still fail to protect the flexible, collective property regimes of customary rangeland management practices. The concept of “productive land use” continues to emphasize agricultural land uses to the detriment of rangelands, despite the fact that pastoralist livelihoods generate six times more revenue than agriculture practiced in the same ecological zones. Nevertheless, some innovations are promising. For instance, in many Sahelian West African countries, “local conventions” and “land charters” consist of community-based agreements validated by local authorities on the management of shared natural resources. These conventions take into account interests of pastoralist communities. However, how effective these agreements are in practice remains unclear. Empirical research is needed on the impact of these conventions on rangelands in arid and semi-arid West Africa.

Pastoralism continues to be viewed as archaic, ecologically unsustainable, and of little economic value. Negative perceptions are deepened as pastoralists are linked to images of drought, famine, and conflict. Yet, research shows that pastoralism in dryland areas is more economically profitable than farming or ranching. Pastoralism can contribute ecological benefits like maintaining species diversity, maintaining ecosystem structures, and reducing impact of disasters such as fires, drought, and flooding through active management of vegetation. Pastoralists tend to have built-in capacities to adapt to climate change, based on long histories of adaptation to erratic weather patterns.\(^{19}\) If pastoralists’ contributions to local livelihoods and regional and national economies were better known, perhaps tenure reform strengthening the rights of these people would be better accepted by policy and legislation.

c) Wildlife

In most countries, ownership over wildlife is vested in the state. The state may grant rights to hunt and cull wildlife through permits or licensing schemes; however, government often retains control over the revenue streams. States commonly protect wildlife and wildlife habitat by designating protected areas on public lands or through community-based natural resource management (CBNRM) schemes with

\(^{19}\) Secretariat of the Convention on Biological Diversity, 2010, p. 10
responsibilities of governance shared with resident communities. Despite these government measures to protect wildlife and associated ecosystems, species exploitation and habitat destruction continue. Today, nearly 20,000 species of plants and animals worldwide face extinction—including 13 percent of birds, 25 percent of mammals, and 41 percent of amphibians—largely due to shrinking habitats, but also to poaching and illegal trade of wildlife. Over the past two decades, Botswana, Namibia, Zambia, and Zimbabwe have devolved control and management of wildlife to local communities, including benefits derived from it, to reduce incentive for poaching. In South Africa, privately managed wildlife reserves abutting national parks have played an important part in creating buffer zones around these protected areas. Devolution of wildlife management to communities and private enterprises are generating enormous benefits to local communities and businesses. Community-based wildlife programs have benefitted significantly from USAID support through the Living in a Finite Environment (LIFE) and CBNRM programs in Namibia and Botswana, respectively.

In Namibia, the 1996 revisions in wildlife policy and legislation gave rural communities ownership over certain species of wildlife, exclusive use rights to other species, and exclusive concessionary rights over tourism. Communities organized as conservancies can retain 100 percent of income from contracts with the private sector for trophy hunting and photographic tourism. To participate in the program, conservancies must be legally constituted with a defined membership and a management committee formed to develop a strategy for wildlife management and equitable distribution of benefits. Management committees write game management plans and establish mechanisms to resolve disputes among the members.

Devolution has led to a marked reduction in poaching, while the introduction of local wildlife management practices (e.g., development and maintenance of water points and wildlife production zones, reintroduction of game to facilitate faster recovery rates, reduced cattle grazing areas) has contributed to the recovery of populations of some species. For example, there has been a doubling of mountain zebra, near doubling of gemsbok, and sharp increases in oryx and springbox in northwest Namibia. Populations of rare species (notably black rhino) more than doubled in these conservancies; elephant numbers increased from 13,000 in 1996 to 20,000 in 2005. The conservancies have led to the creation of thousands of jobs in the tourism industry. Today, the country’s 74 conservancies are earning more than...
US $4.8 million. Some conservancies use funds to create water points for game or install water points for community use. Other conservancies have invested in schools and programs to support vulnerable families such as those affected by HIV/AIDS. Women fill more than half of the jobs generated by conservancy businesses. Yet, problems remain. While conservancies have exclusive rights to manage wildlife and set up tourism ventures on their land, they have no right to exclude those engaged in livestock grazing and other economic activities. Lacking exclusionary powers, conservancies are encountering difficulties in managing wildlife and associated habitats.

Furthermore, governance of conservancies are split between traditional authorities concerned about using the land for subsistence purposes, and the communal land boards (a co-management entity) managing land for uses by external economic interests. Inevitably, conflicts erupt over competing land use demands.

In Botswana, community trusts are set up to lease land from land boards for community-designated controlled wildlife viewing and trophy hunting areas. Land is leased for an initial 15-year period, which includes limited rights of wildlife management; communities do not have exclusive control over all land uses. However, as in Namibia, fiscal devolution allows communities to retain 100 percent of income from trophy hunting and game viewing. Some community trusts have developed joint venture agreements with safari and tourism enterprises. They accrue financial benefits by subleasing hunting areas, selling meat and wildlife quotas to venture partners, and participating in tourism enterprises.

As a result, some species are more abundant. In particular, elephant populations in Botswana doubled between 1994 and 2006\textsuperscript{22}. However, population dynamics of other wildlife vary dramatically across species. Many other species, though not increasing, have maintained their numbers, but several species have also shown declines in numbers. Rural communities are beginning to realize a significant income from wildlife, tourism, and commercialization of secondary forest products. Several community trusts in the Okavango Delta are generating US $2 million annually from a variety of ventures. Employment generated by community trusts and tourism companies has more than doubled in some areas. Communities are beginning to develop their own businesses and are engaged actively in all elements of resource management. However, use rights to community-designated controlled hunting areas are derived from policy; they are not entrenched in law. Community control is therefore insecure and of limited duration. Longer-term leases over land would go a long way toward creating the right incentives for management.

\textsuperscript{22} Vision 2016 Council, 2010, p. 8
The devolution of wildlife management to local communities, coupled with trophy hunting and ecotourism, has yielded many benefits ranging from increase in wildlife numbers, to expanding habitats and significant economic growth. Not only has devolved wildlife management worked on private lands, but also on communal lands with people of initially limited business skills. However, lack of control over the full range of resource assets on the land limits the ability of local communities to manage habitats for multiple uses. Secure and longer-term land and governance rights may help communities manage these areas more effectively. While the causal linkages between devolution and improved resource management appear quite strong, there is still a need for more rigorous monitoring of trends in wildlife and habitat.

d) Freshwater, Marine, and Wetland Resources

In most countries of the world, marine and freshwater resources are considered state property and under the management of various governmental bodies. In most developing countries, local communities possess rights to use, but not own, water for irrigation and home consumption, often free of charge. However, this practice is changing. User fees are increasingly applied for the provision of potable water and for small-scale irrigation. Commercial water use typically requires a permit and the payment of water fees. Many countries follow the same rules for fisheries. As is now so well reported, major water crises are cropping up around the world due to the scarcity of freshwater. The diversion of water for industry, damming and diversion of rivers, draining of wetlands, and climate change-induced droughts are inciting water-related conflicts. Groundwater—90 percent of the world’s readily available freshwater—is being depleted rapidly; this in turn is contributing to increasing water prices, rising cost of irrigation, rising food prices, and reduced access to potable water and sanitation. Furthermore, half of the world’s wetlands have disappeared over the last century. Nearly 80 percent of the world’s fish stocks are overexploited or have collapsed due to poor governance and the de facto open access of marine fisheries. Subsistence and small-scale fisher folk are losing ground due to growing competition from commercial vessels; this in turn has implications for food security and poverty alleviation.

National governments are now engaging in a variety of legislative and institutional reforms to improve governance of freshwater, marine, and fisheries resources. These reforms include community-based or co-management of watersheds, integrated water resources management between various sectors, and recently, more
privatization of freshwater resources. Yet, governments work within structures like the Law of the Seas and other international conventions governing access to coastal fisheries. Co-management and customary marine tenure arrangements are particularly advanced in several of the Pacific Island states. New studies suggest that these initiatives can help sustain much of world’s declining fisheries.

In the Philippines, the Apo Island Marine Reserve, an early community-based marine protected area, is a classic example of a highly successful community-based coral reef fishery and marine biodiversity conservation initiative operating under the policy and legal framework of the Local Government Code of 1991 and the Fisheries Code of 1998. On the southeast side of Apo Island, the communities established “no-take” marine reserves where all forms of fishing are prohibited; these reserves were designated by municipal ordinance. A system of collaborative management of the reserve was put in place involving an organized fisher community, local government, and an academic institution as facilitator and adviser. The Apo fishing community retained its rights to fish outside of the reserve. The community developed rules to reduce fishing pressures, such as using gear restrictions to reduce damage to coral and non-target species of fish.

Research conducted since the beginning of the initiative has provided some of the most compelling evidence available for community-managed fisheries. Research shows that the biomass of target fish (four families accounting for 75.6 percent of the fisheries yield at Apo) increased inside the no-take reserves 4.5 times over 18 years of no-take protection. The biomass of large predatory fish and highly favored targets of reef fisheries increased 17.3 times during this period. The results suggest that marine reserves can help enhance local fishery yields in the long term, enhancing the living standard of the island community. The overall benefits have generated strong local support for no-take reserves. Following Apo's lead, more than 400 other villages have started community or co-managed marine sanctuaries in the Philippines.

In the Pacific, customary marine tenure exists in some form on most islands. In some cases, customary tenure systems are recognized in national law, while in others their recognition is informal. Island states such as Vanuatu combine statutory and customary tenure regimes in marine fisheries. Under customary marine tenure, local communities are able to claim exclusive rights to fishing areas, and have the right to regulate activities and exclude outsiders from these areas. Most traditional management involves the implementation of taboos. Traditional knowledge

24 Alcala et al., 2005, p. 1
regarding seasonality of fish is typically used to determine taboos and enforce community fishing practices. If taboos are violated, the village court (though not legally recognized) imposes sanctions. Infractions at the community level are dealt with in the “custom courts” that emphasize consensus and compromise, avoiding a win/lose situation. National fisheries regulations are also adopted and enforced by traditional leaders, provided the regulations support the community’s management objectives. Legislation allowing devolved management of fisheries has created a strong partnership between government and communities.

The case of voluntary village-based trochus management in Vanuatu is particularly instructive. Trochus is a large marine snail, and the country’s largest commercial export. In a survey conducted by the fisheries department, trochus stocks were found to be rapidly declining. The fisheries department advised villages on the benefits of regular multiple year closures of trochus fisheries, followed by brief lifting of fishing bans. Communities are left to decide whether or not to act on this advice. A 1993 study revealed that many villages followed the technical advice of the government fisheries department and found the new management scheme so profitable that other villages soon afterward followed the experiment. To the surprise of observers, many villages decided to protect other marine animals as well, and banned or restricted harmful fishing practices such as night spearfishing and the use of gillnets. One village even set up a marine protected area, stocking it with giant clams. By 2001, community-based marine resource management measures had more than doubled, supporting the finding that customary marine tenure (the right of villagers to control activities on their traditional fishing grounds and to exclude outsiders) provides an essential tool for near-shore marine resource management in Vanuatu. Challenges remain, nevertheless, as enforcement is not always effective, particularly when it involves outsiders not bound by local rules who poach on a community’s marine resources. Legal recognition of traditional management systems and customary law can empower traditional authority and help enforce rules. Further, the task of enforcement can be delegated to communities under formal legal frameworks (e.g., fisheries wardens appointed by communities)—supporting rather than undermining traditional authority.

In Bangladesh, inland fisheries and wetlands have been gradually encroached upon and the remaining wetlands are overused. The wetland fisheries are in decline due to short-term leasing of public water bodies—the jalmohals (typically permanent water bodies leased out by the state)—by the government to maximize revenue. To address this issue, the Government of Bangladesh and USAID developed the

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25 Johannes and Hickey, 2004, p. 4
Management of Aquatic Ecosystems through Community Husbandry (MACH) program to strengthen access of local communities to wetland fisheries, and hence alleviate poverty and improve wetland management. With field operations in more than 110 fishing villages, the program regulated access to wetlands through short-term leases. Within the three wetlands covering 21,000 acres, 16 resource management organizations were given lease rights over a distinct area of one of the wetlands, thus securing rights over the resource.

Through these efforts, villages improved fisheries productivity in the three degraded wetlands, resulting in increased fish catch as well as improved food security, incomes, and nutrition for 184,000 of the poorest citizens. Fish catches in project villages rose by 140 percent, consumption increased by 52 percent, and average daily household incomes increased by 33 percent. Due to the restoration of wetland habitats and fish stocks, the communities earned US $4.7 million more from local fisheries sales in 2004 than in 1999. Due to its success, the program was scaled up by securing lease rights and promoting co-management of additional wetlands.

Co-management initiatives have been successful, but they reveal the difficulty of attributing roles, rights, and responsibilities, especially where the groups involved have highly divergent interests. Many co-management efforts rely on outside agents to facilitate collective action, but sustaining that action has proved difficult. Devolution can be an effective means to grant local users greater control, provided that real authority is indeed transferred to local communities and that adequate safeguards are established. Reforms in legal frameworks governing water increasingly take the route of privatizing the resource and devolving management control to local entities. While these efforts try to take into account equity issues, privatization of potable water and water used for irrigation and industrial purposes is increasing the cost of water as state subsidies are removed. For those poor who have few means to purchase water, their health and welfare are at risk.

### 2.7 Access tenure Regime

In many parts of the developing world, the rural poor increasingly depend on shared resources for their livelihoods. In such a scenario, there is an increase tenure systems and access to land and resources via common property regimes. The common property regimes are the most desirable of the land tenure systems so as to govern the Forest Areas, Protected Areas and Sanctuaries.

The common property regimes are defined primarily in terms of collective rights. They may also represent a range of different rights for both individuals and groups.
such as access, withdrawal, management, exclusion, alienation. These multiple rights to the same resource may also be exercised differently at different times.

A Common-pool resources (CPRs) refer to natural resources where one person’s use subtracts from another’s use and where it is often necessary, but difficult and costly, to exclude other users outside the group from using the resource. CPRs refer to the attributes or characteristics of a resource. Common property is a formal or informal property regime that allocates a bundle of rights to a group. Such rights may include ownership, management, use, exclusion, access of a shared resource. The term common property regime represents a set of institutions, regulations and management practices subject to collective decision-making. In this sense, the term refers to the kind of tenure institutions that exist, not the resources themselves. Common property regimes also contribute to more environmentally sustainable use of natural resources. Environmental degradation, such as deforestation, may take place where common pool resources are not adequately managed. Collective action, and supportive legal or policy frameworks, may contribute to more sustainable use of the resources from the commons.

Customary law and practice forms the basis of group tenure and collective resource management in many parts of the world. Customary systems generally have a collective element to resource management, e.g., forms of group decision-making that determine access and use, or joint use and management of resources in common areas. These are the most widely applicable tenure regimes in the forest areas, protected areas and the Sanctuaries.

In practice, most forms of holdings may be found within a given society, for example, common grazing rights, private residential and agricultural holdings, and state ownership of forests. Customary tenure typically includes communal rights to pastures and exclusive private rights to agricultural and residential parcels. In some countries, formally recognised rights to such customary lands are vested in the nation state or the President “in trust” for the citizens.

In broad terms, land tenure rights are often classified according to whether they are “formal” or “informal”. There can be perceptual problems with this approach because, for example, some so-called informal rights may, in practice, be quite formal and secure in their own context. Despite these perceptual problems, the classification of formal and informal tenure can sometimes provide the basis for useful analysis.

Formal property rights may be regarded as those that are explicitly acknowledged by the state and which may be protected using legal means. Informal property
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rights are those that lack official recognition and protection. In some cases, informal property rights are illegal, i.e., held in direct violation of the law. An extreme case is when squatters occupy a site in contravention of an eviction notice. In many countries, illegal property holdings arise because of inappropriate laws. For example, the minimum size of a farm may be defined by law whereas in practice farms may be much smaller as a result of informal subdivisions among heirs. Property rights may also be illegal because of their use, e.g., the illegal conversion of agricultural land for urban purposes.

In other cases, property may be “extra-legal”, i.e., not against the law, but not recognised by the law. In some countries, customary property held in rural indigenous communities falls into this category. A distinction often made is between statutory rights or “formally recognized rights” on the one hand and customary rights or “traditional rights” on the other hand. This distinction is now becoming blurred in a number of countries, particularly in Africa, which provide formal legal recognition to customary rights. Formal and informal rights may exist in the same holding. For example, in a country that forbids leasing or sharecropping, a person who holds legally recognized ownership rights to a parcel may illegally lease out the land to someone who is landless. These various forms of tenure can create a complex pattern of rights and other interests. A particularly complex situation arises when statutory rights are granted in a way that does not take into account existing customary rights (e.g., for agriculture and grazing). This clash of de jure rights (existing because of the formal law) and de facto rights (existing in reality) often occurs in already stressed marginal rainfed agriculture and pasture lands. Likewise in conflict and post-conflict areas, encounters between settled and displaced populations lead to great uncertainties as to who has, or should have, the control over which rights. The layers of complexity and potential conflict are likely to be compounded, particularly where, for example, state ownership is statutorily declared and state grants or leases have been made without consultation with customary owners (who are not considered illegal), and where squatters move illegally onto the land.

Access to land

Access to land for the rural poor is often based on custom. Customary rights to land in indigenous societies, for example, are usually created following their traditions and through the ways in which community leaders assign land use rights to the community members. These rights of access may have their origin in the use of the land over a long period. They are often rights developed by ancestral occupation and by the use of land by ancestral societies. In such cases, it is through the act of original clearance of the land and settlement by ancestors that rights are claimed.
People also use a wide range of strategies to gain access to land. These include:

- Purchase, often using capital accumulated while working as migrants in urban areas.
- Adverse possession or prescription (the acquisition of rights through possession for a prescribed period of time). In some countries, this may be the only method for small farmers to gain formal access to vacant or abandoned land and to bring it into productive use.
- Leasing, or gaining access to land by paying rent to the owner.
- Sharecropping, or gaining access to land in return for paying the owner a percentage of the production.
- Inheritance, or gaining access to land as an heir.
- Squatting illegally on land.

In addition to such individual strategies, access to land can be provided systematically through land reform interventions by national governments, often as a result of policies to correct historic injustices and to distribute land more equitably. Such land reforms usually occur in situations where much of the land is owned by a relatively small number of land owners and the land is idle or under-utilised (although it should be noted that determining whether land is under-utilised depends on the criteria selected for the assessment). In some countries, land restitution has been an important type of land reform. Other land reform interventions include land redistribution programmes which aim at providing the rural poor with access to land and promoting efficiency and investment in agriculture. These programmes are often, but not always, accompanied by provision of subsidised agricultural services such as extension and credit. In some cases, the state has provided access to idle or under-utilised public land but most often private land holdings have been the source of land for resettlement purposes.

In imposed redistributive land reforms, land is taken from large land holders by the State and transferred to landless and land-poor farmers. Compensation has been paid to the original owners in some reforms but not in others. In some cases, the reforms have benefitted the tenants who worked the land. Such reforms change the structure of land ownership by transforming tenants into owners but do not change the operational holdings. In other cases, the reforms have involved the resettlement of beneficiaries on the expropriated lands and the creation of new farming operations.
Some recent land reform initiatives have been designed so that beneficiaries negotiate with land owners to purchase land using funds provided by the State in the form of grants and/or loans. Beneficiaries are usually required to form a group which identifies suitable land, negotiates the purchase from the seller, formulates a project eligible for state grants and/or credit, and determines how the land will be allocated among the members of the group and what their corresponding payment obligations will be.

While there is broad consensus that land reform plays an important role in rural development where land concentration is high, great controversy surrounds the choice of mechanisms to transfer land from large land owners to the landless and land poor. However, this debate is well beyond the scope of this guide to address.

Traditional principles of property rights include:
1) Control and use of the property
2) Right to any benefit from the property (eg: mining rights and rent)
3) Right to transfer or sell the property
4) Right to exclude others from the property

Traditional property rights do not include:
♦ uses that unreasonably interfere with the property rights of another private party (the right of quiet enjoyment)[See instance Nuisance]
♦ uses that unreasonably interfere with public property rights, including uses that interfere with public health, safety, peace or convenience. [See Public Nuisance, Police Power]

Not every person or entity with an interest in a given piece of property may be able to exercise all possible property rights. For example, as a lessee of a particular piece of property, you may not sell the property, because a tenant is only in possession and does not have title to transfer. Similarly, while you are a lessee, the owner cannot use their right to exclude to keep you from the property, or, if they do, you may be entitled to stop paying rent or sue for access.

Further, property may be held in a number of forms, such as through joint ownership, community property, sole ownership or lease. These different types of ownership may complicate an owner’s ability to exercise property rights unilaterally. For example, if two people own a single piece of land as joint tenants then, depending on the law in the jurisdiction, each may have limited recourse for
the actions of the other. For example, one of the owners might sell their interest in the property to a stranger whom the other owner does not particularly like.

Legal systems have evolved to cover transactions and disputes that arise over the possession, use, transfer, and disposal of property, most particularly involving contracts. Positive law defines such rights, and the judiciary is used to adjudicate and to enforce property rights.

According to Adam Smith, the expectation of profit from “improving one’s stock of capital” rests on private property rights. It is an assumption central to capitalism that property rights encourage their holders to develop the property, generate wealth and efficiently allocate resources based on the operation of markets. From this has evolved the modern conception of property as a right enforced by positive law, in the expectation that this will produce more wealth and better standards of living.

In his text The Common Law, Oliver Wendell Holmes describes property as having two fundamental aspects. The first is possession, which can be defined as control over a resource based on the practical inability of another to contradict the ends of the possessor. The second is title, which is the expectation that others will recognize rights to control resource, even when it is not in possession. He elaborates the differences between these two concepts, and proposes a history of how they came to be attached to persons, as opposed to families or entities such as the church.

Classical liberals, Objectivists, and related traditions:

Most thinkers from these traditions subscribe to the labor theory of property. They hold that you own your own life, and it follows that you must own the products of that life, and that those products can be traded in free exchange with others.

“Every man has a property in his own person. This nobody has a right to, but himself.” (John Locke, Second Treatise on Civil Government)

“The reason why men enter into society is the preservation of their property.” (John Locke, Second Treatise on Civil Government)

“Life, liberty, and property do not exist because men have made laws. On the contrary, it was the fact that life, liberty, and property existed beforehand that caused men to make laws in the first place.” (Frederic Bastiat, The Law)

“Just as man can’t exist without his body, so no rights can exist without the right to translate one’s rights into reality, to think, to work and keep the results, which means: the right of property.” (Ayn Rand, Atlas Shrugged)
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♦ Socialism’s fundamental principles are centered on a critique of this concept, stating, among other things, that the cost of defending property is higher than the returns from private property ownership, and that, even when property rights encourage their holders to develop their property or generate wealth, they do so only for their own benefit, which may not coincide with benefit to other people or to society at large.

♦ Libertarian socialism generally accepts property rights, but with a short abandonment period. In other words, a person must make (more or less) continuous use of the item or else lose ownership rights. This is usually referred to as “possession property” or “usufruct.” Thus, in this usufruct system, absentee ownership is illegitimate and workers own the machines or other equipment that they work with.

♦ Communism argues that only collective ownership of the means of production through a polity (though not necessarily a state) will assure the minimization of unequal or unjust outcomes and the maximization of benefits, and that therefore private property (which in communist theory is limited to capital) should be abolished.

Both communism and some kinds of socialism have also upheld the notion that private property is inherently illegitimate. This argument centers mainly on the idea that creation of private property always benefits one class over another, giving rise to domination through the use of this private property. Communists are not opposed to personal property that is “hard-won, self-acquired, self-earned” (Communist Manifesto) by members of the proletariat.

Community-based natural resource management (CBNRM) needs to be institutionalized to be effective. While the structure of each situation will be different, involving different sets of actors and interests, there is a need for an institutional framework that builds upon the shared values of communities while providing positive incentives for individual action. Four related elements of any institutional framework include:

1) Effective community-based groups, both at the local level and scaled up to the regional level;

2) Effective operational linkages between the public sector, the private sector, and community-based groups in management of natural resources;

3) Effective approaches to conflict management with regard to use of natural resources, at all levels; and,
4) An enabling policy and institutional environment, at macro and micro levels, that fosters support of existing community-based institutions, or the emergence of new institutions, to manage natural resources locally.

Successful reform in each of these areas is also dependent on the ability to develop legitimate fora and process for addressing these issues – processes which have the highest level of political commitment, which involves all legitimate stakeholders, and which is transparent and accountable. Such institutional reform processes also needs to be supplemented by concerted efforts to build human capacity at all levels – from community-based organizations to central government agencies – both to realize the above institutional arrangements as well as administer them over time.

2.8 Land Tenure as an Effective Tool for Development

In accordance with the existing conditions, many different land tenure systems have developed throughout the world, whereby both natural conditions (climate, soil conditions, topography) as well as social factors (sociocultural values, political ideology, level of technological development, population trend, changes in the cost price relationships, etc.) played a role.

The land tenure system must be subjected to a continual process of change. This is because land tenure system should aim for development and hence must be free of stagnation. However, due to the fact that land tenure systems are institutionally established they are sometimes difficult to alter. Political power structures; cooperative ties and class, cultural, and ethnic interests and motives all work towards maintaining the established forms.

Changes in the natural growing conditions and economic factors, technological innovations, changes in the size of the population, and influences emanating from the political power structures bring about the changes in the land tenure system. As in recent times these factors have been changing more and more rapidly, the system of land tenure frequently lags behind the new situation and does not adjust to it on time. As a result of the continual changes in the factors that govern and form the land tenure system, an ideal land tenure system cannot exist. A specific land tenure system is therefore such an institutional framework that is interrelated with the natural, economic, social, and political conditions. As these change, the land tenure system has to continually adapt itself to the changing situation.

Land tenure is multi-dimensional, bringing into play social, technical, economic, institutional, legal and political aspects. Land tenure relationships may be well-
defined and enforceable in a formal court of law or through customary structures in a community. However, there may exist a lot of loopholes in legislations due to poorly defined concepts with ambiguities that are open to exploitation. These ambiguities may include:

- Overriding interests: when a sovereign power (e.g., a nation or community has the powers to allocate or reallocate land through expropriation, etc.)
- Overlapping interests: when several parties are allocated different rights to the same parcel of land (e.g., one party may have lease rights, another may have a right of way, etc.)
- Complementary interests: when different parties share the same interest in the same parcel of land (e.g., when members of a community share common rights to grazing land, etc.)
- Competing interests: when different parties contest the same interests in the same parcel (e.g., when two parties independently claim rights to exclusive use of a parcel of agricultural land. Land disputes arise from competing claims.)

**Box 2**

With the aim of exploring new development opportunities to revitalize rural communities worldwide, The International Conference on Agrarian Reform and Rural Development (ICARRD) was organized jointly by the Food and Agriculture Organization of the United Nations and the Government of Brazil in Porto Alegre from 7-10 March 2006.

Participants from more than 100 countries reviewed different experiences of agrarian reform around the world, analyzing processes, impacts, mechanisms and participation schemes, and made proposals for future action. The primary objective of the conference was to assist the poor people of rural areas of the world by increasing their access to land and other necessary resources.

The discussion in the world conference on agrarian reform and rural development 2006 was primarily based on five issues. These are as follows:

- Adoption of policies and practices for easy access to land, that can eventually promote agrarian reform.
- Development of local capacities with an intention to enhance the agricultural inputs and agricultural services, that will ultimately boost rural development.
♦ Creation of new opportunities for the rural cultivators and communities of the world.

The thematic areas of concern covered in the conference were:
1) Basic Elements of a Programme of Action
2) Access to Land, Water, and Other Resources
3) Participation of the Population
4) Integrating Women in Rural Development
5) Access to Inputs, Markets, and Services
6) Development of Non-agricultural Activities
7) Education, Training, and Extension
8) International Trade
9) Other Measures

Resolution

In world conference on agrarian reform and rural development 2006, the participating countries primarily agreed upon the following matters:

♦ Establishing a common platform of understanding for discussing agrarian reform and rural development.

♦ Provision for discussing policy matters and practices on agrarian reform and rural development to boost partnership and global cooperation among different countries of the world.

2.9 Agrarian Reforms

Land reform is concerned with rights in land, and their character, strength and distribution, while agrarian reform focuses not only on these but also a broader set of issues: the class character of the relations of production and distribution in farming and related enterprises, and how these connect to the wider class structure. It is thus concerned economic and political power and the relations between them.26

An Agrarian society is one that is based on agriculture as its prime means for support and sustenance. The society acknowledges other means of livelihood and work habits but stresses on agriculture and farming. India has traditionally been an agrarian society. Even today agriculture is the predominant occupation in India, accounting for about 52% of employment.

Agrarian reforms are the redistribution of the agricultural resources of a country. Traditionally, agrarian, or land, reform is confined to the redistribution of land; in a broader sense it includes related changes in agricultural institutions, including credit, taxation, rents, and cooperatives. Although agrarian reform can result in lower agricultural productivity, especially if it includes collectivization, it may increase productivity when land is redistributed to the tiller. Pressure for modern land reform is most powerful in the underdeveloped nations.

The concept of agrarian reform refers to changes implemented in the agricultural economy, changes designed broadly to improve agricultural performance and notably to contribute to the process of economic growth and economic development. It implies to the changes to an existing system or policies, though the interpretation of change and the precise boundaries of the agricultural sector are general and broad. Thus characterized, agrarian reform has been a continuing and important component of the Russian economic experience. Moreover, the nature of agrarian reform has been closely associated with the differing stages of Russian economic development and with the role envisioned for the agrarian economy in the process of industrialization well social life of the rural people. Problems and Remedies: Agrarian Reform in Developing Countries

The problems related to agrarian reform vary according to the social, economical and political structures of developing countries.

♦ One of the major problems of agrarian reform in developing countries is the lack of improvement in credit measures, marketing and community development. The technical experts in these fields also need to function efficiently.

♦ The research and training program is a vital part of agrarian reform. Lack of proper training and research limits the prosperity of agrarian reform in developing countries. Developing regional training and research institutes can be the best solution for this specific problem. The existing training and research institutes can take the assistance from FAO (Food and Agriculture Organization) of the United Nations.
♦ One of the major problems taking place in developing countries is the lack of proper implementation of agrarian policies. Despite having a common objective to provide enough incentives to the cultivators with modern facilities and technologies, these policies differ according to the physical, historical, climatic and cultural conditions of a country. A proper implementation of agrarian policies can enhance the social and economic life of rural people. An universally accepted policy can facilitate land reform in developing countries. The techniques and procedures should be suitably implemented while adopting land acquisition and redistribution of a particular area.

Sometimes due to lack of sufficient marketing and credit facilities, agrarian reform fails to prosper. Development of co-operatives can be treated as one of the effective solutions of this specific problem.

The problems of industrialised countries have impeded the proper implementation of agrarian reforms. The problems are discussed in detail in the following sections.

Agrarian Reform: Problems and Present Scenario in Industrial Countries

Agrarian structural variances exist in many industrial countries of the world that limit the growth of agrarian system as well as the socioeconomic development of those countries. The major problems of the industrial countries relating to the implementation of agrarian reform are as follows:

♦ Negligence: The significance of agrarian reforms in industrial countries is less than other developing countries of the world. This is because of the fact that in industrial countries, industries get more importance than other sectors. Industrial countries have enough necessary technologies, instruments and institutions to implement agrarian reforms. Despite having these advantages of implementing agrarian reform step by step, industrial countries neglect this idea of initiating agrarian reform primarily because of political pressures.

♦ Mechanization: Rapid growth of mechanization impede the growth of agrarian reforms in industrial countries.

♦ Inter-dependence: With the introduction of new technologies, industrial countries started to use fertilizers, pesticides and high quality seeds. All these farm inputs are the products of industries. The agricultural sector required to purchase these firm inputs from industrial sectors and eventually promoted interdependence. Interdependence restricted the agrarian system to reform independently.
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♦ Urbanization also impeded the growth of agrarian reform in industrial countries.

In most of the industrial countries, industrialization started to develop much before the implementation of agrarian system. This was because at the beginning of industrialization, the population density was poor leading to low dependance on the agricultural sector for food or other items.

Common properties are resources, which are accessible to the whole community or village to which no individual has exclusive ownership or properties right. The common properties resources very much subjected to individual use but no individual can own position over this rather it is used by a number of stake holders who has independent right to use.

The significant of common properties resources lies in their capacity to meet the basic needs of the villagers. If utilized properly, the common properties resources could generate substantial income for the villagers. But the main hurdle in this is the absence of ownership feeling among the villager. Every one’s property becomes no one’s property and to break this feeling the ownership of the common property should be handed over to a people’s institution which have social acceptance and legal reorganization. The success of common property management through people’s institution is reflected through Haldikundi village committee.

Land rights and related resource rights are of fundamental importance to the world’s indigenous people for a range of reasons, including: the religious significance of the land, self-determination, identity and economics.

2.10 Access/Tenure Regimes governing Forest Areas, Protected Areas and Sanctuaries

A common-pool resource (CPR), also called a common property resource, is a type of good consisting of a natural or human-made resource system (e.g. an irrigation system or fishing grounds), whose size or characteristics makes it costly, but not impossible, to exclude potential beneficiaries from obtaining benefits from its use. Unlike pure public goods, common pool resources face problems of congestion or overuse, because they are subtractable. A common-pool resource typically consists of a core resource (e.g. water or fish), which defines the stock variable, while providing a limited quantity of extractable fringe units, which defines the flow variable. While the core resource is to be protected or entertained in order to allow for its continuous exploitation, the fringe units can be harvested or consumed.
A common property regime is a particular social arrangement regulating the preservation, maintenance, and consumption of a common-pool resource. The use of the term “common property resource” to designate a type of good has been criticized, because common-pool resources are not necessarily governed by common property regimes. Examples of common-pool resources include irrigation systems, fishing grounds, pastures, forests, water and the atmosphere. A pasture, for instance, allows for a certain amount of grazing to occur each year without the core resource being harmed. In the case of excessive grazing, however, the pasture may become more prone to erosion and eventually yield less benefit to its users. Because their core resources are vulnerable, common-pool resources are generally subject to the problems of congestion, overuse, pollution, and potential destruction unless harvesting or use limits are devised and enforced.

The use of many common-pool resources, if managed carefully, can be extended because the resource system forms a positive feedback loop, where the stock variable continually regenerates the fringe variable as long as the stock variable is not compromised, providing an optimum amount of consumption. However, wanton consumption leads to deterioration of the stock variable, thus disrupting the flow variable for good.

Common-pool resources may be owned by national, regional or local governments as public goods, by communal groups as common property resources, or by private individuals or corporations as private goods. When they are owned by no one, they are used as open access resources.

2.11 Conclusion

Tenure is the act, right, manner or term of holding something. In terms of property it refers to the way in which a property is owned. It is not just ownership but a collection of rights and responsibilities to a range of renewable and non-renewable resources. Tenure systems pertaining to a property may range from a farmland, forest, grazing land, river, wildlife, fishery, or any other resource. Each resource has a particular physical quality and a technical constraint on its use.

Land Tenure

Land Tenure is a political, economic social and legal institutional structure that determines:

♦ How individuals and groups secure access to land and associated manage land resources. The resources include trees, minerals, pasture, and water.
Who can hold and use these resources, for how long and under what conditions. Land tenure may also have both spatial and temporal dimensions and are typically defined through statutory or customary law. Normally, the sovereign holds the land in its own right. All private owners are either its tenants or sub-tenants, but their rights are as good as ownership rights. This system is prevalent in India as well. The term “tenure” is used to signify the relationship between tenant and lord, not the relationship between tenant and land.

Land policy

Land Policy is the tool employed to outline a set of goals and measures for meeting objectives related to land: tenure, use, management, property rights and administration, and administrative structures. Land policy is formulated keeping in mind the development goals. It is linked to various other policies such as agriculture policy, housing policy, urban policy, rural policy, forest policy, etc. It concerns itself with sustainable and optimum use of resources.

Land management

Land Management is the process of managing the use and development of land resources in a sustainable way, in urban, suburban, rural as well as other lands. Land resources are used for a variety of purposes which interact and may compete with one another; therefore, it is desirable to plan and manage all uses in an integrated manner.
Environmental Impact Assessment (EIA) is the process by which the anticipated effects on the environment of a proposed development or project are measured. If the likely effects are unacceptable, design measures or other relevant mitigation measures can be taken to reduce or avoid those effects. EIA is used to identify and assess the environmental and social impacts of any proposed major activity (project, plan, programme or policy)\(^1\) prior to its implementation. It aims to predict environmental impacts at an early stage in project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision-makers. The document from this process is called an Environmental Impact Statement (EIS).

As we begin the introduction of EIA it is important to understand how do we define and perceive the word environment. Essentially the word environment is meant to include the following.

\(^1\) For the sake of brevity, hereafter, the term ‘project’ will be used in place of ‘any major activity’. The term must be deemed to include ‘any project, plan, program or policy’.
Introduction of Environmental Impact Assessment (EIA)

- Land, water and air, including all layers of the atmosphere
- All organic and inorganic matter and living organisms
- The interacting natural systems that include these components
- The social economic and cultural conditions that influence the lives of people and communities.

An impact on environment is any change in the biophysical and social environment caused by or directly related to a former, on-going or proposed activity. The biophysical component addresses all living organisms and the natural physical environment that sustains them which shall include terrestrial, aquatic and atmospheric elements. The social component deals with human health, safety and their general well being.

EIA is anticipatory, participatory, and systematic in nature and relies on multidisciplinary input. It is a means to assessing the present state of health of ecosystem where project would be executed and to work out the possible impact it could bring in course of the time. By using EIA both environmental and economic benefits can be achieved, such as reduced cost and time of project implementation and design, avoided treatment/clean-up costs and impacts of laws and regulations.

The phrase EIA from Sec. 102 (2) of the National Environmental Policy Act (NEPA), 1969, USA. In many European countries, it came into vogue with the introduction of the concept of sustainable development after the World Commission of Environment in 1987. EIA has now become a requirement in many countries. In India, EIA came into existence around 1978-79; though, it was made mandatory only in 1994.

EIA has two roles, namely, legal & educational. The legal role of EIA ensures that development projects such as a housing estate, a road/bridge or some such construction project has a minimal impact on the environment in its entire ‘lifecycle’, i.e. during design, construction, use, maintenance, and demolition. Many countries now have laws stipulating that unless an EIA study is carried out (particularly for large infrastructure projects); permission for construction will not be granted by the local authority. The educational role of EIA is equally important. EIA facilitates in educating everyone involved - professionals and users included, of the potential environmental impacts of a project.

Various guidelines are available on EIA. The main steps are as follows:

- Preliminary activities include the selection of a coordinator for the EIA and the collection of background information. This should be undertaken as soon as a project has been identified.
Impact identification involves a broad analysis of the impacts of project activities with a view to identifying those which are worthy of a detailed study.

Baseline study entails the collection of detailed information and data on the condition of the project area prior to the project’s implementation.

Impact evaluation should be done whenever possible in quantitative terms and should include the working-out of potential mitigation measures. Impact evaluation cannot proceed until project alternative has been defined, but should be completed early enough to permit decisions to be made in a timely fashion.

Assessment involves combining environmental losses and gains with economic costs and benefits to procedure a complete account to each project alternative. Cost-benefit analysis should include environmental impacts where these can be evaluated in monetary terms.

Documentation is prepared to describe the work done in the EIA. A working document is prepared to provide clearly stated and argued recommendations for immediate action. The working document should contain a list of project alternative with comments on the environmental and economic impacts of each.

Decision-making begins when the working document reaches the decision maker, who will either accept one of the project alternatives, request further study or reject the proposed action altogether.

Post audits are made to determine how close to reality the EIA predictions were.

### 3.2 Need of EIA

Every anthropogenic activity has some impact on the environment. More often it is harmful to the environment than benign. However, mankind as it is developed today cannot live without taking up these activities for his food, security and other needs. Consequently, there is a need to harmonise developmental activities with the environmental concerns. EIA is one of the tools available with the planners to achieve the above-mentioned goal.

It is desirable to ensure that the development options under consideration are sustainable. In doing so, environmental consequences must be characterised early in the project cycle and accounted for in the project design.

The objective of EIA is to foresee the potential environmental problems that would arise out of a proposed development and address them in the project’s planning
introduction of environmental impact assessment (EIA)

and design stage. The EIA process should then allow for the communication of this information to:

a) The project proponent;
b) The regulatory agencies; and,
c) All stakeholders and interest groups.

EIA integrates the environmental concerns in the developmental activities right at the time of initiating for preparing the feasibility report. In doing so, it can enable the integration of environmental concerns and mitigation measures in project development. EIA can often prevent future liabilities or expensive alterations in project design.

EIA is integral part of environmental planning and management. It starts from the planning stage of the project and is carried on throughout its implementation, operation and final closure. For example, establishment of an industry requires proper choice of location and technology at the planning stage to keep the environmental damage well within the acceptable limit like minimum deforestation, displacement of people and pollution. Similarly care has to be taken to abate any environmental damages like air and noise pollution, insanitation and social problems due to migrant labor during the construction phase. When the factory operates all steps are required to be taken for prevention and control of air, water and soil pollution by technology control and installation of appropriate effluent or emission treatment plant. Finally the unavoidable solid waste generated from the industry (e.g. mine over burden & fly ash) has to be disposed of in an environmentally benign manner like properly rehabilitating the disposal site. Similar land rehabilitation is required when the industry is finally closed and dismantled after completion of its useful life (e.g. mine closure).

Any development project is taken up with the aim of providing net economic and social benefits to the people. Economic benefits like increased production of goods and services, increased per capita income, foreign exchange earnings etc., are tangible ones. There are also some negative socio-economic costs of the project at least on some section of population, like loss of livelihood of the project effected people and increased disparity of incomes which are not easily noticed and not taken into consideration in the decision making process. Simultaneously the project can have both beneficial and adverse environmental impacts. The negative impact includes- pollution, deforestation, soil erosion etc. The losses incurred on the account of the adverse environmental and social impacts are intangible ones. A project
should be decided on the basis of cost benefit analysis, taking into consideration both tangible and intangible losses and gains.

A few decades ago, environmental impacts were not taken into consideration into deciding upon a project; only the techno-economic feasibility was considered relevant. Today it is felt that the techno economic feasibility should be integrated with the environmental compatibility to make the developmental project sustainable. An EIA serves the purpose of the above notion. EIA is a part of the decision making process. It must be therefore, carried out before the final decision is taken about any project. Hence it can not be considered as a post decision activity. If it is considered merely as only a regulatory requirement by the project proponents, such an attitude most defiantly defeats the very purpose of EIA.

Economic, social and environmental change is inherent to development. While development aims to bring about positive change it can lead to conflicts. In the past, the promotion of economic growth as the motor for increased well being was the main development thrust with little sensitivity to adverse social or environmental impacts. The need to avoid adverse impacts and to ensure long term benefits led to the concept of sustainability. This has become accepted as an essential feature of development if the aim of increased well-being and greater equity in fulfilling basic needs is to be met for this and future generations.

In order to predict environmental impacts of any development activity and to provide an opportunity to mitigate against negative impacts and enhance positive impacts, the environmental impact assessment (EIA) procedure was developed in the 1970s. An EIA may be defined as:

a formal process to predict the environmental consequences of human development activities and to plan appropriate measures to eliminate or reduce adverse effects and to augment positive effects.

EIA based on the definition above has three main roles:

\(\alpha\) to predict problems,
\(\beta\) to find ways to avoid them, and
\(\chi\) to enhance positive effects.

The third function is of particular importance. The EIA provides a unique opportunity to demonstrate ways in which the environment may be improved as part of the development process. The EIA also predicts the conflicts and constraints between the proposed project, program or sector plan and its environment. It
provides an opportunity for mitigation measures to be incorporated to minimize problems. It enables monitoring programs to be established to assess future impacts and provide data on which managers can take informed decisions to avoid environmental damage.

EIA is a management tool for planners and decision-makers and complements other project studies on engineering and economics. Environmental assessment is now accepted as an essential part of development planning and management. It should become as familiar and important as economic analysis in project evaluation.

The aim of any EIA should be to facilitate sustainable development. Beneficial environmental effects are maximized while adverse effects are ameliorated or avoided to the greatest extent possible. EIA will help select and design projects, programmes or plans with long term viability and therefore improve cost effectiveness.

It is important that an EIA is not just considered as part of the approval process. Volumes of reports produced for such a purpose, which are neither read nor acted upon, will devalue the process. A key output of the EIA should be an action plan to be followed during implementation and after implementation during the monitoring phase. To enable the action plan to be effective the EIA may also recommend changes to laws and institutional structures.

### 3.3 Definition of EIA

Environmental Impact Assessment (EIA) is a policy and management tool for both planning and decision making. EIA assists to identify predict and evaluate the foreseeable environmental consequences of proposed development projects, plans and policies. The outcome of an EIA study assists the decision-maker and the general public to determine whether a project should be implemented and in what form. EIA does not make decisions, but it is essential for those who do.

Environmental Impact Assessment (EIA) refers to understanding of the present status of the environmental impacts and a study of how to manage the same. It is often an opinion that an EIA should customarily examine or look into only the possible negative consequences of the developmental project on the environment. Any positive issues emerging from the development are taken as stated by the project proponent or the developer. The EIA is however not stricted or biased to the examination and mitigation of negative impacts alone. The EIA can also look into the possible positive issues due to the developmental projects and explore or suggest ways of enhancing them further by carrying out modifications in the project.
There are many definitions of EIA. The following are the sample of some of these definitions which indicate the nature of the process, including:

- “an assessment of impacts of a planned activity on the environment” (United Nations)
- “EIA is the systematic process of identifying the future consequences of a current or proposed action” (IAIA)

Examples of different definitions of EIA:

- “an assessment of impacts of a planned activity on the environment” (United Nations)
- “the process by which information about the environmental effects of a proposed activity is collected, analyzed and presented to decision-makers” (Institute of Chemical Engineering, UK, 1994)
- “a technique and a process by which information about environmental effects of a project is collected, both by the developer and from other sources, and taken into account by the planning authority in forming the judgment on whether the development should proceed” (Department of Environment, UK, 1989)
- “EIA is the systematic, reproducible and interdisciplinary evaluation of the potential effects of a proposed action and its practical alternatives on the physical, biological, cultural and socio-economic attributes of a particular geographical area” (USEPA, 1993)
- “a procedure for assessing the potential environmental impacts of a project before it is built, so that these impacts can be properly considered during the decision-making process and so that mitigative measures for detrimental impacts can be defined” (Sadar et al., 1994)
- “a tool to use in integrated planning of development proposals, policies and programs: (Sadar et al., 1994)
- “an activity which identifies, predicts, interprets and communicates information, and proposes ameliorative measures, about impacts of a proposed action or development proposal on human health and the well-being of the ecosystem upon which human survival depends” (Sadar et al., 1994)
- “EIA is the systematic process of identifying the future consequences of a current or proposed action” (IAIA).

From all the above definitions a more holistic definition can be drawn which is:
A technical exercise conducted to evaluate the environmental implications of projects, policies and programs and the operational procedures and for the communication of the results of such an exercise at a stage when it can materially affect the decision of those responsible for sanctioning of proposals.

3.4 History of EIA

Following the Stockholm conference in 1972 there was a general move globally towards policy making in the developed economies. In 1970's environmental legislation was introduced in many countries. The most landmark environmental legislation was the National Environmental policy Act (1969) enacted by USA which took its lead from the famous book the silent springs by Rachel Carson published in 1962 regarding the use of pesticides. NEPA is being considered as a milestone and watershed in the environmental legislation for the reason that it cuts across cross sectoral issues and made EIA known to the rest of the world.

Following that many countries in the world started implementing the Environmental legislation and project level EIA. In the India the first comprehensive Act of environment was put in place only in year 1986 after we were hit by Bhopal Gas tragedy that took thousands of human life. The figure 1 below shows the world cover of EIA legislation.

![World cover of project level EIA legislation](image)

*Figure 3.1. World cover of project level EIA legislation*
An EIA is primarily an early warning system. The very purpose of conducting EIA is to ensure that important and significant environmental ecological and social problems are foreseen and appropriate measures are taken at an early stage in the project's planning and design. To achieve this, the assessment should provide information on the environmental, social and economic benefits of proposed activities which should then be presented clearly and systematically to decision makers. After reading an EIA report the project proponents, project designers can bring in desired changes in the project planning and design process without causing inadvertent environmental impacts and at the same time bringing in positive impacts on environment and society. An EIA process can greatly influence the size of the project, the site and technology to be employed.

So the EIA must help the project proponent in identifying the courses sources of impacts from the project activities and recognizes the environmental components which are critical to the change or the impacts.

It must help the concerned stakeholders to predict the likely environmental impacts of projects on the identified environmental components either using quantitative or qualitative or semi-quantitative or methods.

It must also help the concerned stakeholders to finds measures to minimize the severe impacts and at the same time create more and more positive contribution of the project by brining in changes in design, capacity, technology or simply looking at alternative sites.

The EIA must present the important findings in terms of impact identification, prediction and mitigation plans and measures to the decision makers and other stake holders.

Despite differences in individual EIA systems throughout the world, the EIA process shares certain common aims:

♦ to provide decision-makers with analysis of the total environment so that decisions can be made based on as nearly complete and balanced information as possible;

♦ to assess and present intangible/unquantifiable effects that are not adequately addressed by cost/benefit analysis and other technical reports;

♦ to provide information to the public on a proposal;

♦ to formalize the consideration of alternatives to a proposal being considered, in order that the least environmentally harmful means of achieving the given objective can be chosen;
to improve the design of new developments and safeguard the environment through the application of mitigation and avoidance measures

**Reasons for Using EIA** - EIA has been developed as a result of the failure of traditional project appraisal techniques to account for environmental impacts. Many development projects in the past were designed and constructed in isolation from any consideration of their impacts on the environment, resulting in:

- higher costs,
- failure of projects,
- significant environmental change, and
- negative social effects

### 3.5 Misconceptions about EIA and Counter Arguments

The introduction of EIA has encountered resistance on the part of many planners and engineers, who have seen it as an unneeded change to traditional practices, in spite of its intended role in improving the project planning process. EIA has been severely criticized in some parts of the developing world as being inappropriate for application there. Some of these criticisms include:

**a) “EIA is too expensive”**

This is not true. Costs of EIA are commonly around 1%, sometimes up to 5% in complex cases of project costs, often within normal variability of project costs. In contrast, EIA often results in cost saving through reduced changes to the project at later stages, or through identification of easier and more efficient ways to meet project goals. EIA should be carried out efficiently, just like any other part of the planning process.

**b) “EIA is just an add-on and occurs too late to do any good”**

EIA certainly has less value if done too late in the project cycle; it must be done early enough so that results can be incorporated into the detailed design. If EIA is done too late, costs for redesign of the project can be high, or the EIA is ignored.

**c) “EIA delays projects”**

If properly phased, EIA should no more delay projects than any part of the planning process. It should be done in parallel with other activities.
d) **“EIA is too complex”**

This is not true. EIA is a simple process. Sometimes, however, the potential impacts can be complex and therefore difficult to quantify. The degree to which you must investigate these questions as part of the planning process must be relative to the overall significance of the impacts.

e) **“EIA doesn’t produce useful results”**

Often this has been true. This can be due to lack of a practical focus, and/or poor training of practitioners. When carried out properly, EIA is a valuable part of project planning.

f) **“EIA will be misused to stop development”**

There have been cases where EIA has been misused to stop development. However, this does not invalidate the use of EIA; it indicates a problem with how it is being coordinated. A properly carried out EIA process is much more likely to generate support for development.

g) **“We’re too poor to afford EIA”**

This is never true. No country is “too poor” to do its planning properly. Bad planning means failing projects, and these are often projects paid for by the country through development loans. Bad planning means lack of sustainability. Bad planning means extra costs to society. Poor countries can’t afford such costs. May be wealthy, developed countries can arguably afford to waste and destroy resources, but poor ones definitely can’t. EIA is therefore even more important for developing countries than for developed ones.

**EIA Core Values**

♦ **Sustainability**

The important thing that one needs to keep in mind is that the EIA must lead to sustainable development. The options generated in any EIA in form of mitigation strategies must be sustainable in nature.

♦ **Integrity**

Integrity means the integrity of the EIA report in terms of the finding and validity of data that has been collected. It is of paramount significance that the information is collected from the site where project is being developed and appropriate field studies are conducted to generate the environmental, ecological and social baselines.
**Utility**

The entire exercise of EIA must have the practical utility in the sense that it can be effectively used by the decision makers.

Basic Principles of EIA should be:

*Purpose* - the process should inform decision making and result in appropriate levels of environmental protection and community well-being. EIA's conducted without well defined purposes usually lead to poor and ill informed decision making.

*Rigorous* - the process should apply “best practicable” science, employing methodologies and techniques appropriate to address the problems being investigated. If improper methodologies are being used it will result in faulty data which will be of no use as mitigation planning will not be possible with the improper data.

*Practical* - the process should result in information and outputs which assist with problem solving and are acceptable to and able to be implemented by proponents. The alternatives suggested as a part of environment management plan and mitigation plans must be doable and achievable by the proponent and the progress of the same should also be measurable.

*Relevant* - the process should provide sufficient, reliable and usable information for development planning and decision making.

*Cost—effective* - the process should achieve the objectives of EIA within the limits of available information, time, resources and methodology.

*Efficient* - the process should impose the minimum cost burdens in terms of time and finance on proponents and participants consistent with meeting accepted requirements and objectives of EIA.

*Focused* - the process should concentrate on significant environmental effects and key issues; i.e., the matters that need to be taken into account in making decisions.

*Adaptive* - the process should be adjusted to the realities, issues and circumstances of the proposals under review without compromising the integrity of the process, and be iterative, incorporating lessons learned throughout the proposal’s life cycle.

*Participative* - the process should provide appropriate opportunities to inform and involve the interested and affected publics, and their inputs and concerns should be addressed explicitly in the documentation and decision making.
Interdisciplinary - the process should ensure that the appropriate techniques and experts in the relevant bio-physical and socio-economic disciplines are employed, including use of traditional knowledge as relevant.

Credible - the process should be carried out with professionalism, rigor, fairness, objectivity, impartiality and balance, and be subject to independent checks and verification.

Integrated - the process should address the interrelationships of social, economic and biophysical aspects.

Transparent - the process should have clear, easily understood requirements for EIA content; ensure public access to information; identify the factors that are to be taken into account in decision making; and acknowledge limitations and difficulties.

Systematic - the process should result in full consideration of all relevant information on the affected environment, of proposed alternatives and their impacts, and of the measures necessary to monitor and investigate residual effects.

There are eight guiding principles that govern the entire process of EIA and they are as follows:

♦ **Participation:** An appropriate and timely access to the process for all interested parties.

♦ **Transparency:** All assessment decisions and their basis should be open and accessible.

♦ **Certainty:** The process and timing of the assessment should be agreed in advanced and followed by all participants.

♦ **Accountability:** The decision-makers are responsible to all parties for their action and decisions under the assessment process.

♦ **Credibility:** Assessment is undertaken with professionalism and objectivity.

♦ **Cost-effectiveness:** The assessment process and its outcomes will ensure environmental protection at the least cost to the society.

♦ **Flexibility:** The assessment process should be able to adapt to deal efficiently with any proposal and decision making situation.

♦ **Practicality:** The information and outputs provided by the assessment process are readily usable in decision making and planning.
3.6 EIA Benefits and Flaws

EIA is considered as a project management tool for collecting and analyzing information on the environmental effects of a project. As such, it is used to:

♦ identify potential environmental impacts,
♦ examine the significance of environmental implications,
♦ assess whether impacts can be mitigated,
♦ recommend preventive and corrective mitigating measures,
♦ inform decision makers and concerned parties about the environmental implications, and
♦ advise whether development should go ahead.

EIA generates huge benefits in selection of project location, process, design, development actions, and decision-making, however, in the current practice of EIA there are a number of flaws, shortcomings and deficiencies. The table 1 below, summarizes apparent benefits and flaws of the EIA.

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<tr>
<th>Benefits</th>
<th>Flaws</th>
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<tr>
<td>Provides systematic methods of impact assessment</td>
<td>Time-consuming</td>
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<tr>
<td>Estimates the cost/benefit trade-off of alternative actions</td>
<td>Costly</td>
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<td>Facilitates the public participation</td>
<td>Little public participation in actual implementation</td>
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<tr>
<td>Provides an effective mechanism for ♦ coordination ♦ environmental integration ♦ negotiations ♦ feed back</td>
<td>Unavailability for reliable data (mostly in developing countries)</td>
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<td>Top-level decision making</td>
<td>Too focused on scientific analysis (sometimes)</td>
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<tr>
<td>Triggers an institutional building</td>
<td>Poor presentation of EIA report (bulky volumes, scientific explanation, difficult to understand)</td>
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<tr>
<td>Achieve a balance between the impact of developmental and environmental concern</td>
<td>Compliance monitoring after EIA is seldom carried out</td>
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Who is responsible for conducting EIA?

EIAs are generally the primary responsibility of the project proponent and are prepared with the help of external consultants or institutions i.e., the EIA practitioners. The institutions can be educational and research institution having prerequisite capability to conduct EIA with the help of inter-disciplinary experts. In certain specific cases, an independent commission is responsible for ensuring quality control throughout the implementation of the impact assessment, for setting appropriate terms of reference and/or for the external review as decided by the government. The EIA study should be carried out by a multidisciplinary team comprising of experts from all streams of specialization relevant to the concerned EIA and Terms of reference. This may constitute civil engineers, water supply and sanitation engineers, planners, chemists, life scientists (Botanist, Zoologist, Wildlife experts, Geologist to name a few) and socio-economists and health practitioners.

The agency responsible for receiving the impact assessment report and taking any subsequent action i.e., the government, will decide how the study is to be carried out and how the results should be used in the decision-making process. The institutional structures and agencies responsible for the management and implementation of EIA vary amongst different countries, reflecting different political, economic and social priorities. Mostly, they include local government agencies, NGOs, research institutions and affected groups feeding into a specialist environmental unit within the implementing agency.

Apart from all these agencies, the general public is also involved in the process of EIA. Ideally public opinion should be obtained through public hearings as provisioned in the EIA laws for the purpose of discussing the impacts of the project and as project is perceived by the local people. Public participation, as a component of EIA, is mandatorily practiced in only a few countries. In India there is a well defined norm for the conduct of public hearing for almost all categories of the project. Public hearing in India has been in practice since 1997 after the first public hearing notification was issued by the Government of India.

When should the EIA be conducted?

The EIA needs to be carried out in way so that it provides clear information to those responsible for decision making at every stage of the project planning. It is of paramount significance to plan the EIA so that it covers all the important elements that would be affected by seasonality. For example if the impact of a pollutant has to be studied in a given area, it is important to know the wind condition in terms of wind direction and wind velocity. It is also important to know which the windward
and leeward areas are and how across various seasons the impact can vary. So if the EIA is conducted only in one season it will probably give a biased picture of Impacts. EIA can be done in some sequence i.e., it may be conducted after the engineering / economic planning stage in the project cycle. Thus the EIA report would provide the required mitigation measures in order to implement the project in an environmentally responsible manner. The other way could be to parallel conduct environmental planning (which includes the EIA study) and engineering / economic planning to emerge with a suitable project design and alternative together with required mitigation measures. The goal however, is to integrate the environmental aspects in the project cycle considering EIA as a management tool. Such an integration of EIA into the Project planning Cycle would help maximize its effectiveness and minimize delays in implementation of project.

The major benefit of using EIA in project planning is to prevent avoidable losses of environmental resources and time. A well prepared EIA incorporated into planning and design can save the developer and regulatory agency, valuable time and expense. If the EIA is performed early enough to be considered during the decision-making phase, then delays in construction and operation owing to government regulatory procedures can be minimized. Improper planning or design that will lead to unacceptable levels of environmental deterioration may require costly rectification, remediation or replacement.

Operating Principles of EIA - There are certain operating principles on which the EIA is based and to get a comprehensive picture of impacts it is important that EIA is conducted in accordance with these principles.

EIA should be applied:

♦ to all proposals likely to cause potentially significant adverse impacts or add to actual or potentially foreseeable cumulative effects;

♦ so that the scope of review is consistent with the size of the proposal and commensurate with the likely issues and impacts;

♦ to provide timely and appropriate opportunities for public and stakeholder involvement, with particular attention given to indigenous peoples and other vulnerable minorities whose cultural traditions and way of life may be at risk; and

♦ in accordance with the legislation, procedure and guidance in force and with reference to international standards of EIA good practice.
EIA should be undertaken:

♦ throughout the project cycle, beginning as early as possible in the pre-feasibility stage;
♦ with explicit reference to the requirements for decision-making and project approval and authorization consistent with the application of ‘best practicable’ science and mitigation techniques;
♦ in accordance with proposal-specific terms of reference, which should include clearly defined tasks, responsibilities, requirements for information and agreed timelines for their completion; and
♦ to gain the inputs and views of all those affected by or interested in the proposal and/or its environmental impacts.

EIA should address, as necessary and appropriate:

♦ all relevant environmental impacts, including land use, social, cultural, economic, health and safety effects;
♦ cumulative effects and area-wide, ecosystem-level and global changes that may occur as a result of the interaction of the proposal with other past, current or foreseeable activities;
♦ alternatives to the proposal, including design, location, demand and activity alternatives;
♦ mitigation measures for each of the main impacts identified; and
♦ sustainability considerations, including the effects of depletion of non-renewable resources, of exceeding the regenerative and assimilative capacity of renewable resources and of reduction of biological diversity, taking account of relevant international agreements and commitments.

EIA should result in:

♦ Systematic identification of the views and inputs of those consulted, including the balance of opinion on major issues and areas of agreement and disagreement;
♦ Comparison of the impacts of the main alternatives considered with an environmental justification for the preferred option;
♦ Best estimate prediction and evaluation of the potentially significant residual effects that cannot be mitigated;
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♦ Feasible, cost-effective measures to mitigate the main impacts identified (often called an environmental management plan);
♦ Preparation of an EIA report that presents this information in form that is clear, understandable and relevant for decision-making, noting any important qualifications for the predictions made and mitigation measures proposed; and
♦ Resolution of problems and conflicts during the EIA process to the extent this is possible.

EIA should provide the basis for:

♦ Informed decision-making and project approvals, in which the terms and conditions are clearly specified and implemented;
♦ Design of environmentally sound and acceptable projects that meet health and environmental standards and resource management objectives;
♦ Appropriate follow-up, including monitoring, management and auditing, to check for unforeseen impacts or mitigation measures that do not work as intended; and
♦ Future improvements in EIA process and practice, drawing on the information from follow up activities.

What is environmental impact?

After discussing the fundamentals of EIA and it is presumed that you had through understanding of the issues let us now try and define what the environmental impacts are. This will help you in developing a robust understanding of impacts and how they should be classified as EIA is being conducted.

An impact or effect can be described as the change in an environmental parameter, which results from a particular activity or intervention. The change is the difference between the environmental parameter with the project compared to that without the project. It is predicted or measured over a specified period and within a defined area.

The characteristics of environmental impacts vary. Typical parameters to be taken into account in impact prediction and decision-making include:

♦ Nature (positive, negative, direct, indirect, cumulative);
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<th>Nature of impact</th>
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<td>The most obvious impacts are those that are directly related to the proposal, and can be connected (in space and time) to the action that caused them. Typical examples of direct impacts are: loss of wetlands caused by agricultural drainage; destruction of habitat caused by forest clearance; relocation of households caused by reservoir impoundment; increased air particulate emissions caused by operation of a new power station, etc. Indirect or secondary impacts are changes that are usually less obvious, occurring later in time or further away from the impact source. Examples of these types of impacts are: the spread of malaria as a result of drainage schemes that increase standing water and thereby create new vector habitat; bio-accumulation and bio-magnification of contaminants in the food chain through take up of agricultural pesticides; and anxiety, stress and community disruption associated with increased traffic volumes and noise caused by road development.</td>
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Cumulative effects, typically, result from the incremental impact of an action when combined with impacts from projects and actions that have been undertaken recently or will be carried out in the near or foreseeable future. These impacts may be individually minor but collectively significant because of their spatial concentration or frequency in time. Cumulative effects can accumulate either incrementally (or additively) or interactively (synergistically), such that the overall effect is larger than the sum of the parts.

Magnitude of impact

Estimating the magnitude of the impact is of primary importance. Typically, it is expressed in terms of relative severity, such as major, moderate or low. Severity, as opposed to size, also takes account of other aspects of impact magnitude, notably whether or not an impact is reversible and the likely rate of recovery.
### Extent/location of impact

The spatial extent or zone of impact influence can be predicted for site-specific versus regional occurrences. Depending on the type of impact, the variation in magnitude will need to be estimated; for example, alterations to range or pattern of species or dispersion of air and water pollution plumes. This is much easier for direct impacts but can be attempted for other types of impacts.

### Timing of impact

Impacts arising from all of the stages of the life cycle of the project should be considered (i.e. during construction, operation and decommissioning). Some impacts will occur immediately, while others may be delayed, sometimes by many years. These impact characteristics should be noted in the EIA report.

### Duration of impact

Some impacts may be short-term, such as the noise arising from the operation of equipment during construction. Others may be long-term, such as the inundation of land during the building of a reservoir. Certain impacts such as blasting may be intermittent, whereas others, such as electromagnetic fields caused by power lines, may be continuous. Impact magnitude and duration classifications can be cross-referenced; for example, major but short term (less than one year), low but persistent (more than 20 years).

### Significance of Impact

The evaluation of significance at this stage of EIA will depend on the characteristics of the predicted impact and its potential importance for decision-making. Significance is usually attributed in terms of an existing standard or criteria of permissible change, for example as specified in a standard, policy objective or plan.

### 3.7 Conclusion

Let us sum up by re-examining the key features of EIA:

- **Screening**

  Screening is done to decide whether an EIA is required for the proposed project or not.
♦ Scoping
Scoping helps to identify key issues and concerns of interested parties. It helps in identifying all the areas of ecological, environmental, health and social concerns that will probably get impacted by the project.

♦ Identifying and evaluating impacts
This process helps in quantifying various impacts and also explores alternatives. In this section as described earlier the impacts must be identifies in terms of which particular component of environment or ecosystem is impacted and how it is impacted. If water is getting polluted then which contaminants and how far the impact is going to travel and how long the impact is going to last and which are the receptor populations (including humans and other living organisms – animals and plant). It will be important to assess what part of the life cycle is impacted.

♦ Mitigation
This is one of the most important part of EIA. It helps in developing and reviewing proposed action to prevent or minimize the potential adverse effects of the project;

♦ Issuing environmental statements
EIA reports must include an Environmental management plan (EMP) or Action Plan to Monitor the implementation phase of the project, plan, or program and provide for corrective actions—such action plans must have assured funding and be legally enforceable.

So in the end we conclude with the following points:

♦ A good EIA can
  1) Modify and improve design of the project
  2) Ensure efficient resource use for a given project
  3) Enhance social aspects and thereby provide more benefits to the local people
  4) Identify measures for monitoring and managing environmental impacts
  5) Informed decision making by proving meaningful information.
  6) Provide justification for a proposal of the project.
Benefits of an EIA

1) More environmentally sustainable design.
2) Better compliance with standards.
3) Savings in capital and operation costs.
4) Reduced time and costs for approval.
5) Avoids later plant adaptations.
6) Reduced health costs.
7) Increased project acceptance.

Delays are caused during EIA for the following reason

1) EIA is commenced too late.
2) TOR is poorly drafted.
3) EIA not managed to schedule.
4) EIA report not adequate.
5) Lack of technical data.
4

EIA-Infrastructure Projects and Environment

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4.4 Grant or Rejection of Prior Environmental Clearance  
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4.1 The EIA Process

The EIA process is an iterative one containing many feedback loops to allow the development proposal to be continually refined. So whilst the process of EIA follows a number of commonly accepted steps, it does not observe a linear pattern. In India the EIA processes is governed by the EIA notification 2006 issued by the Ministry of Environment and Forest Government of India. The EIA process enables environmental factors to be given due weight, along with economic and/or social factors, when planning applications are being considered. The process should be an iterative one containing several feedback loops to allow the development proposal to be refined as a result of the findings of the process. Therefore, whilst the process of EIA follows a number of commonly accepted steps, it does not observe a strictly linear pattern. The following 7 main practical stages of the EIA process have been identified although it should be noted that these do not directly reflect the legal requirements of the regulations. The generalised EIA process as followed in most of the countries is summarised in the figure below.
There is a multitude of good practice and guidance on the EIA process and carrying out project specific EIA as part of an application for planning permission.

**Proposal Identification**

A large number of decisions are made at the project identification and proposal development stage. Decisions are made regarding:

- The location of the development
- The land uses the development will cater for
- The scale, layout and design of the development.

If environmental issues are considered at this point in the development process, impacts can be significantly reduced and in some cases removed altogether. This can benefit the developer by reducing the need for costly mitigation measures at a later stage.

**The Need for EIA**

Every anthropogenic activity has some impact on the environment. More often it is harmful to the environment than benign. However, mankind as it is developed today cannot live without taking up these activities for his food, security and other needs. Consequently, there is a need to harmonize developmental activities with the environmental concerns. Environmental impact assessment (EIA) is one of the tools available with the planners to achieve the above-mentioned goal.
It is desirable to ensure that the development options under consideration are sustainable. In doing so, environmental consequences must be characterized early in the project cycle and accounted for in the project design.

The objective of EIA is to foresee the potential environmental problems that would arise out of a proposed development and address them in the project's planning and design stage. The EIA process should then allow for the communication of this information to:

- the project proponent;
- the regulatory agencies; and,
- all stakeholders and interest groups.

EIA integrates the environmental concerns in the developmental activities right at the time of initiating for preparing the feasibility report. In doing so it can enable the integration of environmental concerns and mitigation measures in project development. EIA can often prevent future liabilities or expensive alterations in project design. MoEF passed Environment Impact Assessment (EIA) Notification on 14th September, 2006.

- Screening
- Scoping
- Impact analysis
- Mitigation
- Reporting
- Review of EIA
- Decision-making
- Post monitoring

### 4.2 Indian Policies Requiring EIA

The environmental impact assessment in India was started in 1976-77 when the Planning Commission asked the then Department of Science and Technology to examine the river-valley projects from environmental angle. This was subsequently extended to cover those projects, which required approval of the Public Investment Board. These were administrative decisions, and lacked the legislative support. The Government of India enacted the Environment (Protection) Act on 23rd May
1986. To achieve the objectives of the Act, one of the decisions that were taken is to make environmental impact assessment statutory. After following the legal procedure, a notification was issued on 27th January 1994 and subsequently amended on 4th May 1994, 10th April 1997 and 27th January 2000 making environmental impact assessment statutory for 30 activities. Further in year 2006 a major revision took place in the EIA notification and a new notification EIA notification 2006 was issued by Government of India. This is the principal piece of legislation governing environmental impact assessment in India.

**Requirements of prior Environmental Clearance (EC)**

The projects or activities shall require prior environmental clearance from the concerned regulatory authority, which shall be either Central Government in the Ministry of Environment and Forests for matters falling under Category ‘A’ in the Schedule and at State level the State Environment Impact Assessment Authority (SEIAA) for matters falling under Category ‘B’, before any construction work, or preparation of land by the project management except for securing the land, is started on the project or activity.

i) All new projects or activities listed in the Schedule to this notification.

ii) Expansion and modernization of existing projects or activities listed in the Schedule to this notification with addition of capacity beyond the limits specified for the concerned sector, that is, projects or activities which cross the threshold limits given in the Schedule, after expansion or modernization.

iii) Any change in product - mix in an existing manufacturing unit included in Schedule beyond the specified range.

Under the new EIA notification the Projects have been categorized in two categories namely A and B. All A category project will be submitted to Central government for clearance and all B category project will be submitted to respective state governments for clearance.

**State Level Environment Impact Assessment Authority**

A State Level Environment Impact Assessment Authority called as the SEIAA is being constituted by the Central Government under the Environment (Protection) Act, 1986 comprising of three Members including a Chairman and a Member – Secretary to be nominated by the State Government or the Union territory Administration concerned.
The Member-Secretary shall be a serving officer of the concerned State Government or Union territory administration familiar with environmental laws.

The other two Members shall be either a professional or experts.

All decisions of the SEIAA shall be unanimous and taken in a meeting.

**Table 4.1: Difference between 1994 and 2006 EIA Notification**

<table>
<thead>
<tr>
<th>EIA Notification 2006</th>
<th>EIA Notification 1994 (including amendments)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects in Schedule-1 have been divided into two categories, Category A and B. Category A project will require clearance from Central Government (MEF). Category B will require clearance from State Government. However, the state government will first classify if the B project falls under B1 or B2 category. B1 projects will require preparation of EIA reports while remaining projects will be termed as B2 projects and will not require EIA report. This has the potential of being a good move as decentralization of power may speed up the project clearance process. However, it may be misused and there is an urgent need to build the capacity of the state regulators to deal with their new responsibilities.</td>
<td>Proponent desiring to undertake any project listed in Schedule-1 had to obtain clearance from the Central Government.</td>
</tr>
</tbody>
</table>
| Well defined screening process with projects divided into two categories:  
  **Category A:** All projects and activities require EIA study and clearance from central government.  
  **Category B:** Application reviewed by the State Level Expert Appraisal Committee into two categories - B1 (which will require EIA study) and B2, which does not require EIA study.  
  Scoping has been defined in the new Notification. However, the entire responsibility of determining the terms of reference (ToR) will depend on the Expert Appraisal Committee. This will be done in case of Category A and Category B1 projects. However, the finalisation of ToR by the EACs will depend on the information provided by the project proponent. There | In screening, the project proponent assesses if the proposed activity/project falls under the purview of environmental clearance, than the proponent conducts an EIA study either directly or through a consultant.  
  Scoping was not applicable. The terms of reference was completely decided by the proponent without any public consultation. |
is however a provision that the EACs may visit the site and hold public consultation and meet experts to decide the ToR. However, if the EACs do not specify the ToR within 60 days, the proponent can go ahead with their own ToR.

The final ToR shall be displayed on the website of the Ministry of Environment and Forests and concerned State/Union Territory Environment Impact Assessment Authority (SEIAA).

Public Consultation - All Category A and Category B1 projects or activities have to undertake public consultation except for 6 activities for which public consultation has been exempted. Some of the projects exempted include expansion of roads and highways, modernization of irrigation projects, etc. Some of these may have potential social and environmental impact.

The responsibility for conducting the public hearing still lies with the state PCBs. Member- Secretary of the concerned State Pollution Control Board or Union Territory Pollution Control Committee has to finalise the date, time and exact venue for the conduct of public hearing within 30 days of the date of receipt of the draft Environmental Impact Assessment report, and advertise the same in one major National Daily and one Regional vernacular Daily. A minimum notice period of 30 days will be given to the public for furnishing their responses. The public consultation will essentially consist of two components – a public hearing to ascertain the views of local people and obtaining written responses of interested parties.

There are no clear guidelines like in earlier Notification who all can attend the public hearing. The use of “local people” for public hearing raises doubt if the hearing can be attended by interested parties like NGOs, experts, etc or is restricted to only locals. Is the role of NGOs/experts limited to the sending written letters/feedback to the PCB?

The Notification makes provision that Ministry of Environment and Forest shall promptly display the Summary of the draft Environment Impact Assessment
Schedule of 2006 EIA Notification provides two categories of projects/activities:

**Category A** - Appraisal done by the Central Level Expert Appraisal Committee (EAC) and Clearance will be given by MoEF, GoI. EIA is mandatory.

**Category B** - Appraisal will be done by the State Level Expert Appraisal Committee (SEAC) and Clearance will be given by State Environmental Impact Assessment Agency (SEIAA), except in case of special conditions and general conditions. Subgrouped as Category B1 (EIA necessary) and Category B2 (EIA not necessary).

Clearances required for 39 types of activities.

Industrial Project categories-
- Religious and historic places
- Archaeological monuments
- Scenic areas
- Hill resorts
- Beach resorts
- Coastal areas rich in mangroves, corals, breeding grounds of specific species
- Estuaries
Gulf areas
- Biosphere reserves
- National parks and sanctuaries
- National lakes and swamps
- Seismic zones
- Tribal settlements
- Areas of scientific and geological interest
- Defense installations, especially those of security importance and sensitive to pollution
- Border areas (international)
- Airports

### 4.3 Categorization of Projects and Activities

Let us examine the stages of Environmental Clearance (EC) -

- **Application for EC** - to be made by the Project Proponent (PP) to the concerned authority with FORM 1 (and FORM 1A with conceptual plan for construction projects only), Pre-feasibility Report (PFR) and Terms of Reference (optional) for conducting EIA Study

- **Screening** - to be done by SEAC for Category B projects only, to further classify as Category B1 and B2. EIA will be necessary if classified as Category B1

- **Scoping** - Determination of Terms of Reference (ToR) for EIA study for Category A and Category B1 projects. To be done by EAC (for Category A) or SEAC (for Category B1)

- **EIA Study** - Based on the ToR, the project proponent (PP) will prepare draft EIA & EMP

- **Public Consultation** - With Draft EIA and EMP public consultation will be organised. Issues raised will be addressed in final EIA & EMP report

- **Appraisal** - EIA & EMP will be appraised by EAC (for Category A) and SEAC (for Category B1). For Category B2, EIA is not required, appraisal will be done by SEAC on the basis of FORM 1 and PFR only
♦  **Decision** - On the basis of recommendations by EAC / SEAC clearance will be finally granted or rejected by the MoEF (for Category A) / SEIAA (for Category B)

All projects and activities are broadly categorized in to two categories - Category A and Category B, based on the spatial extent of potential impacts and potential impacts on human health and natural and man made resources.

All projects or activities included as Category ‘A’ in the Schedule, including expansion and modernization of existing projects or activities and change in product mix, shall require prior environmental clearance from the Central Government in the Ministry of Environment and Forests (MoE&F) on the recommendations of an Expert Appraisal Committee (EAC) to be constituted by the Central Government for the purposes of this notification;

All projects or activities included as Category ‘B’ in the notification, including expansion and modernization of existing projects or activities or change in product mix, but excluding those which fulfil the General Conditions (GC) stipulated in the Schedule (Table 5.1.), will require prior environmental clearance from the State/Union territory Environment Impact Assessment Authority (SEIAA). The SEIAA shall base its decision on the recommendations of a State or Union territory level Expert Appraisal Committee (SEAC) as to be constituted for in this notification. In the absence of a duly constituted SEIAA or SEAC, a Category ‘B’ project shall be treated as a Category ‘A’ project.

**Screening, Scoping and Appraisal Committees**

The same Expert Appraisal Committees (EACs) at the Central Government and SEACs at the State or the Union territory level shall screen, scope and appraise projects or activities in Category ‘A’ and Category ‘B’ respectively. EAC and SEAC’s shall meet at least once every month.

The Central Government may, with the prior concurrence of the concerned State Governments or the Union territory Administrations, constitutes one SEAC for more than one State or Union territory for reasons of administrative convenience and cost. The EAC and SEAC shall be reconstituted after every three years.

The authorised members of the EAC and SEAC, concerned, may inspect any site(s) connected with the project or activity in respect of which the prior environmental clearance is sought, for the purposes of screening or scoping or appraisal, with prior notice of at least seven days to the applicant, who shall provide necessary facilities for the inspection.
The EAC and SEACs shall function on the principle of collective responsibility. The Chairperson shall endeavour to reach a consensus in each case, and if consensus cannot be reached, the view of the majority shall prevail.

Application for Prior Environmental Clearance (EC)
An application seeking prior environmental clearance in all cases shall be made in the Form 1 and Supplementary Form 1A, after the identification of prospective site(s) for the project and/or activities to which the application relates, before commencing any construction activity, or preparation of land, at the site by the applicant. The applicant shall furnish, along with the application, a copy of the pre-feasibility project report except that, in case of construction projects or activities in addition to Form 1 and the Supplementary Form 1A, a copy of the conceptual plan shall be provided, instead of the pre-feasibility report.

Stages in the Prior Environmental Clearance (EC) Process for New Projects
The environmental clearance process for new projects will comprise of a maximum of four stages, all of which may not apply to particular cases as set forth below in this notification. These four stages in sequential order are:-

- Stage (1) Screening (Only for Category ‘B’ projects and activities)
- Stage (2) Scoping
- Stage (3) Public consultation
- Stage (4) Appraisal

Screening
In case of Category ‘B’ projects or activities, this stage will require the scrutiny of an application seeking prior environmental clearance made in Form 1 by the concerned State level Expert Appraisal Committee (SEAC) for determining whether or not the project or activity requires further environmental studies for preparation of an Environmental Impact Assessment (EIA) for its appraisal prior to the grant of environmental clearance depending upon the nature and location specificity of the project. The projects requiring an Environmental Impact Assessment report shall be termed Category ‘B1’ and remaining projects shall be termed Category ‘B2’ and will not require an Environment Impact Assessment report. For categorization of projects into B1 or B2 except Townships and Area Development projects, the Ministry of Environment and Forests shall issue appropriate guidelines from time to time.
Scoping

Scoping is the process by which the Expert Appraisal Committee in the case of Category ‘A’ projects or activities, and State level Expert Appraisal Committee in the case of Category ‘B1’ projects or activities, including applications for expansion and/or modernization and/or change in product mix of existing projects or activities, determine detailed and comprehensive Terms Of Reference (TOR) addressing all relevant environmental concerns for the preparation of an Environment Impact Assessment (EIA) Report in respect of the project or activity for which prior environmental clearance is sought. The Expert Appraisal Committee or State level Expert Appraisal Committee concerned shall determine the Terms of Reference on the basis of the information furnished by the proponent in the application Form1/ Form 1A including Terms of Reference proposed by the applicant. All projects and activities listed as Category ‘B’ in Item 8 of the Schedule (Construction/Township/ Commercial Complexes/Housing) shall not require Scoping and will be appraised on the basis of Form 1/ Form 1A and the conceptual plan.

The Terms of Reference (TOR) shall be conveyed to the applicant by the Expert Appraisal Committee or State Level Expert Appraisal Committee as concerned within sixty days of the receipt of Form 1. If the Terms of Reference are not finalized and conveyed to the applicant within sixty days of the receipt of Form 1, the Terms of Reference suggested by the applicant shall be considered as the final Terms of Reference approved for the EIA studies. The approved Terms of Reference shall be displayed on the website of the Ministry of Environment and Forests and the concerned State Level Environment Impact Assessment Authority.

Applications for prior environmental clearance may be rejected by the regulatory authority concerned on the recommendation of the EAC or SEAC concerned at this stage itself. In case of such rejection, the decision together with reasons for the same shall be communicated to the applicant in writing within sixty days of the receipt of the application.

Scoping is one of the most important stages in the EIA process cycle. This is the time when the fate of the EIA exercise is being decided. A lot of care and sound understanding of issues is needed by the expert committee to not miss out any significant environmental issue to be addressed in the EIA. If the need be the EAC or SEAC should visit the site to understand the site specific characteristics to draw out an elaborate and robust TOR.
Public Consultation

Public Consultation is the process by which the concerns of local affected people and others who have a practical stake in the environmental impacts of the project or activity are ascertained with a view to taking into account all the material concerns in the project or activity design as appropriate. All Category ‘A’ and Category B1 projects or activities shall undertake Public Consultation, except the following.

- Modernization of irrigation projects.
- All projects or activities located within industrial estates or parks approved by the concerned authorities, and which are not disallowed in such approvals.
- Expansion of Roads and Highways which do not involve any further acquisition of land.
- All Building/Construction projects/Area Development projects and Townships.
- All Category ‘B2’ projects and activities.
- All projects or activities concerning national defense and security or involving other strategic considerations as determined by the Central Government.

The Public Consultation shall ordinarily have two components comprising of

- Public hearing at the site or in its close proximity- district wise, to be carried out, for ascertaining concerns of local affected persons.
- Obtain responses in writing from other concerned persons having a stake in the environmental aspects of the project or activity.

The public hearing at, or in close proximity to, the site(s) in all cases shall be conducted by the State Pollution Control Board (SPCB) or the Union territory Pollution Control Committee (UTPCC) concerned in the specified manner and forward the proceedings to the regulatory authority concerned within 45(forty five) of a request to the effect from the applicant.

In case the State Pollution Control Board or the Union territory Pollution Control Committee concerned does not undertake and complete the public hearing within the specified period, and/or does not convey the proceedings of the public hearing within the prescribed period directly to the regulatory authority concerned as above, the regulatory authority shall engage another public agency or authority which is not subordinate to the regulatory authority, to complete the process within a further period of forty five days.
If the public agency or authority nominated above reports to the regulatory authority concerned that owing to the local situation, it is not possible to conduct the public hearing in a manner which will enable the views of the concerned local persons to be freely expressed, it shall report the facts in detail to the concerned regulatory authority, which may, after due consideration of the report and other reliable information that it may have, decide that the public consultation in the case need not include the public hearing.

For obtaining responses in writing from other concerned persons having a plausible stake in the environmental aspects of the project or activity, the concerned regulatory authority and the State Pollution Control Board (SPCB) or the Union territory Pollution Control Committee (UTPCC) shall invite responses from such concerned persons by placing on their website the Summary EIA report prepared by the applicant along with a copy of the application in the prescribed form, within seven days of the receipt of a written request for arranging the public hearing. Confidential information or legally privileged information involving Intellectual Property Right, source specified in the application shall not be placed on the website. The regulatory authority concerned may also use other appropriate media for ensuring wide publicity about the project or activity. The regulatory authority shall, however, make available on a written request from any concerned person the Draft EIA report for inspection at a notified place during normal office hours till the date of the public hearing. All the responses received as part of this public consultation process shall be forwarded to the applicant through the quickest available means.

After completion of the public consultation, the applicant shall address all the material environmental concerns expressed during this process, and make appropriate changes in the draft EIA and EMP. The final EIA report, so prepared, shall be submitted by the applicant to the concerned regulatory authority for appraisal. The applicant may alternatively submit a supplementary report to draft EIA and EMP addressing all the concerns expressed during the public consultation.

**Appraisal**

Appraisal is the detailed scrutiny by the Expert Appraisal Committee or State Level Expert Appraisal Committee of the application and other documents like the Final EIA report, outcome of the public consultations including public hearing proceedings, submitted by the applicant to the regulatory authority concerned for grant of environmental clearance. This appraisal shall be made by Expert Appraisal Committee or State Level Expert Appraisal Committee concerned in a transparent manner in a proceeding to which the applicant shall be invited for furnishing
necessary clarifications in person or through an authorized representative. On conclusion of this proceeding, the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned shall make categorical recommendations to the regulatory authority concerned either for grant of prior environmental clearance on stipulated terms and conditions, or rejection of the application for prior environmental clearance, together with reasons for the same.

The project proponent at the time of the appraisal shall make a detailed presentation on the project, EIA and any other supportive study conducted as a part of the TOR given by the appraisal committee. During the presentation all the consultants who were part of EIA must be present over there to reply to queries and question raised by the committee members.

The appraisal of all projects or activities which are not required to undergo public consultation, or submit an Environment Impact Assessment report, shall be carried out on the basis of the prescribed application Form 1 and Form 1A as applicable, any other relevant validated information available and the site visit wherever the same is considered as necessary by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned.

### 4.4 Grant or Rejection of Prior Environmental Clearance (EC)

The regulatory authority shall consider the recommendations of the EAC or SEAC concerned and convey its decision to the applicant within forty five days of the receipt of the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned or in other words within one hundred and five days of the receipt of the final Environment Impact Assessment Report, and where Environment Impact Assessment is not required, within one hundred and five days of the receipt of the complete application with requisite documents, except as provided below.

The regulatory authority shall normally accept the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned. In cases where it disagrees with the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned, the regulatory authority shall request reconsideration by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned within forty five days of the receipt of the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned while stating the reasons for the disagreement.
An intimation of this decision shall be simultaneously conveyed to the applicant. The Expert Appraisal Committee or State Level Expert Appraisal Committee concerned, in turn, shall consider the observations of the regulatory authority and furnish its views on the same within a further period of sixty days. The decision of the regulatory authority after considering the views of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned shall be final and conveyed to the applicant by the regulatory authority concerned within the next thirty days.

In the event that the decision of the regulatory authority is not communicated to the applicant within the period specified, the applicant may proceed as if the environment clearance sought for has been granted or denied by the regulatory authority in terms of the final recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned.

Clearances from other regulatory bodies or authorities shall not be required prior to receipt of applications for prior environmental clearance of projects or activities, or screening, or scoping, or appraisal, or decision by the regulatory authority concerned, unless any of these is sequentially dependent on such clearance either due to a requirement of law, or for necessary technical reasons.

Deliberate concealment and/or submission of false or misleading information or data which is material to screening or scoping or appraisal or decision on the application shall make the application liable for rejection, and cancellation of prior environmental clearance granted on that basis. Rejection of an application or cancellation of a prior environmental clearance already granted, on such ground, shall be decided by the regulatory authority, after giving a personal hearing to the applicant, and following the principles of natural justice.

Validity of Environmental Clearance (EC)

The “Validity of Environmental Clearance” is meant the period from which a prior environmental clearance is granted by the regulatory authority, or may be presumed by the applicant to have been granted, to the start of production operations by the project or activity, or completion of all construction operations in case of construction projects, to which the application for prior environmental clearance refers. The prior environmental clearance granted for a project or activity shall be valid for a period of ten years in the case of River Valley projects, project life as estimated by Expert Appraisal Committee or State Level Expert Appraisal Committee subject to a maximum of thirty years for mining projects and five years in the case of all other projects and activities. However, in the case of Area Development projects and
Townships, the period of validity may be extended by the regulatory authority concerned by a maximum period of five years provided an application is made to the regulatory authority by the applicant within the validity period, together with an updated Form 1, and Supplementary Form 1A, for Construction projects or activities. In this regard the regulatory authority may also consult the Expert Appraisal Committee or State Level Expert Appraisal Committee as the case may be.

**Post Environmental Clearance Monitoring**

It shall be mandatory for the project management to submit half-yearly compliance reports in respect of the stipulated prior environmental clearance terms and conditions in hard and soft copies to the regulatory authority concerned, on 1\textsuperscript{st} June and 1\textsuperscript{st} December of each calendar year.

All such compliance reports submitted by the project management shall be public documents. Copies of the same shall be given to any person on application to the concerned regulatory authority. The compliance report shall also be displayed on the web site of the concerned regulatory authority.

**Transferability of Environmental Clearance (EC)**

A prior environmental clearance granted for a specific project or activity to an applicant may be transferred during its validity to another legal person entitled to undertake the project or activity on application by the transferor, or by the transferee with a written “no objection” by the transferor, to, and by the regulatory authority concerned, on the same terms and conditions under which the prior environmental clearance was initially granted, and for the same validity period. No reference to the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned is necessary in such cases.

**Infrastructure projects and EIA in India**

All most all the infrastructure projects bring with them a large number of undesirable ecological and environmental impacts. The list of projects is being given in table 5.1. by going through the list itself you will realise what are the impacts that these projects can cause to the environment. It is of paramount significance to understand that each and every component of the environment should be studied as these large projects bring in permanent and irreversible changes to the natural systems. There is already a lot of hue and cry with respect to global warming and climate change. Almost all the infrastructure projects have heavily come under the scanners of environmental NGO's for the extremely negative
environmental impacts and some of them have also resulted in mass protest. Narmada Bacaho Andolan, Silent valley project, Sethu Samudran project, Mumbai Pune expressway are just to name a few.

In all the infrastructure project it is important than a comprehensive EIA is being carried and some of the important issues as listed below are appropriately addressed.

Air Environment

♦ Determination of impact zone (through a screening model) and developing a monitoring network
♦ Monitoring the existing status of ambient air quality within the impacted region (7-10 km from the periphery) of the proposed project site
♦ Monitoring the site specific meteorological data, viz. wind speed and direction, humidity, ambient temperature and environmental lapse rate
♦ Estimation of quantities of air emissions including fugitive emissions from the proposed project
♦ Identification, quantification and evaluation of other potential emissions (including those of vehicular traffic) within the impact zone and estimation of cumulative of all the emissions/impacts
♦ Prediction of changes in the ambient air quality due to point, line and areas source emissions through appropriate air quality models
♦ Evaluation of the adequacy of the proposed pollution control devices to meet gaseous emission and ambient air quality standards
♦ Delineation of mitigation measures at source, path ways and receptor

Noise Environment

♦ Monitoring the present status of noise levels within the impact zone, and prediction of future noise levels resulting from the proposed project and related activities including increase in vehicular movement
♦ Identification of impacts due to any anticipated rise in noise levels on the surrounding environment
♦ Recommendations on mitigation measures for noise pollution
Water Environment

♦ Study of existing ground and surface water resources with respect to quantity and quality within the impact zone of the proposed project.

♦ Prediction of impacts on water resources due to the proposed water use/pumping on account of the project.

♦ Quantification and characterisation of waste water including toxic organic, from the proposed activity.

♦ Evaluation of the proposed pollution prevention and wastewater treatment system and suggestions on modification, if required.

♦ Prediction of impacts of effluent discharge on the quality of the receiving water body using appropriate mathematical/simulation models.

♦ Assessment of the feasibility of water recycling and reuse and delineation of detailed plan in this regard.

Biological Environment

♦ Survey of flora and fauna clearly delineating season and duration.

♦ Assessment of flora and fauna present within the impact zone of the project.

♦ Recognition of active wildlife corridors for wildlife species protected under the wildlife protection Act (1972)

♦ Assessment of potential damage to terrestrial and aquatic flora and fauna due to discharge of effluents and gaseous emissions from the project

♦ Assessment of damage to terrestrial flora and fauna due to air pollution, and land use and landscape changes

♦ Assessment of damage to aquatic and marine flora and fauna (including commercial fishing) due to physical disturbances and alterations

♦ Prediction of biological stresses within the impact zone of the proposed project

♦ Delineation of mitigation measures to prevent and / or reduce the damage.

Land Environment

♦ Studies on soil characteristics, existing land use and topography, landscape and drainage patterns within the impact zone

♦ Estimation of impacts of project on land use, landscape, topography, drainage and hydrology
♦ Identification of potential utility of treated effluent in land application and subsequent impacts
♦ Estimation and Characterisation of solid wastes and delineation of management options for minimisation of waste and environmentally compatible disposal

**Socio-economic and Health Environment**

Collection of demographic and related socio-economic data
♦ Collection of epidemiological data, including studies on prominent endemic diseases (e.g. fluorosis, malaria, fileria, malnutrition) and morbidity rates among the population within the impact zone
♦ Projection of anticipated changes in the socio-economic and health due to the project and related activities including traffic congestion and delineation of measures to minimise adverse impacts
♦ Assessment of impact on significant historical, cultural and archaeological sites/places in the area
♦ Assessment of economic benefits arising out of the project
♦ Assessment of rehabilitation requirements with special emphasis on scheduled areas, if any.

**Risk Assessment**
♦ Hazard identification taking recourse to hazard indices, inventory analysis, dam break probability, Natural Hazard Probability etc.
♦ Maximum Credible Accident (MCA) analysis to identify potential hazardous scenarios
♦ Consequence analysis of failures and accidents resulting in fire, explosion, hazardous releases and dam breaks etc.
♦ Hazard & Operability (HAZOP) studies
♦ Assessment of risk on the basis of the above evaluations
♦ Preparation of an onsite and off site (project affected area) Disaster Management Plan

**Environment Management Plan**
♦ Delineation of mitigation measures including prevention and control for each environmental component and rehabilitation and resettlement plan.
♦ Delineation of monitoring scheme for compliance of conditions
♦ Delineation of implementation plan including scheduling and resource allocation

Table 4.1: List of Projects or Activities Requiring Prior Environmental Clearance under EIA Notification 2006

<table>
<thead>
<tr>
<th>Project or Activity</th>
<th>Category with threshold limit</th>
<th>Conditions if any</th>
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<tbody>
<tr>
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<tr>
<td>(1)</td>
<td></td>
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<tr>
<td>1(a)</td>
<td>Mining of minerals</td>
<td>≥ 50 ha. of mining lease area</td>
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<tr>
<td></td>
<td></td>
<td>Asbestos mining irrespective of mining area</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;50 ha</td>
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<td></td>
<td></td>
<td>≥ 5 ha of mining lease area.</td>
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<td></td>
<td></td>
<td>General Condition shall apply</td>
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<td></td>
<td>Note</td>
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<tr>
<td></td>
<td></td>
<td>Mineral prospecting (not involving drilling) are exempted provided the concession areas have got previous clearance for physical survey</td>
</tr>
<tr>
<td>1(b)</td>
<td>Offshore and onshore oil and gas exploration, development &amp; production</td>
<td>All projects</td>
</tr>
<tr>
<td></td>
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<td>Note</td>
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<td>Exploration Surveys (not involving drilling) are exempted provided the concession areas have got previous clearance for physical survey</td>
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<tr>
<td>1(c)</td>
<td>River Valley projects</td>
<td>(i) ≥ 50 MW hydroelectric power generation;</td>
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<td></td>
<td></td>
<td>(ii) ≥ 10,000 ha. of culturable command area</td>
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<td></td>
<td></td>
<td>≥ 500 MW (coal/lignite/naphtha &amp; gas based);</td>
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<tr>
<td></td>
<td></td>
<td>i) &lt; 50 MW</td>
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<tr>
<td></td>
<td></td>
<td>≥ 25 MW hydroelectric power generation;</td>
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<tr>
<td></td>
<td></td>
<td>(ii) &lt; 10,000 ha. of culturable command area</td>
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<tr>
<td></td>
<td></td>
<td>General Condition shall apply</td>
</tr>
<tr>
<td>1(d)</td>
<td>Thermal Power Plants</td>
<td>≥ 50 MW (Pet coke diesel and all other fuels -)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt; 500 MW (coal/lignite/naphtha &amp; gas based);</td>
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<td></td>
<td></td>
<td>≤ 50 MW</td>
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<td></td>
<td></td>
<td>≥ 5MW (Pet coke, diesel and all other fuels)</td>
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<td></td>
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<td>General Condition shall apply</td>
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### National Environmental Law and Policy-II

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<tbody>
<tr>
<td>1(e)</td>
<td>Nuclear power projects and processing of nuclear fuel</td>
<td>All projects</td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>Coral Processing</td>
<td></td>
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<tr>
<td>2(a)</td>
<td>Coal washeries</td>
<td>≥ 1 million ton/annum throughput of coal</td>
<td>&lt;1 million ton/annum throughput of coal</td>
<td>General Condition shall apply (If located within mining area the proposal shall be appraised together with the mining proposal)</td>
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<td>(1)</td>
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<tr>
<td>2(b)</td>
<td>Mineral beneficiation</td>
<td>≥ 0.1 million ton/annum mineral throughput</td>
<td>&lt; 0.1 million ton/annum mineral throughput</td>
<td>General Condition shall apply (Mining proposal with Mineral beneficiation shall be appraised together for grant of clearance).</td>
</tr>
<tr>
<td>3</td>
<td>Materials Production</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3(a)</td>
<td>Metallurgical industries (ferrous &amp; non-ferrous)</td>
<td>a) Primary metallurgical industry All projects</td>
<td>Sponge iron manufacturing &lt;200 TPD Secondary metallurgical processing industry i) All toxic and heavy metal producing units &lt;20,000 tonnes/annum ii) All other non-toxic secondary metallurgical processing industries &gt;5000 tonnes/annum</td>
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<tr>
<td>3(b)</td>
<td>Cement plants</td>
<td>≥ 1.0 million tonnes/annum production capacity.</td>
<td>&lt;1.0 million tonnes/annum production capacity. All Stand alone grinding units.</td>
<td>General Condition shall apply.</td>
</tr>
<tr>
<td></td>
<td>Materials Processing</td>
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<tr>
<td>4</td>
<td><strong>Petroleum refining industry</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4(a)</td>
<td>All projects</td>
<td></td>
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</tbody>
</table>
| 4(b) | Coke oven plants  

≥2,50,000 tonnes/annum  

<2,50,000 & ≥25,000 tonnes/annum |

- |
| 4(c) | Asbestos milling and asbestos based products  

All projects |

- |
| 4(d) | Chlor-alkali industry  

≥300 TPD production capacity or a unit located outside the notified industrial area/estate  

<300 TPD production capacity and located within a notified industrial area/estate  

Specific Condition shall apply  

No new Mercury Cell based plants will be permitted and existing units converting to membrane cell technology are exempted from this Notification |
| 4(e) | Soda ash industry  

All projects |

- |
| 4(f) | Leather/skin/hide processing industry  

New projects outside the industrial area or expansion of existing units outside the industrial area  

All new or expansion of projects located within a notified industrial area/estate  

Specific condition shall apply |

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<td>5</td>
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| 5(a) | Chemical fertilizers  

All projects |

- |
| 5(b) | Pesticides industry and pesticide specific intermediates (excluding formulations)  

All units producing technical grade pesticides |

- |
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Location</th>
<th>Condition</th>
</tr>
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<tbody>
<tr>
<td>5(c)</td>
<td>Petro-chemical complexes (industries based on processing of petroleum fractions &amp; natural gas and/or reforming to aromatics)</td>
<td>All projects</td>
<td>-</td>
</tr>
<tr>
<td>5(d)</td>
<td>Manmade fibres manufacturing</td>
<td>Rayon</td>
<td>Others</td>
</tr>
<tr>
<td>5(e)</td>
<td>Petrochemical based processing (processes other than cracking &amp; reformation and not covered under the complexes)</td>
<td>Located out side the notified industrial area/ estate</td>
<td>Located in a notified industrial area/ estate</td>
</tr>
<tr>
<td>5(f)</td>
<td>Synthetic organic chemicals industry (dyes &amp; dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)</td>
<td>Located out side the notified industrial area/ estate</td>
<td>Located in a notified industrial area/ estate</td>
</tr>
<tr>
<td>(1)</td>
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<td>(4)</td>
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</table>
| 5(g) | Distilleries | i) All Molasses based distilleries  
ii) All Cane juice/non-molasses based distilleries ≥ 30 KLD | All Cane juice/non-molasses based distilleries – <30 KLD | General Condition shall apply |
| 5(h) | Integrated paint industry | - | All projects | General Condition shall apply |
| 5(i) | Pulp & paper industry excluding manufacturing of paper from waste paper and manufacture of paper from ready pulp with out bleaching | Pulp manufacturing and Pulp & Paper manufacturing industry | Paper manufacturing industry without pulp manufacturing | General Condition shall apply |
| 5(j) | Sugar Industry | - | ≥ 5000 tcd cane crushing capacity | General Condition shall apply |
| 5(k) | Induction/arc furnaces/cupola furnaces 5TPH or more | - | All projects | General Condition shall apply |

6 | Service Sectors |
6(a) | Oil & gas transportation pipe line (crude and refinery/petrochemical products), passing through national parks/sanctuaries/coral reefs/ ecologically sensitive areas including LNG Terminal | All projects | - |
<table>
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<th>(4)</th>
<th>(5)</th>
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<tbody>
<tr>
<td>6(b)</td>
<td>Isolated storage &amp; handling of hazardous chemicals (As per threshold planning quantity indicated in column 3 of schedule 2 &amp; 3 of MSIHC Rules 1989 amended 2000)</td>
<td>-</td>
<td>All projects</td>
<td>General Condition shall apply</td>
</tr>
<tr>
<td>7</td>
<td>Physical Infrastructure including Environmental Services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7(a)</td>
<td>Air ports</td>
<td>All projects</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7(b)</td>
<td>All ship breaking yards including ship breaking units</td>
<td>All projects</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7(c)</td>
<td>Industrial estates/parks/complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes.</td>
<td>If at least one industry in the proposed industrial estate falls under the Category A, entire industrial area shall be treated as Category A, irrespective of the area. If at least one Category B industry and area &lt;500 ha. Industrial estates with area greater than 500 ha. and housing at least one Category B industry. Industrial estates of area &gt; 500 ha. and not housing any industry belonging to Category A or B.</td>
<td>Special condition shall apply</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Note: Industrial Estate of area below 500 ha. and not housing any industry of category A or B does not require clearance.</td>
</tr>
<tr>
<td>7(d)</td>
<td>Common hazardous waste treatment, storage and disposal facilities (TSDFs)</td>
<td>All integrated facilities having incineration &amp; landfill or incineration alone</td>
<td>All facilities having landfill only</td>
<td>General Condition shall apply</td>
</tr>
<tr>
<td>7(e)</td>
<td>Ports, Harbours</td>
<td>≥ 5 million TPA of cargo handling capacity (excluding fishing harbours)</td>
<td>&lt; 5 million TPA of cargo handling capacity and/or ports/ harbours ≥10,000 TPA of fish handling capacity</td>
<td>General Condition shall apply</td>
</tr>
<tr>
<td>7(f)</td>
<td>Highways</td>
<td>i) New National High ways; and ii) Expansion of National High ways greater than 30 KM, involving additional right of way greater than 20m involving land acquisition and passing through more than one State.</td>
<td>i) New State High ways; and ii) Expansion of National / State Highways greater than 30 km involving additional right of way greater than 20m involving land acquisition.</td>
<td>General Condition shall apply</td>
</tr>
<tr>
<td>7(g)</td>
<td>Aerial ropeways</td>
<td>All projects</td>
<td>General Condition shall apply</td>
<td></td>
</tr>
<tr>
<td>7(h)</td>
<td>Common Effluent Treatment Plants (CETPs)</td>
<td>All projects</td>
<td>General Condition shall apply</td>
<td></td>
</tr>
<tr>
<td>7(i)</td>
<td>Common Municipal Solid Waste Management Facility (CMSWMF)</td>
<td>All projects</td>
<td>General Condition shall apply</td>
<td></td>
</tr>
</tbody>
</table>

### 8 Building /Construction projects/Area Development projects and Townships

| 8(a) | Building and Construction projects | ≥20000 sq.mtrs and <1,50,000 sq.mtrs. of built-up area# | #(built up area for covered construction; in the case of facilities open to the sky, it will be the activity area ) |
| 8(b) | Townships and Area Development projects. | Covering an area ≥ 50 ha and or built up area ≥1,50,000 sq.mtrs ++ | ++All projects under Item 8(b) shall be appraised as Category B1 |
Any project or activity specified in Category ‘B’ will be treated as Category A, if located in whole or in part within 10 km from the boundary of: (i) Protected Areas notified under the Wild Life (Protection) Act, 1972, (ii) Critically Polluted areas as notified by the Central Pollution Control Board from time to time, (iii) Notified Eco-sensitive areas, (iv) inter-State boundaries and international boundaries.

Specific Condition (SC):

If any Industrial Estate/Complex / Export processing Zones /Special Economic Zones/Biotech Parks / Leather Complex with homogeneous type of industries such as Items 4(d), 4(f), 5(e), 5(f), or those Industrial estates with pre-defined set of activities (not necessarily homogeneous, obtains prior environmental clearance, individual industries including proposed industrial housing within such estates / complexes will not be required to take prior environmental clearance, so long as the Terms and Conditions for the industrial estate/complex are complied with (Such estates/complexes must have a clearly identified management with the legal responsibility of ensuring adherence to the Terms and Conditions of prior environmental clearance, who may be held responsible for violation of the same throughout the life of the complex/estate).

4.5 Conclusion

All industrial projects can use an EIA as a management tool to know their impacts on the environment. More specifically, EU legislation makes it mandatory to make an EIA for the following projects (with a few exceptions): crude-oil refineries, thermal power stations, storage facilities for radioactive waste, asbestos treatment facilities, integrated chemicals installations, motorways, railways and airports, trading ports, waste disposal installation (incineration, chemical treatment, or landfill of toxic and dangerous waste), and a number of industrial facilities in agriculture, the extractive industry, energy, metals, glass, chemicals, food, leather and textiles and rubber sectors, as well as large infrastructure projects. All industrial sectors are concerned with the environmental impact assessment, including the automotive, construction, electronics and photovoltaics sectors.

The EIA procedure ensures that environmental consequences of projects are identified and assessed before authorisation is given. The public can give its opinion and all results are taken into account in the authorisation procedure of the project. The public is informed of the decision afterwards. The EIA Directive outlines which project categories shall be made subject to an EIA, which procedure shall be followed and the required content of the assessment.
The Ministry of Environment and Forests (MoEF) of India has been in a great effort in Environmental Impact Assessment in India. The main laws in action are the Water Act (1974), the Indian Wildlife (Protection) Act (1972), the Air (Prevention and Control of Pollution) Act (1981) and the Environment (Protection) Act (1986), Biological Diversity Act (2002). The responsible body for this is the Central Pollution Control Board. Environmental Impact Assessment (EIA) studies need a significant amount of primary and secondary environmental data. Primary data are those collected in the field to define the status of the environment (like air quality data, water quality data etc.). Secondary data are those collected over the years that can be used to understand the existing environmental scenario of the study area. The environmental impact assessment (EIA) studies are conducted over a short period of time and therefore the understanding of the environmental trends, based on a few months of primary data, has limitations. Ideally, the primary data must be considered along with the secondary data for complete understanding of the existing environmental status of the area. In many EIA studies, the secondary data needs could be as high as 80% of the total data requirement. EIC is the repository of one stop secondary data source for environmental impact assessment in India.

The Environmental Impact Assessment (EIA) experience in India indicates that the lack of timely availability of reliable and authentic environmental data has been a major bottle neck in achieving the full benefits of EIA. The environment being a multi-disciplinary subject, a multitude of agencies are involved in collection of environmental data. However, no single organization in India tracks available data from these agencies and makes it available in one place in a form required by environmental impact assessment practitioners. Further, environmental data is not available in enhanced forms that improve the quality of the EIA. This makes it harder and more time-consuming to generate environmental impact assessments and receive timely environmental clearances from regulators. With this background, the Environmental Information Centre (EIC) has been set up to serve as a professionally managed clearing house of environmental information that can be used by MoEF, project proponents, consultants, NGOs and other stakeholders involved in the process of environmental impact assessment in India. EIC caters to the need of creating and disseminating of organized environmental data for various developmental initiatives all over the country.

EIC stores data in GIS format and makes it available to all environmental impact assessment studies and to EIA stakeholders in a cost effective and timely manner.
In the contemporary scenario, citizen participation is one of the fundamentals of public management in all its fields. The laws of our country establish citizen participation as an integral right and a principle of organization of the State in order to guarantee the rights of the people. We must not forget that development requires the contribution and inclusion of all the social sectors.

In environmental processes, citizen participation enhances the interaction spaces of the various communities, the organizations of the civil society, and other interested actors, with the government – both national and local, in decision making processes in relation to the environment. Nevertheless, in order to achieve efficiency, effectiveness and a suitable end, citizen participation must be made possible.

The integration of public participation/involvement of stakeholders in Environmental Impact Statement (EIS) Review is very important in terms of its implication for sound decision making and the sustainability of development
activities. In this regard, most country’s EIA Procedures provide for the involvement of stakeholders in the assessment and review of proposed undertakings. This is achieved through a number of mechanisms, particularly the holding of public hearings. In public hearings, the shareholders and proponents are brought together in a forum to express their opinions and offer suggestions on a proposed undertaking in order to influence the decision-making process.

5.2 Environmental Clearance Process

Before any industrial project is set up for the so-called development of our country, there is a mandatory process to be followed known as the process of Environmental Clearance. This is done so as to make sure and be certain about the estimated adverse impacts held out to the environment and to limit it in case it exceeds the prescribed minimum. So basically, the main purpose of this step is to assess the impact of the planned project on the environment and people and try to minimise the same.

EIA is used to identify and assess the environmental and social impacts of any proposed major activity (project, plan, programme or policy)\(^1\) prior to its implementation. It aims to predict environmental impacts at an early stage in project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision-makers.

The Procedure

For the purpose of environmental clearance, there is a proper procedure. It covers varied aspects like screening, scoping, public consultation and appraisal. The process of environmental clearance consists of the following steps:

- **Identification of the location**
  
The investor first identifies the location of proposed project after ensuring compliance with existing rules and guidelines. If project site does not permit the execution of his plan to set up the project, the proponent has to identify other alternative site for the same.

- **Falling under Schedule-1 of Environmental Impact Assessment Notification**
  
The project proponent then assesses if the proposed activity falls under the purview of environmental clearance. If it is mentioned in Schedule-1 of the Environmental

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\(^1\) For the sake of brevity, hereafter, the term ‘project’ will be used in place of ‘any major activity’. The term must be deemed to include ‘any project, plan, program or policy’.
Impact Assessment Notification, the proponent conducts an EIA study either directly or through a consultant. This then leads to a situation where the project may either fall in category A or B.

♦ **Screening**

If the project falls in B category, the project goes to State Government for clearance which further categorizes it into B1 and B2 projects. B2 projects do not require preparation of EIA reports. After the EIA report is ready, the investor approaches the concerned State Pollution Control Board (SPCB) and the State Forest Department (if the location involves use of forestland). The SPCB evaluates and assesses the quantity and quality of effluents likely to be generated by the proposed unit as well as the efficacy of the control measures proposed by the investor to meet the prescribed standards. If the SPCB is satisfied that the proposed unit will meet all the prescribed effluent and emissions standards, it issues consent to establish (popularly known as No Objection Certificate), which is valid for 15 years.

♦ **Public Hearing**

It is at this point that the public is brought into play. There is a process known as the public hearing which is a mandatory step in the process of environmental clearance for certain developmental projects. This provides a legal space for people of an area to come face-to-face with the project proponent and the government and express their concerns. The District Collector is the chairperson of the public hearing committee. Other members of the committee includes the official from the district development body, SPCB, Department of Environment and Forest, Taluka and Gram Panchayat representative, and senior citizen of the district, etc. The hearing committee hears the objections/suggestions from the public and after inserting certain clauses it is passed on to the next stage of approval (Ministry of Forest and Environment).

♦ **Application for Environmental Clearance**

The project proponent submits an application for environmental clearance with the Ministry of Environment and Forests (MoEF) if it falls under Project ‘A’ category or the State Government if it falls under project ‘B’ category. The application form is submitted with EIA report, details of public hearing and No Objection Certificate (NOC) granted by the State Regulators.
Introduction to Environmental Public Hearing (EPH) and Processes

♦ **Environmental appraisal**

The documents submitted by an investor are first scrutinised by a multi-disciplinary Staff functioning in the Ministry of Environment and Forests who may also undertake site-visits wherever required, interact with the investors and hold consultations with experts on specific issues as and when necessary. After this preliminary scrutiny, the proposals are placed before specially constituted committees of experts whose composition is specified in the EIA Notification. Such committees, known as Environmental Appraisal Committees have been constituted for each sector such as River Valley, Industries, Mining etc. and these committees meet regularly to appraise the proposals received in the Ministry.

In case of certain very special/controversial projects, which have aroused considerable public interest, the committee may also decide to arrange for public hearings on those projects to ensure public participation in developmental decisions. Announcements for such public hearing shall be made atleast 30 days before through newspapers. On the basis of the exercise described in the foregoing paragraphs, the Appraisal Committees make their recommendations for approval or rejection of particular projects. The recommendations of the Committees are then processed in the Ministry of Environment and Forests for approval or rejection.

♦ **Issues of clearance or rejection letter**

In a situation where a project requires both environmental clearance as well as approval under the Forest (Conservation) Act, 1980, proposals for both are required to be given simultaneously to the concerned divisions of the ministry. The processing is done simultaneously for clearance/rejection, although separate letters may be issued. If the project does not involve diversion of forest land, the case is processed only for environmental clearance.

♦ **Final Steps**

Once all the requisite documents and data from the project authorities are received and public hearings (where required) have been held, assessment and evaluation of the project from the environment angle is completed within 90 days and the decision of the ministry shall be conveyed within 30 days thereafter. The clearance granted shall be valid for a period of five years for commencements of the construction or operation of the project.
Fig 1. A figure to show Environmental Clearance Process in India
Introduction to Environmental Public Hearing (EPH) and Processes

Figure 5.2: Figure showing the process of Screening

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♦ No screening required for Category A projects
♦ Category B projects will be further screened at the state level for categorization into either B1 or B2. Specific guidelines to be evolved by Ministry of Environment and Forests.

Industrial Projects in any of these areas would necessarily require Environmental Clearance
♦ Religious and historic places
♦ Archaeological monuments
♦ Scenic areas
♦ Hill resorts
♦ Beach resorts
♦ Coastal areas rich in mangroves, corals, breeding grounds of specific species
♦ Estuaries
♦ Gulf areas
♦ Biosphere reserves
♦ National parks and sanctuaries
Introduction to Environmental Public Hearing (EPH) and Processes

- National lakes and swamps
- Seismic zones
- Tribal settlements
- Areas of scientific and geological interest
- Defence installations, especially those of security importance and sensitive to pollution
- Border areas (international)
- Airports

Environmental Clearance for Mining Projects (Schedule 1A)

Major changes have been proposed in mining projects due to the amendment of EIA Notification, 2006, which are likely to have far reaching implications on the environment and on local communities. Firstly, it is proposed that coal mining projects with lease area of up to 150 hectares will be appraised by the SEIAA as Category ‘B’ Project (against the previous limit of 50 hectares). No such relaxation has been made for non-coal mining projects. This is completely unscientific and illogical as it is not clear, why coal should be given such an exemption.

In fact, it is quite clear that coal-mining projects have the most adverse environmental impact, as compared to other mining projects. From mine fires to land subsidence; from water pollution to air pollution and solid waste generation, coal mining comes out worse on all environmental parameters. Today, all major coal mining areas of the country have been declared as “critically polluted areas”. It is also a fact that of all mining projects, coal mining has displaced the largest number of people and has destroyed the largest amount of forest land. With these facts in background, putting coal mining projects of up to 150 hectare in Category ‘B’ would be most unwise and destructive for the environment.

The other damaging proposal is that all mineral prospecting is being exempted from the EIA notification. This again shows the limited view that the notification has taken on the scope of environmental impact. It is well known, that large mineral prospecting with the use of invasive technologies like drilling etc. have significant environmental impacts. They can destroy forest, pollute water bodies with chemicals and oil and even fracture geological structures. By exempting all mineral prospecting from the EIA notification, the ministry is actually losing the chance to direct the prospectors to undertake even the basic safeguards and mitigation measures.
Environmental Clearance for River Valley Projects - Schedule 1(c)

It is being proposed that “Irrigation projects not involving submergence or inter-state domain shall be appraise by the State Environmental Impact Assessment Authority (SEIAA) as Category ‘B’ projects”. In EIA 2006 notification, there is no separate category for irrigation projects. It is important to realise that a river valley project, may or may not be an irrigation project. This amendment would add to confusion and transaction costs. However, it is clear that even if a river valley project does not involve submergence, it could have environmental impact because of the lack of flow in the river. In other words, it should not be exempt.

Environmental Clearance for Airports - Schedule 7(a)

In the 2006 notification, all airport projects were put under Category ‘A’. In the proposed amendment, modernisation of airport is exempted provided ‘there is no increase in pollution load’. The very reason for modernisation is to allow more aeroplanes to operate and to increase the traffic flow. This will consequently increase the air and noise pollution. So there cannot be any modernisation project with ‘no increase in pollution load’. If this proposal is allowed then it will invariably lead to situation wherein developers will use fudged data and self-certification to show that there is no increase in pollution load. So, it should be noted that such an amendment would certainly be of no use.

EIA is anticipatory, participatory, and systematic in nature and relies on multidisciplinary input. It is a means to assessing the present state of health of ecosystem where project would be executed and to work out the possible impact it could bring in course of the time. By using EIA both environmental and economic benefits can be achieved, such as reduced cost and time of project implementation and design, avoided treatment/clean-up costs and impacts of laws and regulations.

The phrase Environmental Impact Assessment comes from Sec. 102 (2) of the National Environmental Policy Act (NEPA), 1969, USA. In many European countries, it came into vogue with the introduction of the concept of sustainable development after the World Commission of Environment in 1987. EIA has now become a requirement in many countries. In India, EIA came into existence around 1978-79; though, it was made mandatory only in 1994.

EIA has two roles, namely, legal & educational. The legal role of EIA ensures that development projects such as a housing estate, a road/bridge or some such construction project has a minimal impact on the environment in its entire ‘lifecycle’, i.e. during design, construction, use, maintenance, and demolition. Many countries now have laws stipulating that unless an EIA study is carried out (particularly for
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large infrastructure projects); permission for construction will not be granted by the local authority. The educational role of EIA is equally important. EIA facilitates in educating everyone involved - professionals and users included, of the potential environmental impacts of a project.

Various guidelines are available on EIA. The main steps are as follows:

♦ Preliminary activities include the selection of a coordinator for the EIA and the collection of background information. This should be undertaken as soon as a project has been identified.

♦ Impact identification involves a broad analysis of the impacts of project activities with a view to identifying those which are worthy of a detailed study.

♦ Baseline study entails the collection of detailed information and data on the condition of the project area prior to the project’s implementation.

♦ Impact evaluation should be done whenever possible in quantitative terms and should include the working-out of potential mitigation measures. Impact evaluation cannot proceed until project alternative has been defined, but should be completed early enough to permit decisions to be made in a timely fashion.

♦ Assessment involves combining environmental losses and gains with economic costs and benefits to procedure a complete account to each project alternative. Cost-benefit analysis should include environmental impacts where these can be evaluated in monetary terms.

♦ Documentation is prepared to describe the work done in the EIA. A working document is prepared to provide clearly stated and argued recommendations for immediate action. The working document should contain a list of project alternative with comments on the environmental and economic impacts of each.

♦ Decision-making begins when the working document reaches the decision maker, who will either accept one of the project alternatives, request further study or reject the proposed action altogether.

♦ Post audits are made to determine how close to reality the EIA predictions were.
5.3 Environmental Impact Assessment and Public Hearing

The stages of an EIA process generally depend on the requirements of the country. However, most EIA processes have a common structure, whose application is a basic standard of good practice.

EIA process usually consists of eight steps with each step equally important in determining the overall performance of the project. Typically, the EIA process begins with screening to ensure that the time and resources are directed at the proposals which matter environmentally and ends with some form of follow up on the implementation of the decisions and actions taken as a result of an EIA report. The eight steps of the EIA process are presented in brief below:

♦ **Screening:** First stage of EIA, which determines whether the proposed project, requires an EIA and if it does, then the level of assessment required.

♦ **Scoping:** This stage identifies the key issues and impacts that should be further investigated. This stage also defines the boundary and time limit of the study.

♦ **Impact analysis:** This stage of EIA identifies and predicts the likely environmental and social impact of the proposed project and evaluates the significance.

♦ **Mitigation:** This step in EIA recommends the actions to reduce and avoid the potential adverse environmental consequences of development activities.

♦ **Reporting:** This stage presents the result of EIA in a form of a report to the decision-making body and other interested parties.

♦ **Review of EIA:** It examines the adequacy and effectiveness of the EIA report and provides the information necessary for decision-making.

♦ **Decision-making:** It decides whether the project is rejected, approved or needs further change.

♦ **Post monitoring:** This stage comes into play once the project is commissioned. It checks to ensure that the impacts of the project do not exceed the legal standards and implementation of the mitigation measures are in the manner as described in the EIA report.

EIA has more of a legal role to play in Indian context rather than the educational one. It is backed by the Environmental Protection Act 1986. The MoEF has prepared Environmental Guidelines, to help the project proponents of a developmental
project to work out an EIA. Guidelines have been prepared to bring out specific information on the environment required for environmental clearance. The agencies, which are primarily responsible for the respective sectors are closely involved in preparing the guidelines. River valley projects, thermal power projects, mining projects and industries, ports and harbours, development of beaches, highway/railroad projects are the sectors for which guidelines have already been prepared. These guidelines basically consist of aspects regarding planning and implementation of development projects. The majority of projects in India, which require EIAs, are large developmental projects like nuclear power, river valley, thermal power plants etc, where government plays an important role.

MoEF has developed guidelines for the preparation of EIA reports along with questionnaires and check lists for the different sectors like industry and mining projects, thermal power projects, river valley projects, road, highways and railway projects, port and harbours, airports, communication projects and new towns. The critical issues focused in all these guidelines are:

- Can the local environment cope with the additional waste and pollution that the project will produce?
- Will the project location conflict with the nearby land use or preclude later developments in surrounding areas?
- Can the project operate safely without serious risk of accidents or long-term health hazards?
- How will the project affect economic activities that are based on natural resources?
- Is there sufficient infrastructure to support the project?
- How much of the resources (such as water, energy etc) will the project consume, and are adequate supplies of these resources available?
- What kind of human resources will it require or replace and what will be its social impacts in the short/long-run?
- What damages will it inadvertently cause to the national/regional assets such as natural resources, tourist areas, or historic or cultural sites, etc? (UNEP 1988).

1) Public hearing

Law requires that the public must be informed and consulted on a proposed development after the completion of EIA report.
Any one likely to be affected by the proposed project is entitled to have access to the Executive Summary of the EIA. The affected persons may include:

♦ bonafide local residents;
♦ local associations;
♦ environmental groups: active in the area
♦ any other person located at the project site / sites of displacement

They are to be given an opportunity to make oral/written suggestions to the State Pollution Control Board.

Involvement of the public is one of the fundamental principles of a successful EIA process. It not only provides an opportunity to those directly affected by a project to express their views on the environmental and social impacts of the proposal but also brings about transparency in the environmental clearance system. Nearly all EIA systems make some sort of provision for public involvement. This could be in the form of public consultation (or dialogue) or public participation (which is a more interactive and intensive process of stakeholder engagement).

Most EIA processes are undertaken through public consultation rather than participation. Public consultation refers to the process by which the concerns of the local people regarding the adverse impacts of a project are ascertained and taken into account in the EIA study. This concept was legally introduced in India in the form of ‘public hearing’ in 1997. Since then the public hearing process has been conducted as a mandatory step of environmental clearance for most projects and activities.

The public consultation process ensures an equitable and fair decision-making process resulting in better environmental outcomes. The type of consultation, whom to consult during EIA activities, when and how to do so and who should do it all vary significantly from project to project. This depends on the needs of the project. However, it is an important component for all kinds of project. This is because public consultations help allay the concerns of the local community, and reduce inaccurate information in the EIA report. Some argue that it is better not to include the public in EIA as it will be quicker and most cost-effective to exclude the public in EIA. Project proponents eager to implement their project may fear that citizen involvement will delay their schedule or force them to revise the project. Public participation may also be sometimes regarded as unnecessary because citizens lack project-specific expertise and it is just necessary to educate citizens about the merits of the project. To the project proponent, it may look more prudent to push the
project through quietly rather than run the risk of a public process. However, excluding the public does not ensure expediency either. Alienated citizens tend to delay the implementation of the project though time consuming legal action if they feel that their rights are curbed through project implementation (example Silent Valley, Tehri Dam, Dahanu). Therefore, the project proponent needs to consider not only the risks but also not refrain from including citizen input so as to reap the potential benefits of establishing a long term co-operative relationship with citizens.

Ideally public consultation should start from when the idea of the project is conceived and continue throughout the course of the EIA. The five main stages when public involvement can take place in the EIA process are screening, scoping, impact analysis and mitigation, review of EIA quality, and implementation and follow up.

In India, the role of the public in the entire environment clearance process is quite limited. Public consultation happens at a very late stage when the EIA report is already prepared and the proponent is about to present it to the review committee for clearance. This means that the EIA study is unable to take into account the concerns and issues important to public. Even if the members of the community raise certain issues in the public hearing process, they have no means of knowing if it actually gets addressed in the final EIA report as they have no access to it. There are several weaknesses in the public hearing process as it exists now. Instead of becoming a participatory forum it has become a mere procedure.

The EIA Notification, 2006 contains very less about the entire public hearing process. It has even added a provision which makes it possible to completely forego the public hearing process if the situation is not conducive for conducting hearing as felt by the local administration. This provision can be misused to further limit the role of the public in the entire process.

There have been several cases in the past that have shown that the public hearing process has failed to meet its objective of effectively involving people in the clearance process. Several means have been devised to keep the public away such as poor circulation of notice, politics, etc. Some cases of poor public hearing proceedings are the Teesta Low Dam Project III and IV, the Sethusamudram ship canal project, the Subansiri Hydroelectric Project, etc.

2) **Environment Management Plan**

The Environment Management Plan (EMP) is prepared by the Impact assessment authority after all the above provisions have been complied with.
3) Decision making

Decision making process involves consultation between the project proponent (assisted by a consultant) and the impact assessment authority (assisted by an expert group if necessary)

The decision on environmental clearance is arrived at through a number of steps including evaluation of EIA and EMP.

♦ Monitoring the clearance conditions

Monitoring should be done during both construction and operation phases of a project. This is not only to ensure that the commitments made are complied with but also to observe whether the predictions made in the EIA reports were correct or not. Where the impacts exceed the predicted levels, corrective action should be taken. Monitoring will enable the regulatory agency to review the validity of predictions and the conditions of implementation of the Environmental Management Plan (EMP).

Industrial Projects in any of these areas would necessarily require Environmental Clearance are listed out below:

♦ Religious and historic places
♦ Archaeological monuments
♦ Scenic areas
♦ Hill resorts
♦ Beach resorts
♦ Coastal areas rich in mangroves, corals, breeding grounds of specific species
♦ Estuaries
♦ Gulf areas
♦ Biosphere reserves
♦ National parks and sanctuaries
♦ National lakes and swamps
♦ Seismic zones
♦ Tribal settlements
♦ Areas of scientific and geological interest
♦ Defence installations, especially those of security importance and sensitive to pollution

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- Border areas (international)
- Airports

5.4 Roles of Different Actors in EIA Process

EIA process involves many parties, grouped by their role definition within the process. The following section outlines the basic responsibilities of various bodies:

- The Project Proponent
- The Environmental Consultants
- The State Pollution Control Board / Pollution Control Committees (PCCs)
- The Public
- The Impact Assessment Agency

The Role of the Project Proponent

The project proponent during the project planning stage decides the type of projects i.e. new establishment, expansion or modernisation. Later the project proponent needs to prepare the Detailed Project Report/Feasibility Report and submits the Executive Summary, which shall incorporate the project details, and findings of EIA study, which is to be made available to concerned public.

The proponent has to approach the concerned SPCB for NOC and holding the public hearing. After the public hearing the proponent submits application to IAA for environmental clearance.

Role of Environment Consultant

Environmental consultant should be conversant with the existing legal and procedural requirements of obtaining environmental clearance for proposed project. The consultant should guide the proponent through initial screening of the project and establish whether EIA studies are required to be conducted and if so finalise the scope of such study. The consultant should also be fully equipped with required instruments and infrastructure for conducting EIA studies. The environmental consultant is responsible for supplying all the environment-related information required by the SPCB and IAA through the proponent. The consultant is also required to justify the findings in the EIA and EMP during the meeting with the expert groups at IAA.
The Role of the State Pollution Control Board (PCB)/Pollution Control Committee (PCC)

The State PCBs/PCCs are responsible for assessing the compatibility of a proposed development with current operational and prescribed standards. If the development is in compliance, the PCB will then issue its NOC. They shall also hold the public hearing as per the provisions of EIA notification. The details of public hearing shall be forwarded to IAA.

The Role of the Public

The public also has an important role to play in EIA. The concerned persons will be invited through press advertisement to review information and provide their views on the proposed development requiring environmental clearance.

The Role of the Impact Assessment Agency (IAA)

Where a proponent is required to obtain environmental clearance, the IAA will evaluate and assess the EIA report. In this process the project proponent will be given a chance to present his proposal. If a project is accepted the IAA will also prepare a set of recommendations and conditions for its implementation based on this assessment. Environmental clearance conditions and recommendations of IAA are made available to the public on request through SPCB and through web site at http://envfor.nic.in. During the implementation and operation of the project, the IAA will also be responsible for the environmental monitoring process.

5.5 Importance of Public Participation In EIA

Before analysing the role of public in the process of Environmental clearance, let us again examine the concept of EIA briefly. Environment Impact Assessment or EIA is the study to predict the effect of a proposed activity/project on the environment. EIA systematically examines both beneficial and adverse consequences of the project and ensures that these effects are taken into account during project design. It helps to identify possible environmental effects of the proposed project, proposes measures to mitigate adverse effects and predicts whether there will be significant adverse environmental effects, even after the mitigation is implemented. By considering the environmental effects of the project and their mitigation early in the project planning cycle, environmental assessment has many benefits, such as protection of environment, optimum utilisation of resources and saving of time and cost of the project. Properly conducted EIA also lessens conflicts by promoting community participation, informing decision makers, and helping lay the base for environmentally sound projects. Benefits of integrating
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EIA have been observed in all stages of a project, from exploration and planning, through construction, operations, decommissioning, and beyond site closure. Some of the advantages of EIA are:

♦ First, Public participation is regarded as proper, fair conduct of democratic government in public decision-making activities.
♦ Second, public participation is widely accepted as a way to ensure that projects meet citizens’ needs and are suitable to the affected public.
♦ Third, the project carries more legitimacy, and less hostility, if potentially affected parties can influence the decision-making process.
♦ Finally, the final decision is ‘better’ when local knowledge and values are included and when expert knowledge is publicly examined.

It is a mandatory step in the process of environmental clearance for Category “A” and “B1” listed projects in the Schedule of the EIA Notification, 2006. This provides a legal space for people of an area to come face-to-face with the project proponent in the presence of regulatory bodies and express their concerns. The process of public hearing is conducted once the Draft EIA report is completed by the project proponent. The Member-Secretary of the concerned Pollution Control Board (PCB) shall finalize the date, time and exact venue of public hearing within 7 (seven) days of the date of receipt of the draft environmental impact assessment report. The District Collector is the Chairperson of the EPH committee. The committee hears the objections/suggestions from the public and concerns expressed shall be recorded by the representative of the PCB, the minutes of hearing shall be signed by the district magistrate or his or her representative on the same day and forwarded to the PCB concerned.

History of EIA

EIA is one of the successful policy innovations of the 20th Century for environmental conservation. Forty years ago, there was no EIA but today, it is a formal process in many countries and is currently practiced in more than 100 countries. EIA as a mandatory regulatory procedure originated in the early 1970s, with the implementation of the National Environment Policy Act (NEPA) 1969 in the US. A large part of the initial development took place in a few high-income countries, like Canada, Australia, and New Zealand (1973-74). However, there were some developing countries as well, which introduced EIA relatively early-Columbia (1974) Philippines (1978). The EIA process really took off after the mid-1980s. In 1989, the World Bank adopted EIA for major development projects, in which a borrower country had to undertake an EIA under the Bank’s supervision.
The World Summit on Sustainable Development in Johannesburg (South Africa, 2002) developed further these provisions. The principles promoted by these conferences are fully integrated into the provisions of the UNECE Convention on Environmental Impact Assessment.

♦ EIA prior to 1994

In India, the assessment of projects for environmental impacts, though not known in the exact manner as it is today, dates back a few decades.

The first major instance of incorporating provisions for the assessment of environmental impact of a project in any legal instrument was seen in the case of Central Water Commission (CWC). In the guidelines issued by CWC in 1975, the Commission provided for conducting investigations regarding major irrigation and hydroelectric projects. It was stated in the legal instrument of CWC under the chapter on environment that the planning, construction and operation of projects have impacts on ecology, some of which are irreversible. Therefore it would be necessary to carefully evaluate these impacts.

The actual EIA process in India was started in 1976-77 when the Planning Commission asked the then Department of Science and Technology to examine the river-valley projects from environmental angle. This was subsequently extended to cover those projects, which required approval of the Public Investment Board. These were administrative decisions, and lacked the legislative support.

Initially, up till 1994, in India, EIA clearances existed in form of ‘Environmental Clearances’ and appraisals which were an administrative requirement only for big projects undertaken by the Government or public sector undertakings. The Environmental Clearances for these projects were carried out under administrative guidelines, which required the project proponents of major irrigation projects, river valley projects, power projects, ports and harbors, etc., to secure a clearance from the Union Ministry of Environment and Forests (MoEF). The procedure required the authority to submit environmental information to the MoEF by filling out questionnaires or checklists. The ministry’s Environmental Appraisal Committees carried out the Environmental Clearances and appraisals.

♦ EIA Notification 1994

The Government of India enacted the Environment (Protection) Act on 23rd May 1986. To achieve the objectives of the Act, one of the decisions that were taken is to make environmental impact assessment statutory.
On 27th January 1994, the MoEF notified mandatory EIAs under Rule 5 of the Environment (Protection) Rules, 1986 for 29 designated projects. This is the principal piece of legislation governing environmental impact assessment.

The notification made it obligatory to prepare and submit an EIA, an Environment Management Plan (EMP), and a project report to an Impact Assessment Agency (Agency) and was required to consult a multi-disciplinary committee of experts. The EIA provision was hence made a mandatory requirement under the Environment Protection Act, 1986 with the following four objectives:

1) Predict the environmental impact of projects
2) Find ways and means to reduce adverse impacts;
3) Shape the projects to suit local environment;
4) Present the predictions and options to the decision-makers.

The Notification legislated under the Environment Protection Act, 1986 was responsible for ensuring that developmental projects (industries and infrastructure like dams, mines, refineries, large commercial complexes, highways, power projects, etc.) account for their environmental impacts as part of their planning and design processes.

The notification specified the process of obtaining Environmental Clearance (EC) for such projects, and also provided for the only element of public participation that there is in the entire process, as such public input is critical, among other things, for example, in ensuring that the sustenance of communities that live in the project area are not threatened.

According to Schedule II of the notification, the EIA is expected to cover at least the following matters:

1) Description of the proposed activities;
2) Description of the base environmental and climatic conditions and potential affected environment including specific information necessary to identify and assess the environmental effect of the proposed activities
3) Analysis of the land use and land use change, waste generation, water consumption (and the existing balance), power consumption etc. along with the social and health impacts (in terms of number of people displayed etc)
4) Description of the practical activities as appropriate
5) An assessment of the likely or potential environmental impacts of the proposed activity (like air pollution, noise generation) and the alternatives, including the direct or indirect, cumulative, short-term and long-term effects;

6) A risk assessment report and disaster management plan to mitigate adverse environmental impacts of proposed activity and assessment of those measures;

7) An indication of the likely area to be affected by the proposed activity or its alternatives;

8) A detailed environmental feasibility report of all the information provided.

The EIA report is prepared and submitted to the agency for approval. The report is required to include proposed measures to be undertaken by a proponent to mitigate or ameliorate the negative environment effects. If approved, an environmental agency statement and certificate of approval shall be issued by the agency.

The Notification also mandates a public hearing, with further review by a committee of experts in certain cases. Any member of the public can have access to a summary of the Project Report and the detailed EMPs. Public hearings are statutory / mandatory. This is the only piece of legislation that actually provides affected communities and the wide public some scope in influencing the final outcome of the decision.

In a move, the MoEF also took a step in decentralizing the responsibilities of conducting EIA (notification date 10th April 1997, No. S.O. 319 E).

The EIA Notification, 1994 was subsequently amended time and again. Amendments of 4th May 1994, 10th April 1997 and 27th January 2000 led to making EIA mandatory for 30 activities.

♦ Amendments to EIA Notification, 1994

Since its inception in 1994, the mechanism of EIA has come a long way before it was re-engineered in the year 2006 to overcome its limitation experienced over the years. This journey has proved to be a bumpy ride for this administrative mechanism with as many as 13 amendments in 11 years to re-engineering the whole process in 2006. The mechanism of EIA was devised to ensure that projects like dams, mines, industries, highways bridges, etc. do not cause irreversible & repairable damage to the environment. Despite started for a noble cause, experiences over the years have revealed that many projects that should either stop or at least modified have slipped through the cracks. Over the years of its existence, there is much more to be done when it comes to implementing the EIA notification.
Several changes were made to the original notification. The first amendment came within a few months of the notification on 4th May 1994. Many more were to follow. The EIA notification 1994 was amended almost 13 times in 11 years. While most of the amendments diluted the process of environmental clearance process, there were some, which also strengthened the process. Some of the key amendments are discussed as follows:

♦ **Amendment on 10th April, 1997:** The process of environmental public hearing (EPH) was introduced in the environmental clearance process. The SPCBs were entrusted to conduct public hearing to get the views and concerns of the affected community and interested parties for the proposed project. It was also entrusted with forming an EPH committee to ensure fair representation in the public hearing process. This amendment also made some changes with reference to the environmental clearance required for power plants.

♦ **Amendment on 13th June, 2002:** This amendment diluted the purpose of the notification exempting many industries from the EIA process or from the entire environment clearance process on the basis of level of investment.
  
  — It exempted pipeline and highway projects from preparing the EIA report, but these projects would have to conduct public hearings in all the districts through which the pipeline or highway passes.

  — A number of projects were totally exempted from the Notification if the investment was less than Rs 100 crore for new projects and less than Rs. 50 crore for expansion/modernisation projects.

  — Most of the industries exempted from the clearance process had a very high social and environmental impact even if the investment was less than Rs 100 crore. For example, in case of Hydel power projects, irrespective of the investment, there will be social impacts due to displacement.

  — No EIA was required for modernisation projects in irrigation sector if additional command area was less than 10,000 hectares or project cost was less than Rs. 100 crore.

♦ **Amendment on 28th February, 2003:** This amendment added a little tooth to the notification. It took into consideration location-sensitivity into the environment clearance process. This amendment prohibited certain processes and operations in specified areas of the Aravalli range.

♦ **Amendment on 7th May 2003:** The notification was amended to expand the lists of activities involving risk or hazard. In this list, river valley projects
including hydel power projects, major irrigation projects and their combination including flood control project except projects relating to improvement work including widening and strengthening of existing canals with land acquisition up to a maximum of 20 metres, (both sides put together) along the existing alignments, provided such canals does not pass through ecologically sensitive areas such as national parks, sanctuaries, tiger reserves and reserve forests.

♦ **Amendment on 4th August 2003:** This amendment was similar to the one in February 2003 that tried bringing in location-sensitivity in the entire environmental clearance process. Any project located in a critically polluted area, within a radius of 15 kilometres of the boundary of reserved forests, ecologically sensitive areas, which include national parks, sanctuaries, biosphere reserves; and any State, had to obtain environmental clearance from the Central Government.

♦ **Amendment on September 2003:** Site clearance was made mandatory for green field airport, petrochemical complexes and refineries. Moreover, the amendment added that no public hearing was required for offshore exploration activities, beyond 10 km from the nearest habitation, village boundary, goothans and ecologically sensitive areas such as, mangroves (with a minimum area of 1,000 sq.m), corals, coral reefs, national parks, marine parks, sanctuaries, reserve forests and breeding and spawning grounds of fish and other marine life.

♦ **Amendment on 7th July, 2004:** It made EIA mandatory for construction and industrial estate.

♦ **13th Amendment on 4th July 2005:** The amendment provided that projects related to expansion or modernization of nuclear power and related project, river valley project, ports, harbors and airports, thermal power plants and mining projects with a lease area of more than 5 hectares could be taken up without prior environmental clearance. The Central Government in the Ministry of Environment and Forests may, on case to case basis, in public interest, relax the requirement of obtaining prior environmental clearance and may, after satisfying itself, grant temporary working permission on receipt of application in the prescribed format for a period not exceeding two years, during which the proponent shall obtain the requisite environmental clearance as per the procedure laid down in the notification. The grant of temporary working permission would not necessarily imply that the environmental clearance would be granted for the said project.
The amendments have passed biased notion of MoEF towards industrial chambers. These amendments brought about on the basis of investment limits had proved to be a escape-gate for various projects for which there was a need for a proper check for their impacts on environment. For instance, until 2002, projects above Rs 50 crores needed clearance but this was amended to Rs. 100 crores. Take the Mahadai Diversion Scheme in the ecologically sensitive Western Ghats region as an example. The Karnataka State Government proposed to build two earthen dams on the Bhandura & the Kalasa Nalas (streams) of the Mahadai to divert water to the east flowing Malaprabha. Both these projects, parts of the overall Mahadai Diversion Scheme, were estimated to cost Rs 49.2 crores and Rs 44.78 crores respectively. The combined cost would be over Rs. 90 crores, which would have made it necessary to obtain environment clearance had the amendment not occurred. However, the dams were shown as two independent projects and able to bypass the environment clearance procedure merely on the basis of an investment limit.

Similarly an amendment in August 2001 excluded Mining projects with lease area upto 25 hectares from public hearing. Leases below 25 hectares can cause tremendous damage in ecologically and culturally sensitive areas and under no circumstances can anyone make assumptions that these have “minimal” impacts and that public hearings are therefore not required. There are umpteen examples of leases under 25 hectare for both minor and major minerals from around the country which have caused or will cause significant social and ecological impacts. We have the marble mines in the Alwar district of Rajasthan, the iron ore mines in Sundur in Bellary district of Karnataka, the bauxite mines in the tribal areas of the Anantgiri in the Eastern Ghats of Andhra Pradesh, the coal mines in Jaintia Hills of Meghalaya etc. We also have the example of both the Doon Valley and the Aravallis where smaller leases have caused extensive environment damage and mining activities have subsequently been regulated by both the judiciary and the MoEF (vide Amendment dated 28th Feb, 2003).

By an amendment in December 2000, defense related road construction projects in border areas were excluded. All over North East India, the defense roads are largest developmental projects. The Sikkim State Biodiversity Strategy and Action Plan states road construction as a major cause of deforestation in the state and presents certain action points to reduce the damage due to developmental activities. Such construction has caused fragmentation of wildlife habitats and brought in huge number of people for labor, creating pressure on the local natural resources like firewood.

Due to reasons like these, there was a wide spread opinion that the EIA notification was not able to address all the concerns and had several weaknesses which was
making the entire clearance process, weak. The EIA movement in India has been severely marred by the consistent amendments over the years. It has been reduced to a formality rather than an obligatory measure to safeguard the environment and make the project sustainable. The experience with these assessments has been far from satisfactory. EIA reports have been done in an extremely shoddy, incomplete and inadequate manner. Yet year after year, projects have been cleared, despite criticism and protests.

In September 2006, the MoEF re-engineered the EIA process with a view to bring about some significant modifications. A draft notification was prepared with special consultations with the industry associations at the behest of the Prime Minister’s Office and was published on 15th September, 2005. This was put up for public comment for a year and was then notified on 14th September, 2006.

♦ EIA Notification 2006

The currently applicable EIA notification was introduced by the MoEF on 14th September, 2006. This was a year after the draft notification was placed on the MoEF website, in response to which, comments were sent by several groups and organizations. Since objective of EIA Notification 2006 was to address the limitations in the old EIA Notification (1994), various modifications have been incorporated, which the Ministry claims to have done after taking into account the feedback from the different stakeholders.

Though, there have been some improvements in the new notification over the previous one, it has certainly failed to meet the expectations of the various stakeholders, especially members of the civil society, NGOs and local community.

The EIA-2006 is an outcome of the recommendations made by the Govindarajan Committee. It was constituted to examine the procedures for investment approvals and project implementation. It found that the environment clearance causes maximum delay to projects and recommended that some of the cumbersome procedures be modified. Consultations on the draft notification were held only with representatives from industry and central government agencies (Asscom, FICCI, CII and MoEF).

The 2006 Notification has tried bringing in more number of projects within the purview of the environmental clearance process. As a result, a revised list of projects and activities has been redrawn that requires prior environmental clearance. Most importantly, there is no categorization of projects requiring EIA based on investment, rather size or capacity of the project determines whether it is cleared by the central or state government.
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The major difference in the EIA Notification 2006 from the earlier one (1994) is its attempt to decentralize power to the State Government. Earlier all the projects under schedule 1 went to the Central Government for environmental clearance. However, as per the 2006 notification, significant number of projects will go to the state for clearance depending on its size/capacity/area. For this, the notification has made a provision to form an expert panel, the Environment Appraisal Committees (SEAC) at the State level. Though this is a good attempt to reduce the burden on the central government, however, this provision can be misused as in many cases state government is actively pursuing industrialization for their respective state. The notification has also failed to mention if there would be some sort of monitoring of state level projects by the central government.

The notification also talks about ‘Scoping’, which was completely missing earlier. The terms of reference (ToR) of the project will now be decided by the SEAC at the state-level and by Environment Appraisal Committees (EAC) at the Central level. This will be decided on the basis of the information provided by the proponent. If needed the SEACs and EACs would visit the site, hold public consultation and meet experts to decide the ToR. The final ToR has to be posted in the website for public viewing. Though this seems good on paper, however, the proponent itself is providing the information for finalisation of ToR and moreover there is no compulsory provision for public consultation. Further, if the EAC does not decide the ToR within the stipulated time, the project proponents can go ahead with their own ToR.

Though there is clear mention of appraisal in the EIA process, there is no mention of post monitoring, a very important part of the entire EIA process.

The area where there could have been major improvements in environment clearance process, i.e. public consultation, the 2006 EIA notification is a major disappointment. The public consultation as was earlier done will still be conducted at the end of the environment clearance process where there is very little scope for the public to play any active role.

Moreover, the 2006 Notification has made few changes that weaken the public consultation process. There is a provision in the notification where a public consultation can totally be foregone if the authorities feel the situation is not conducive for holding public hearing. This can limit the involvement of people. Further, the consultation process has been divided into public hearing for local people and submission in writing from other interested parties. If this is the case, then NGOs/civil society organization will not be able to take part in the public hearing process, which will significantly affect the efficiency of the consultation process.
The focus of the 2006 Notification has been to reduce the time required for the entire environment clearance process. The earlier process took around 14-19 months for Rapid EIA and 21 to 28 months for comprehensive EIA. As per the notification, the category A project will be completed only in 10.5 to 12 months. There seems to be no justification for this and may result in compromising on the efficiency and transparency of the clearance process, which was quite evident from the earlier notification even though the process had more time.

5.6 Concept of Environmental Public Hearing

State statues require that public hearings be held regarding the application for a variance or a subdivision approval public hearing regarding site plan application and draft environmental impact statements may be required as a matter of local practice.

What is Public Hearing?

Public Hearing (also known as Jan Sunwai) is a meeting of a house committee or subcommittee during which public problems may be heard and formal action may be taken on any measure or matter before the committee or sub committee. It is a formal meeting designed to provide the public with the fullest opportunity to express support or opposition to any major/minor project in an open forum where the oral interaction are recorded.

In a public hearing issues relating to environment, related to displacement, eviction of persons or families and their rehabilitation. It is a way of giving powers to the public to ask any questions in effect, making the government or the authority answerable in such hearings. Such hearings are especially useful for people living in the rural areas who do not have easy access to courts. These people can avail the opportunity of being heard through the mechanism of public hearing, which definitely provides for speedy justice and instant resolution of problems. Public hearing becomes a useful tool in providing a voice to the voiceless who have faced injustice and who do not have the necessary resources to approach courts. These hearings are organized by the government and as well as by various Non-Governmental Organizations.

They give the people the right to participate, which is something that is rare. This mechanism not only gives the poor the chance of being heard but also gives them the right to inspect records, which might be necessary for the dispensation of justice. The Government in 2005 passed the Right to Information Act, 2005 which gives all persons the right to access documents and the mechanism of public hearing
recognizes this as an important right by making it an integral part of the process. Thus, it can be said that the mechanism of public hearing is an important tool as it provides an opportunity of being heard to those who have been oppressed since ages and also those who don’t have access to courts due to economic reasons.

Social Audit as a Method of Public Hearing:

India is a democratic country. People are masters and Government exists to serve the people. It is the primary duty of any master to take a look at the accounts of the servant at regular intervals and hold the servant accountable. Social audit or public audit is a step in that direction. People use right to information to obtain details of the works carried out by a Government Department or the manner in which that Department spent the money. This information contained in records is compared with field reality. This is public audit or social audit and is a very important tool in the hands of the people to hold the Government accountable. Social audit assumes greater importance in the context of democratic decentralization since 1992-93. Structures for accountability are the weakest in panchayats and municipal bodies who are implementing anti-poverty programmes and providing basic social services. The people have gained unprecedented access to information about, for instance whose names were listed as workers in the muster rolls the amount of money stated to have been paid to them as wages the details of various materials claimed to have used in the contribution and so on.

During the audit of the documents large number of persons who were dead or migrated or non-existent, were listed as workers and shown to be paid wages. By such audits in the document innumerable stunning facts of the duplicity and fraud of the local official and elected representatives is visible.

It is not as if they were unaware in the past that the muster rolls are forged that the records misused and misappropriated. But they didn’t say anything as they were under the influence fear and doubts and in the absence of the hard facts and evidence they were unable to take any preventive or any other action against them. As they thought that if they did anything against them they will have to repent and would have to loose their jobs. They won’t get anything after doing so as compared to what they were getting till date. So they let it carry on without even speaking about it. Public Hearing changed it and ordinary people spoke out fearlessly and gave evidence against corruption and public officials are invited in such hearings to defend themselves. The social audit is not merely a platform for rooting out corruption; it is also an opportunity to have citizens participate in all aspects of self-governance.
Public Hearing Related to Right to Information Act, 2005

Right to Information Act, 2005 has been made in order to help the people get their right, which is not possible otherwise. As their being political apathy and lack of awareness on the part of citizens such right had to be implemented. The effectiveness of this act depends on how they been used over time by the people and by officials and government who are bound by it.

Under the Right to Information Act (hereinafter referred to as the Act), there is a statutory forum available for the public to demand information and there is also a Public Grievance Commission where they can further take up the matter, in the absence of receiving a satisfactory response. With the help of this act various public hearing could be taken up very easily as it forms the main crust of the arguments of the public. By right to information act the public could ask the authority to show them the records if they dissatisfy them Public hearing itself is a mode that works when it is ensured that people— in particular, the weaker sections of the society are given a complete opportunity to be heard, and are encouraged and supported in their efforts to speak out. Access to information is essential, for justice, as it is for survival. This helps the public to know what is happening behind them which could be named as corruption also but some other reasons could also be give to it rather than calling it as corruption.

Public Hearing As A Solution For Corruption

Public hearing could be a solution for fighting against corruption that has been coming up very drastically in our society. For years, the people have been in their daily lives been victims of the unending tradition of corruption by the state authorities. Many individuals like political leaders, officials, social; activities have tried to fight against it and bring relief to the people. But the efforts made by them have gone waste, as the victims are not ready to participate in it. There have been various campaigns against corruption but it lasted for some time and was of temporary nature. The fundamental right of people to information has helped a lot to bring down corruption. By such right given to the people they could easily access the documents like muster roll, which tells about the attendance of the workers and wages due and paid, and bills and various vouchers which relate to the purchase of materials which has taken place.

It is not that the people were not aware of the muster rolls being forged and that the documents are also forged. They were not able to take any preventive measures due to fear and absence of evidence. When public hearing was done, the people spoke out without fear and gave evidence against corruption that is very much
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prevalent these days. The people must be empowered to control and fight against corruption directly. By such hearings concrete evidence of corruption has to come into light. Armed with such evidence in their hands the people should be able to fight corruption and get their due back without any fear and live their life more easily. Every time the workers made a demand for minimum wages they were told that they had not done the work, as proved in the records.

The right to information is expected to improve the quality of decision making by public authorities. It would enable groups and individuals to be kept informed about the functioning of the decision making process as it affects them, and to know the kinds of criteria that are to be applied by government agencies in making these decisions. By securing access to relevant information and knowledge, the citizens would be enabled to assess government performance and to participate in and influence the process of government decision-making and policy formulation on any issue of concern to them.

Drawbacks of Public Hearing Arranged By Government

The Public Hearing arranged by the government has many drawbacks by which it is conducted. There are insufficient notice about social audit and no information about its function. Many times the Information is not even circulated before the meeting is to take place. The people need time to read the information and take their time to understand it and frame up their arguments against the authorities. But when the official only don’t provide them with the information how can they take part in the hearing that is going to take place.

The officials of the government during the hearing only read out the total amount of money sanctioned for that work and the total expenditure, which is being incurred on it. The Labour, material components and its breakup are not mentioned in it. Bills, Vouchers, Muster rolls, and other documents were not displayed for the public to look into them. This being the main aim of the hearing that is to access to the documents but the government doesn’t give them this right also. In the case where the muster rolls, only then the entire documents are read out and then could the public see them and then the picture behind the scene emerges which is really bad. It is through these documents anyone could know how many people worked at the particular site, how many days did he work and lastly how much did he get paid working there. In many cases it was found that names of dead people were also written in the muster rolls and were given wages also.

The names of various people who had migrated and various other government officials were also given wages. But the people who had worked day an night were
not given sufficient wages. The process of social audit initiated by the state
government failed in its main purpose and was nothing more than a face saving
device.

Environment Public Hearing

Environmental Public Hearing is one of the fundamental principles of a successful
Environmental Impact Assessment process. It basically means that the involvement
of public is an essential ingredient for a proper process of environmental clearance.
It not only provides an opportunity to those directly affected by a project to express
their views on the environmental and social impacts of the proposal but also brings
about transparency in the environmental clearance system. This could be in the
form of public consultation or public participation (which is a more interactive
and intensive process of stakeholder engagement). Ideally public consultation
should start from when the idea of the project is conceived and continue throughout
the course of the EIA. The five main stages when public involvement can take
place in the EIA process are screening, scoping, impact analysis and mitigation,
review of EIA quality, and implementation and follow up.

♦ Need for participation

There is a need to increase public sensitivity to environment and development
problems to find out solutions and foster a sense of personal environmental
responsibility and greater motivation and commitment towards sustainable
development. Public consultation refers to the process by which the concerns of
the local people regarding the adverse impacts of a project are ascertained and
taken into account in the EIA study. This concept was legally introduced in India in
the form of ‘public hearing’ in 1997. Since then the public hearing process has been
conduct as a mandatory step of environmental clearance for most projects and
activities.

The public consultation process ensures an equitable and fair decision-making
process resulting in better environmental outcomes. The type of consultation, whom
to consult during EIA activities, when and how to do so and who should do it all
vary significantly from project to project. This depends on the needs of the project.
However, it is an important component for all kinds of project. This is because
public consultations help allay the concerns of the local community, and reduce
inaccurate information in the EIA report.
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♦ Public Participation may lead to unwanted situations

Some argue that it is better not to include the public in EIA as it will be quicker and most cost-effective to exclude the public in EIA. Project proponents eager to implement their project may fear that citizen involvement will delay their schedule or force them to revise the project. Public participation may be regarded as unnecessary because citizens lack project-specific expertise and it is just necessary to educate citizens about the merits of the project. To the project proponent, it may look more prudent to push the project through quietly rather than run the risk of a public process. However, excluding the public does not ensure expediency either. Alienated citizens tend to delay the implementation of the project though time consuming legal action if they feel that their rights are curbed through project implementation. Therefore, the project proponent needs to consider not only the risks of including citizen input, but also the potential benefits of establishing a long term co-operative relationship with citizens.

Basic Objectives of Public Hearing

The basic purpose served by Environmental Public Hearing is:

♦ It provides ample opportunity to the local communities living in and around the project site to express their views regarding such a set-up. They are expected to let know if this set-up is going to them affect them adversely and if so, to what extent.

♦ Since the public is also consulted, it widens the scope of research and leads to a result which is optimum. It leads to an equitable and fair decision making process finally resulting in better environmental outcomes.

♦ It brings about transparency in the environmental clearance system.

The Procedure for conduct of Public Hearing

As discussed before, environmental public hearing is an integral part of environmental clearance process. It is an integral part of Stage 3 of EIA process called ‘Public Consultation’. This stage of the EIA process is to comprise of two aspects; a public hearing process in which only local affected people can participate and a process for obtaining written comments from others who are concerned citizens.

The Public Hearing is to be arranged in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site or in its close proximity District-wise, by the concerned State Pollution Control Board (SPCB) or the Union Territory Pollution Control Committee (UTPCC).
1) The Process

♦ The applicant shall make a request through a simple letter to the Member Secretary of the SPCB or Union Territory Pollution Control Committee, in whose jurisdiction the project is located, to arrange the public hearing within the prescribed statutory period. In case the project site is covering more than one District or State or Union Territory, the public hearing is mandated in each District, State or Union Territory in which the project is located and the applicant shall make separate requests to each concerned SPCB or UTPCC for holding the public hearing as per this procedure.

♦ The applicant shall enclose with the letter of request, at least 10 hard copies and an equivalent number of soft (electronic) copies of the draft EIA Report including the Summary Environment Impact Assessment report in English and in the local language, prepared strictly in accordance with the Terms of Reference communicated after Scoping. Simultaneously the applicant shall arrange to forward copies, one hard and one soft, of the above draft EIA Report along with the Summary EIA report to the following authorities or offices, within whose jurisdiction the project will be located:

a) District Magistrate/s
b) Zila Parishad or Municipal Corporation
c) District Industries Office
d) Urban Local Bodies (ULBs) / PRI Concerned
e) Concerned Regional Office of the Ministry of Environment and Forests

♦ On receiving the draft Environmental Impact Assessment report, the above-mentioned authorities except the Regional Office of MoEF, shall arrange to widely publicize it within their respective jurisdictions requesting the interested persons to send their comments to the concerned regulatory authorities. They shall also make available the draft EIA Report for inspection electronically or otherwise to the public during normal office hours till the Public Hearing is over.

♦ The SPCB or UTPCC concerned shall also make similar arrangements for giving publicity about the project within the State/Union Territory and make available the Summary of the draft Environmental Impact Assessment report for inspection in select offices or public libraries or any other suitable location etc. They shall also additionally make available a copy of the draft Environmental Impact Assessment report to the above five authorities/offices mentioned above.
2) **Notice of Public Hearing**

- The Member-Secretary of the concerned SPCB or UTPCC shall finalize the date, time and exact venue for the conduct of public hearing within 7 days of the date of receipt of the draft Environmental Impact Assessment report from the project proponent, and advertise the same in one major National Daily and one Regional vernacular Daily / Official State Language. A minimum notice period of 30 days shall be provided to the public for furnishing their responses.

- The advertisement shall also inform the public about the places or offices where the public could access the draft Environmental Impact Assessment report and the Summary Environmental Impact Assessment report before the public hearing. In places where the newspapers do not reach, the Competent Authority should arrange to inform the local public about the public hearing by other means such as by way of beating of drums as well as advertisement or announcement on radio and television.

- No postponement of the date, time, venue of the public hearing shall be undertaken, unless some untoward emergency situation occurs and then only on the recommendation of the concerned District Magistrate, the postponement shall be notified to the public through the same National and Regional vernacular dailies and also prominently displayed at all the identified offices by the concerned SPCB or Union Territory Pollution Control Committee.

- In the above exceptional circumstances, fresh date, time and venue for the public consultation shall be decided by the Member Secretary of the concerned SPCB or UTPCC only in consultation with the District Magistrate and notified afresh as per the original procedure mentioned above.

3) **The Panel**

The District Magistrate / District Collector / Deputy Commissioner or his or her representative not below the rank of an Additional District Magistrate assisted by a representative of SPCB or UTPCC, shall supervise and preside over the entire public hearing process.

4) **Videography**

The SPCB or UTPCC shall arrange to video film the entire proceedings. A copy of the videotape or a CD shall be enclosed with the public hearing proceedings while forwarding it to the Regulatory Authority concerned.
5) **Proceedings**

♦ The attendance of all those who are present at the venue shall be noted and annexed with the final proceedings.

♦ There shall be no quorum required for attendance for starting the proceedings.

♦ A representative of the applicant shall initiate the proceedings with a presentation on the project and the Summary EIA report.

♦ Persons present at the venue shall be granted the opportunity to seek information or clarifications on the project from the applicant. The summary of the public hearing proceedings accurately reflecting all the views and concerns expressed shall be recorded by the representative of the SPCB or UTPCC and read over to the audience at the end of the proceedings explaining the contents in the vernacular language and the agreed minutes shall be signed by the District Magistrate or his or her representative on the same day and forwarded to the SPCB/UTPCC concerned.

♦ A Statement of the issues raised by the public and the comments of the applicant shall also be prepared in the local language or the Official State language, as the case may be, and in English and annexed to the proceedings.

♦ The proceedings of the public hearing shall be conspicuously displayed at the office of the Panchayats within whose jurisdiction the project is located, office of the concerned Zila Parishad, District Magistrate, and the SPCB or UTPCC. The SPCB or UTPCC shall also display the proceedings on its website for general information. Comments, if any, on the proceedings, may be sent directly to the concerned regulatory authorities and the applicant concerned.

6) **Time period for completion of public hearing**

♦ The public hearing shall be completed within a period of forty five days from date of receipt of the request letter from the applicant. Thereafter the SPCB or UTPCC concerned shall send the public hearing proceedings to the concerned regulatory authority within eight days of the completion of the public hearing. The applicant may also directly forward a copy of the approved public hearing proceedings to the regulatory authority concerned along with the final Environmental Impact Assessment report or supplementary report to the draft EIA report prepared after the public hearing and public consultations incorporating the concerns expressed in the public hearing along with action plan and financial allocation, item-wise, to address those concerns.
If the SPCB or UTPCC fails to hold the public hearing within the stipulated forty-five days, the Central Government in Ministry of Environment and Forests for Category ‘A’ project or activity and the State Government or Union Territory Administration for Category ‘B’ project or activity at the request of the SEIAA or project proponent, shall engage any other agency or authority to complete the process, as per procedure laid down in the EIA Notification.”

5.7 Deficiencies on Process of Public Hearing

Procedural Deficiencies

♦ Communication of information about Public Hearing
♦ Changes in Public Hearing Schedule without prior notice
♦ Uncertainty of venue of Public Hearing
♦ Control of Public Hearing by State Pollution Control Board (SPCB)
♦ Composition of Public Hearing Panel
♦ Role of Panel members
♦ Documentation of Public Hearing Proceedings

Operational Deficiencies

♦ Lack of sufficient information about the project and its impact
♦ Non-user friendly nature of information in executive summaries
♦ Remoteness of hearing venue
♦ lack of financial support for participation
♦ Under representation of stake-holders
♦ Stage management of the process

In India, the role of the public in the entire environment clearance process is quite limited. Public consultation happens at a very late stage when the EIA report is already prepared and the proponent is about to present it to the review committee for clearance. This means that the EIA study is unable to take into account the concerns and issues important to public. Even if the members of the community raise certain issues in the public hearing process, they have no means of knowing if it actually gets addressed in the final EIA report as they have no access to it. There are several weaknesses in the public hearing process as it exists now. Instead of becoming a participatory forum it has become a mere procedure.
Public Hearing as a part of Stage 3 'Public Consultation process’, Few Criticisms:

Public Consultation process as laid out in the EIA notification, 2006 is severely criticized as being flawed and clearly limiting public participation. First and foremost criticism is that there are certain sets of activities which have been exempted from the process of public consultation completely. Other grounds attracting sharp condemnation are as follows:

1) Availability of Draft EIA report: Only a draft EIA report will be available to the locally affected persons at the time of the public hearing. Citizens will not get to see the final EIA document on the basis of which the decision on the project will be made. There are enough examples in the last few years of the existence of the EIA notification when project proponents have sought clearance on incomplete and misleading data. The Ministry has not only failed to take punitive action against erring agencies but gone ahead and cleared projects based on these reports. This practice will only grow if the final EIA report is not open to public scrutiny. The appendix IV (of notification) states that the ‘draft EIA report with the generic structure…” is to be available to the public prior to the hearing. This does not ensure that the draft report will have an adequate description of environmental impacts of the project, such that they can be understood by readers. If the draft is very rudimentary, the public hearing will be a waste of public time and money. The notification should have either laid down details of the degree of information that the draft report should contain or should have introduced clauses of punitive action if the draft allows only an ineffective public hearing due to being uninformative or less informative.

Further, the public will have no control over whether or not their inputs and concerns get incorporated in the EIA report and influence the decision making process.

The time period for which the draft EIA report will be available prior to the hearing is not mentioned in the notification. The 1994 notification mandated that it be available for a period of 30 days prior to the hearing.

2) Cancellation of Public Hearing: This clause which requires the public hearing to be cancelled if the local conditions are not conducive is subject to severe misuse by the project proponents and regulatory authorities. This point was also raised in the comments sent by several civil society organizations to the MoEF, which have not been taken on board. The inclusion of this clause is a severe setback to the notification as it has in effect made the public hearing procedure a discretionary procedure when it was mandatory before.
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3) **No Postponement of Public hearing except in exceptional circumstances and unless there is some untoward emergency:** Can the non-availability of the EIA report for enough time or inadequate draft EIA be reason for the cancellation or postponement of the public hearing? In various places, these have been the reasons why local communities have demanded the same. Detailed documentation of the conduct of public hearings at the local level in various places indicates severe lacunae in the implementation of the public hearing process. Some of the issues that public hearings have thrown up until now, and that remain unaddressed in the 2006 public consultation process as well are;

♦ *No quorum required for attendance to start the proceedings:* Does this imply that the public hearing can start with the public hearing panel being incomplete?

♦ *Who can attend public hearings?* The notification states that the public hearing will be primarily for the purpose of ascertaining concerns of local affected persons. Other concerned persons who have plausible stake in the environmental impacts can make submissions in writing. This clearly limits the participation of people’s groups, and civil society organizations. Further, if the SEAC, or EAC feels that a certain person or organization does not have a plausible stake in the environmental impacts, then they have the discretion of not accepting even a written submission from them.

### 5.8 Conclusion

Public Hearings for Environmental Clearance of various Developmental Projects was made mandatory under the EIA notification in 1997. Public Hearings allow for people’s participation in the decision making of developmental projects and is the only opportunity for people to raise their concerns about the proposed project. It is the responsibility of the State Pollution Control Board (SPCB) to call for a public hearing when a project is proposed in an area.

For conducting a public hearing, any project proponents has to follow procedure established by law which is prescribed in the EIA notification issued under the provisions of the Environment (Protection) Act, 1986 and rulings of the courts on the same. The procedure that has to be followed is:

a) The project proponent has to submit to the concerned State Pollution Control Board twenty sets of

♦ An Executive summery both in English and in local language

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b) The notice of public hearing regarding any projects has to be published by the State Pollution Control Board in at least two newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned.

c) State Pollution Control Board is responsible for mentioning the date, time and place of public hearing.

d) Thirty days time shall be given from the date of publication of notice for comments and objections of the public.

e) The persons who can participate in the public hearing are
   ♦ Bonafide residents at the project site
   ♦ Environmental groups
   ♦ Other person located at the project site

f) The Public hearing panel must be consist of:
   ♦ Representative of State Pollution Control Board;
   ♦ District Collector or his nominee;
   ♦ Representative of Department of the State Government dealing with Environment;
   ♦ Not more than three representatives of the local bodies such as Municipalities or panchayats;
   ♦ Not more than three senior citizens of the area nominated by the District Collector

g) The concerned persons shall be provided access to the Executive Summary and Environmental Impact Assessment report of the project at the following places, namely:-
   i) District Collector Office;
   ii) District Industry Centre;
   iii) In the Office of the Chief Executive Officers of Zila Praishad or Commissioner of the Municipal Corporation/Local body as the case may be;
   iv) In the head office of the concerned State Pollution Control Board and its concerned Regional Office;
v) In the concerned Department of the State Government dealing with the subject of environment.

Projects exempted from public hearing

Public hearing is not required for the following projects:

- Small scale industrial undertakings located in
  a) Notified or designed industrial areas/industrial estates.
  b) Areas marked for industries under the jurisdiction of industrial development authorities.
    - Widening and strengthening of highways
    - Mining projects (major minerals) with lease areas upto 25 hectares
    - Units located in export processing zones and special economic zones and
    - Modernization of existing irrigation projects.

Note: Offshore exploration activities beyond 10 km from the nearest inhabited village boundaries, Gothans, and ecologically sensitive areas, such as mangroves (minimum of 1000sq.m.), corals, coral reefs, national parks, marine parks, sanctuaries, reserve forests and breeding and spawning grounds of fish and other marine life have been proposed by the MoEF to be exempted from the public hearing.

Points to examine that any public hearing is proper or not:

- First and foremost thing is whether the notice of the public hearing has been given properly or not. The information of the public hearing and availability of the related documents to the villagers of the affected area is prime and foremost requirement of conducting the public hearing.
- Whether the notice of hearing is published in news paper widely circulated in the area.
- It has been held by the Gujarat High Court that even publication in news paper of the notice will not suffice the basic purpose for which the public hearing has been contemplated. The Gujarat High Court has held in case of Center for Social Justice vs. Union of India and others, that in addition to publication the people of the project affected village should be notified about the public hearing by informing them through concerned Gram Panchayat as the members of the Gram Panchayat would bring it to the notice of local people as normally rural population in India is illiterate and does not read news paper.
Thus only publishing the notice in newspaper was not sufficient to cause notice to the effect people.

♦ Access to the Executive Summary and Environmental Impact Assessment report of the project to the people is important. If the concerned persons have no knowledge of the report then it is not possible for them to effectively place their submission at the public hearing.

♦ Whether the place fixed for the public hearing is easily accessible for the villagers and the affected persons.

Purpose of Public Hearing is to create awareness regarding environmental legislation among people,

♦ Networking with organizations working on environmental issues and

♦ Strengthening public participation in decision-making process along with the local self-government.

Public participation in Environmental Public Hearings is largely based on following the three conditions:

♦ Lack of awareness in the area where the environmental issues have or may have arisen, in the vicinity of the upcoming project or,

♦ Absence of NGOs or other groups active in the area, who can raise the issue, protest and pursue the case or,

♦ Where the issue is complex and serious and demands planned strategic intervention, despite the presence of active NGOs or other groups.
6

Introduction to Displacement and Rehabilitation

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6.1 Introduction

Displacement or the involuntary and forced relocation of people has come to be acknowledged as among the most significant negative impacts of large water resources development projects such as dams. It is estimated that by 1995, nearly 60 million people have been displaced worldwide due to the reservoirs created by large dams. A World Bank review of 192 projects worldwide for the period 1986 and 1993 estimated that 4 million people were displaced annually by the 300 large dams (on an average) that entered into construction every year. All these figures are at best only careful estimations and certainly do not include the hundreds of thousands and millions who may have been displaced due to several others aspects of the projects such as canals, powerhouses, associated compensatory measures such as bio-reserves, etc.

Displacement and resettlement is however more than a question of sheer numbers (or the lack thereof), though this is one very critical issue in itself. There are several aspects...

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1 McCully, P. 1996.
issues involved, such as human rights, governance and accountability, participation and self-determination in development, the complexities of resettlement goals, options and strategies, and relevant legal and policy instruments.

Generally, displacement as a result of acquisition is legally sanctioned, while there is no legal framework that governs the process of displacement itself: the land acquisition law protects the sanctity of what causes displacement (ie, the dam) but not the displaced. In the absence of legal safeguards to ensure accountability on the part of the State, resettlement and rehabilitation (R&R) entitlements promised often by executive order have rarely been implemented in their entirety covering all affected people.

For the dams funded by multilateral development institutions, the nature and extent of compliance of ‘mutually’ agreed criteria and guidelines have been mixed. Frequently, monitoring missions were either inconsistent in their appraisal of compliance standards or accepted undue delays and deviations.

A theme common in almost all countries is that funds for R&R programme were inadequate. Underfinancing or outright abandonment have been the most common problems in most R&R programmes. There is evidence to show that organisations with legislative sanction provided with adequate funds and human resources have done well in implementing a well-defined and clearly operationalised resettlement and rehabilitation programmes.

The concept of programming resettlement as development programme mode is gaining currency though practice is limited. Good practices in this respect are those that

i) focus on means of livelihood rather than on assets;

ii) assume an inclusive relationship between people and assets; and

iii) admit of a negotiated definition of just compensation.

The record indicates that in those cases in which compensation packages were negotiated with PAPs and other stakeholders, the process has resulted in better outcomes for the resettlement process as a whole. Even when, for whatever reason, the negotiated form of compensation proves not to be the most appropriate or effective option, PAPs tend to feel more satisfied, as a result of the negotiation process, as attested by the Zimapan resettlement programme in Mexico.

There is an inverse relationship between scale of displacement and extent of achieving successful resettlement outcomes even in countries with best policy,
institutional capacity and political commitment to do proper resettlement. There are a few good examples of minimising displacement.

Generally, participation of the affected people has been superficial or treated as unimportant by those responsible for the project. Real participation implies the capacity to influence or even modify decisions. Good practices from Brazil, Canada, and other countries which offer significant learning value for the WCD have emerged from the case studies and submissions to the WCD.

In several countries, the indigenous and tribal peoples displaced by large dams seem to have experienced higher levels of landlessness, unemployment, indebtedness, and hunger. The studies have also documented the adverse impact of displacement on women and children. Only situations where loss of land and access to natural resources were replaced with sustainable resources women had opportunities to recover their social and economic worth and respect.

The National Rehabilitation and Resettlement Policy, 2007 that has come into force grows out of the experience of the earlier National Policy on Resettlement and Rehabilitation for Project Affected Families that was formulated in 2003. The new policy records in its preamble that the “Experience of implementation of this (2003) policy indicates that there are many issues addressed by the policy which need to be reviewed. There should be a clear perception, through a careful quantification of the costs and benefits that will accrue to society at large, of the desirability and justifiability of each project. The adverse impact on affected families - economic, environmental, social and cultural- needs to be assessed in a participatory and transparent manner.” The additional reasons in principle behind the new Policy can be culled out of the preamble of the Policy itself and these are reproduced in the sections below.

### 6.2 The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013

Vacant land is always required both by private as well as public sector in rural and urban areas. But what about the compensation for acquiring the land? This main concern of the government resulted in the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013 that was passed by the Parliament. It is a new land acquisition Act that looks very difficult but beneficial. The Act replaced the Land Acquisition Act of 1894. The new Act is
all about the way the land is to be acquired and compensation to be made in India. Objective of the new Act is fair compensation which can be through resettlement and rehabilitation and transparency in the entire process of acquiring a land. Earlier Act was meant just to acquire the land not rehabilitation. The new Act was the need of the day to stop the forceful acquisition of the land, to safeguard the interest of the affected families and to redefine the rates of compensation. Public and private partnership resulted in more demand for land and thus the regulations of acquiring it. The new Act was passed because the Land Acquisition Act 1894 had many flaws. According to the previous law, the land could be acquired forcefully regardless of the affected person, the law was silent as far as rehabilitation and resettlement of the affected persons was concerned, urgency clause was not defined properly so almost all the cases of acquiring land were under this clause, and compensation rates were too low.

The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 is a legislation that regulates land acquisition and provides laid down rules for granting compensation, rehabilitation and resettlement to the affected persons in India. The Act has provisions to provide fair compensation to those whose land is taken away, brings transparency to the process of acquisition of land to set up factories or buildings, infrastructural projects and assures rehabilitation of those affected. The Act establishes regulations for land acquisition as a part of India’s massive industrialisation drive driven by public-private partnership. The Act replaces the Land Acquisition Act, 1894, a nearly 120-year-old law enacted during British rule.

The aims and objectives of the Act include:

♦ To ensure, in consultation with institutions of local self-government and Gram Sabhas established under the Constitution of India, a humane, participative, informed and transparent process for land acquisition for industrialisation, development of essential infrastructural facilities and urbanisation with the least disturbance to the owners of the land and other affected families

♦ Provide just and fair compensation to the affected families whose land has been acquired or proposed to be acquired or are affected by such acquisition

♦ Make adequate provisions for such affected persons for their rehabilitation and resettlement

♦ Ensure that the cumulative outcome of compulsory acquisition should be that affected persons become partners in development leading to an improvement in their post acquisition social and economic status and for matters connected therewith or incidental thereto.
Introduction to Displacement and Rehabilitation

The Act aims to establish the law on land acquisition, as well as the rehabilitation and resettlement of those directly affected by the land acquisition in India. The scope of the Act includes all land acquisition whether it is done by the Central Government of India, or any State Government of India, except the state of Jammu & Kashmir.

The Act is applicable when:

♦ Government acquires land for its own use, hold and control, including land for Public sector undertakings.

♦ Government acquires land with the ultimate purpose to transfer it for the use of private companies for stated public purpose. The purpose of LARR 2011 includes public-private-partnership projects, but excludes land acquired for state or national highway projects.

♦ Government acquires land for immediate and declared use by private companies for public purpose.

The provisions of the Act does not apply to acquisitions under 16 existing legislations including the Special Economic Zones Act, 2005, the Atomic Energy Act, 1962, the Railways Act, 1989, etc.

Highlights of the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013 - This is the first law that deals with both acquisition and rehabilitation. The Act will make sure of the rehabilitation of the family whose land is being acquired for making factories or other infrastructural project. Affected families must be rehabilitated and resettled.

The Act is retrospective in nature. This means it will be applicable to the cases where land was acquired earlier and no compensation had been paid. The entire land acquisition process will take place according to the new provisions if the land acquisition has taken place five years ago without compensation or land possession.

It is a known fact that circle rates are often miscalculated or inaccurate at times. To balance this, if the land is acquired in rural areas then the compensation will be four times more than the circle rate and if acquired in urban areas then it will be two times more than that. For circle rate, average sale price for the last three years or last three months (which so ever will be higher) will be considered.

For land acquisition, local Panchayati Raj institutions and monitoring committee at the national and state levels will play their roles. They will make sure that all the obligations are met according to the said clause and provisions. The Gram Sabhas
will provide sanction in case the land is in scheduled areas. This has been provided to safeguard the rights of tribal communities and disadvantaged groups. Without providing proper alternative sites for rehabilitation and resettlement no one can be evicted.

In case the project is for Public private partnership then minimum of 70% consent and in case the land acquisition is for private companies then 80% consent of affected people is required. This is to stop the forcible acquisition of the land.

State must impose the limits on the area under agricultural cultivation

In case the land is not utilized then it must be returned back either to the original owner or to the State Land Bank.

In case the land is sold at higher price to the third party, then 40% of the profit must be shared with the original land owner.

**How farmers are benefitted?** - Certain provisions such as retrospective effect, consent of the majority, return of unutilized land, share in profit if the land is sold to the third party at higher price, income tax exemption, protecting fair price, any damage to the crop to be included in the price and acquisition only if required are the associated benefits.

**Rehabilitation and resettlement provisions in the Act** - In case the affected families have been living on the land to be acquired for the past five years then they are entitled to a house. They can also have one time financial grant instead of a house. Affected family can either accept a job or annuity. In case there is no employment then they are entitled to receive Rs 5 lakh per family. Apart from this they are benefitted with the Subsistence allowance, Training and skill development, One-time financial assistance etc.

**How it is beneficial for schedule caste and schedule tribes?** - For tribal people as well as for the people belonging to schedule caste, separate chapter in the Bill has been written. It is said that if acquisition is required then their land should be the last resort. First of all no acquisition should be made in the Scheduled Areas and if at all it is required then it needs approval/ consent of the local institutions of self-governance. It must be accompanied by a complete development plan. One third of the compensation must be paid as first installment to the affected families. If possible then these families must be rehabilitated in the same area, may be in a compact block, so that their originality can be retained.
6.3 Rehabilitation and Resettlement Policy and Associated Legislative Measures Relating to Land Acquisition

Provision of public facilities or infrastructure often requires the exercise of legal powers by the state under the principle of *eminent domain* for acquisition of private property, leading to involuntary displacement of people, depriving them of their land, livelihood and shelter; restricting their access to traditional resource base, and uprooting them from their socio-cultural environment. These have traumatic, psychological and socio-cultural consequences on the affected population which call for protecting their rights, in particular of the weaker sections of the society including members of the Scheduled Castes, Scheduled Tribes, marginal farmers and women. Involuntary displacement of people may be caused by other factors also.

There is imperative need to recognise rehabilitation and resettlement issues as intrinsic to the development process formulated with the active participation of the affected persons, rather than as externally-imposed requirements. Additional benefits beyond monetary compensation have to be provided to the families affected adversely by involuntary displacement. The plight of those who do not have legal or recognised rights over the land on which they are critically dependent for their subsistence is even worse. This calls for a broader concerted effort on the part of the planners to include in the displacement, rehabilitation and resettlement process framework not only those who directly lose land and other assets but also those who are affected by such acquisition of assets. The displacement process often poses problems that make it difficult for the affected persons to continue their earlier livelihood activities after resettlement. This requires a careful assessment of the economic disadvantages and social impact of displacement. There must also be a holistic effort aimed at improving the all round living standards of the affected people.

**Applicability and Mechanism of the Policy**

The Preamble of The National Rehabilitation and Resettlement Policy, 2007 states that: “A national policy must apply to all projects where involuntary displacement takes place”. However, the appropriate Government shall declare area of villages or localities as an “affected area” only if there is likely to be “involuntary displacement of four hundred or more families en masse in plain areas, or two hundred or more families en masse in tribal or hilly areas, DDP blocks or areas mentioned in the Schedule V or Schedule VI to the Constitution due to acquisition of land for any project or due to any other reason”.

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After the declaration of an area as “affected area”, the Administrator for Rehabilitation and Resettlement undertakes a baseline survey and census for identification of the persons and families likely to be affected by the proposed project. The 2007 Policy also provides that the appropriate Government may appoint an Administrator for Rehabilitation and Resettlement (hereafter called “Administrator”), who is an officer not below the rank of District Collector, to oversee the resettlement and rehabilitation plan. But the Administrator can delegate his/her powers and duties to any officer not below the rank of Tehsildar or equivalent. The Administrator is vested with the power of “overall control and superintendence of the formulation, execution and monitoring of the rehabilitation and resettlement plan” However, the Administrator can only exercise his powers and functions “subject to the superintendence, directions and control of the appropriate Government and Commissioner for Rehabilitation and Resettlement” and “subject to any general or special order of the appropriate Government”.

**Introduction of Social Impact Assessment of Projects**

The new Policy introduces for the first time in India the need for Social Impact Assessment (SIA) of Projects by laying down that “the appropriate Government shall ensure that a Social Impact Assessment (SIA) study is carried out in the affected areas in such manner as may be prescribed.” According to the Policy while undertaking a social impact assessment, the appropriate Government shall, *inter alia*, take into consideration the impact that the project will have on public and community properties, assets and infrastructure; particularly, ‘roads, public transport, drainage, sanitation, sources of safe: drinking water, sources of drinking water for cattle, community ponds, grazing land, plantations; public utilities, such as post offices, fair price shops, etc.; food storage godowns, electricity supply, health care facilities, schools and educational/training facilities, places of worship, land for traditional tribal institutions, burial and cremation grounds, etc. The Policy makes clear that “Where it is required as per the provisions of any law, rules, regulations or guidelines to undertake environmental impact assessment also, the SIA study shall be carried out simultaneously with the Environmental Impact Assessment (EIA) study.”

**Rehabilitation and Resettlement Benefits for the Affected Families**

Rehabilitation and Resettlement Benefits for the Affected Families are provided under Chapter VII of the new Policy. Some of the main provisions in this regard include:
Any affected family owning house and whose house has been acquired or lost, may be allotted free of cost house site to the extent of actual loss of area of the acquired house but subject to a cap in rural and urban areas.

Each affected below poverty line family which is without homestead land and which has been residing in the affected area continuously for a period of not less than three years preceding the date of declaration of the affected area and which has been involuntarily displaced from such area, shall be entitled to a house of minimum one hundred square metre carpet area in rural areas, or fifty square metre carpet area in urban areas.

Each affected family owning agricultural land in the affected area and whose entire land has been acquired or lost, may be allotted in the name of the khatedar(s) in the affected family, agricultural land or cultivable wasteland to the extent of actual land loss by the khatedar(s) in the affected family subject to a maximum of one hectare of irrigated land or two hectares of un-irrigated land or cultivable” wasteland, if Government land is available in the resettlement area.

In the case of irrigation or hydel projects, the affected families shall be given preference in allotment of land-for-land in the command area of the project, to the extent possible.

In case of allotment of wasteland or degraded land in lieu of the acquired land, each khatedar in the affected family shall get a one-time “financial assistance of such amount as the appropriate Government may decide but not less than fifteen thousand rupees per hectare for land development.

The ‘requiring body’ shall give preference to the affected families – at least one person per nuclear family - in providing employment in the project, subject to the availability of vacancies and suitability of the affected person for the employment.

The list of the benefits as above shows that the Policy while planning for ‘land for land’ to the extent possible, does not guarantee land-for-land compensation to the displaced families. Civil society organizations also feel that under the Policy the affected persons are denied the rights to take any kind of informed decision regarding the usage of their lands with regard to development projects.

**Rehabilitation and Resettlement Enactments by the State Governments**

The three legislations namely *The Maharashtra Rehabilitation Act, 1989, Madhya Pradesh Pariyojna ke Karan Vishapit Vyakti (Punsttapan) Adhiniyam, 1985 (Madhya...*
Pradesh Resettlement Act) and the Karnataka Resettlement of Project-Displaced Persons Act, 1987 were considered progressive legislations and were aimed at resettlement and rehabilitation of the project affected person at the state level. However, there were major lacunae which limited the effect of these progressive legislations. All of the state enactments were either project specific or their applicability was dependent on the discretion of the government. The Madhya Pradesh Act, for example, basically revolves around affected persons of irrigation projects and hence has a limited focus. The package of rehabilitation in most of these acts is again as provided under Land Acquisition Act, which means that money is the basic criteria for compensation. The question whether the “land for land” should be effected as premise for rehabilitation has not been answered by all the existing laws.

6.4 Protecting and Restoring The Tribal Lands: A Policy and Legal Perspective

A bevy of national and state laws have been passed from time to time in Independent India with the objective of protecting the interest of tribals in their lands. In particular, the prohibition of transfer of land from tribals to non-tribals has been included in various Land Revenue Codes and Land Regulations and Acts passed by different states. For a typical example let us see the provisions under the Land Revenue Code of Madhya Pradesh.

The M.P. land Revenue Codes provides restriction over transfer of land held by any person who is designated as aboriginal by a notification of the State Government (Section 168). The law provides that any transfer of land held by a tribal to a non-tribal shall not be without prior permission of the Collector in charge of the area and this permission shall be in writing and with recorded reasons of granting such permission. The Code taking a pro-active approach provides that the Collector before granting such permission should ascertain that the person acquiring the land has been a resident of the area, shows purpose of the transfer, proves adequacy of the consideration and such other matters as may be prescribed. The collector has also been provided with the power to initiate *suo moto* inquiry within five years of the transfer.

However, despite this categorical legal imperative, land alienation of the tribals persists, and in large areas of the country it is now endemic. Official figures show that every year the number of landless in the country increases by two million. A well known study, relied upon by the a Steering Committee of the Planning Commission for the Tenth Five Year Plan, points out that in four districts Dhenkanal,
Ganjam, Koraput and Phulbani in Orissa about 56 percent of the total tribal land was lost to non-tribals over a 25-30 year period.

With the mandate of finding a lasting solution to the vexed problem of tribal land alienation and consequent indebtedness, various Commissions and Committees were appointed in the past. Indeed, some of the legislative and judicial measures suggested were radical and far-reaching. These include, among others: ousting the jurisdiction of civil courts in cases of eviction of Scheduled Tribes, suspending the operation of the Limitation Act in cases of dispute relating to the tribal land, separate legislation for the conferment of the ownership rights, provisions in all civil suits involving tribal land for making the government a party and empowering it to give and rebut evidence, banning transfers of tribal land to non-tribals in all states and Union Territories, amending the law of evidence to place oral evidence on a higher pedestal, and establishing special courts for prompt disposal of land alienation cases.

However, one feels that the continuance of the problem is a reflection of the fact that the recommendations of the various committees address only the symptoms of the problem and not their roots.

**Draft National Development, Displacement and Rehabilitation Policy, 2006**

Displacement due to ‘Development’ in India is not new, though resettlement and rehabilitation as a policy measure certainly is. The colonial period has produced a vast segment of displaced people. The forest resources, river systems and mineral base that attract the ‘developmental projects’ have displaced a large segment of people in the Indian society. In the Indian context, it is of interest to note that most of the developmental projects are located in the most backward areas and populated by various small nationalities, otherwise called tribals. These segments, with the enactment of land settlement laws, forest laws and commercialization of forest products and minerals, have undergone a metamorphosis, where legally the access to the various natural resources are denied and these segments are treated as hostages within their environment. Another productive segment was also a part of displacement due to the process of de-industrialization and forced commercialization of agriculture. Any resistance to the displacement was treated as a ‘law and order’ problem, so no question of Rehabilitation and Resettlement policy. Land was acquired by the draconian provisions of Land Acquisition Act 1894 to be a weapon in hand of independent Indian state for acquiring land from its citizens. The situation just after independence was not much different. It was only during mid eighties that the policies for rehabilitation were drafted for the first time.
In 2006, a draft policy for National Development, Displacement and Rehabilitation was prepared with the following objectives:

1) To minimize development induced displacement of people by promoting non-displacing or least displacing alternatives for meeting development objectives.

2) To minimize the direct and indirect adverse social impacts of land use changes due to development and commercial projects, activities or policy changes (on land, shelter, livelihood, access).

3) In those rare cases where non-displacing alternatives are not available, to shift from the earlier practice of forced displacement to displacement after prior informed consent.

4) Where displacement is inevitable, to ensure a fair and humane compensation package and process, and timely implementation of rehabilitation.

5) To ensure full transparency and justice in the processes of displacement and land acquisition.

6) To ensure that all those who are displaced are brought above the poverty line and made significantly better off than they were prior to displacement, not just in economic terms, but also in terms of human development and security, in a reasonable time frame, and in accordance with their aspirations.

7) To ensure that benefits to the displaced people are not less, as a ratio to the costs being paid by them, than those that accrue to the people benefiting from that specific project or from the developmental process in general.

8) To integrate rehabilitation concerns into the development planning and implementation process.

9) To ensure that special care is taken for protecting the rights of, and ensuring affirmative state action for, the weaker segments of society, especially members of scheduled castes and scheduled tribes, and to create legal obligations on the state to ensure that they are treated with special concern and sensitivity.

National Rehabilitation and Resettlement Policy, 2007


The policy aimed at striking a balance between the need for land for developmental activities and, at the same time, protecting the interests of the land owners, and
others, such as the tenants, the landless, the agricultural and non-agricultural labourers, artisans, and others whose livelihood depends on the land involved.

The benefits of the policy were aimed to be available to all affected persons and families whose land, property or livelihood is adversely affected by land acquisition or by involuntary displacement of a permanent nature due to any other reason, such as natural calamities. The benefits are available to all affected persons and families whose land, property or livelihood is adversely affected by land acquisition or by involuntary displacement of a permanent nature due to any other reason, such as natural calamities.

The benefits under the new policy to the affected families include; land-for-land, preference for employment in the project to at least one person from each nuclear family, subject to the availability of vacancies and suitability of the affected person; training and capacity building for taking up suitable jobs and for self employment; scholarships for education of the eligible persons from the affected families; preference to groups of cooperatives of the affected persons in the allotment of contracts and other economic opportunities in or around the project site; wage employment to the willing affected persons in the construction work in the project; housing benefits including houses to the landless affected families in both rural and urban areas; and other benefits.

Adequate provisions have also been made for financial support to the affected families for construction of cattle sheds, shops, and working sheds; transportation costs, temporary and transitional accommodation, and comprehensive infrastructural facilities and amenities in the resettlement area including education, health care, drinking water, roads, electricity, sanitation, religious activities, cattle grazing, and other community resources.

A special provision has been made for providing lifetime monthly pension to the vulnerable persons, such as the disabled, destitute, orphans, widows, unmarried girls, abandoned women, or persons above 50 years of age.

Special provision for the Scheduled Tribes (ST) and Scheduled Castes (SC) include preference in land-for-land for STs followed by SCs; a Tribal Development Plan which will also include a programme for development for alternate fuel which will also include a programme for development for alternate fuel and non-timber forest produce resources, consultations with the Gram Sabhas and the Tribal Advisory Councils, protection of fishing rights, land free-of-cost for community and religious gatherings, and continuation of reservation benefits in resettlement areas, among others.
A strong grievance redressal mechanism has been prescribed, which includes standing rehabilitation and resettlement (R and R) Committees at the district level, R and R Committees at the project level, and an Ombudsman duly empowered in this regard. The R and R Committees shall have representatives from the affected families including women, voluntary organisations, Panchayats, local elected representatives and others. Provision has also been made for post-implementation social audits of the rehabilitation and resettlement schemes and plans. For effective monitoring of the progress of implementation of R and R plans, provisions have been made for a National Monitoring Committee, a National Monitoring Cell, mandatory information sharing by the States and Union Territories (UT) with the National Monitoring Cell, and Oversight Committees in the Ministries and Departments concerned for each major project.

Under the Policy, no project involving displacement of families beyond defined thresholds can be undertaken without a detailed Social Impact Assessment (SIA), which among other things, shall also take into account the impact that the project will have on public and community properties, assets and infrastructure; and the concerned Government shall have to specify that the ameliorative measures for addressing the said impact, may not be less than what is provided under any scheme or programme of the Central or State Government in operation in the area.

The SIA report shall be examined by an independent multi-disciplinary expert group, which will also include social science and rehabilitation experts. Following the conditions of the SIA clearance shall be mandatory for all projects displacing people beyond the defined thresholds.

However, some experts who have reviewed the policy state that it fails to address the key issues relating to the booming of conflicts, i.e. forcible acquisition of lands. It is said that the 2007 Policy was supposed to be an improvement of the Draft National Rehabilitation Policy of 2006, which was drafted to address the admitted failures of the National Policy on Resettlement and Rehabilitation for Project Affected Families of 2004. However, the Policy fails to effectively overcome the shortcoming of the 2004 Policy.

Following the decision of implementation of the policy, the Government of India has also announced that it will be setting up a National Rehabilitation Commission duly empowered to exercise independent oversight over the rehabilitation and resettlement of the affected families. However, even after a year, the commission is yet to see the light of the day. The Requiring Bodies shall be responsible for development of designated areas on the periphery of the project site, and shall earmark funds for the purpose of such periphery development activities.
National Rehabilitation and Resettlement Policy Bill, 2007

India has a history of development-induced displacement, and the persistence of the colonial Land Acquisition Act, 1894 has stood testimony to the reluctance and the helplessness of the establishment in dealing with the problem. For more than three decades, peoples movements across the country have demanded the repeal, or at least the amendment of this legislation, referring to rampant misinterpretation of the term public purpose, and the abuse of the power of eminent domain. The introduction of this Bill was preceded by Cabinet approval for the National Resettlement and Rehabilitation Policy in October, 2007 a response to the popular opposition to the takeover of agricultural land for the creation of Special Economic Zones.

The Bill provides for benefits and compensation to people displaced by land acquisition purchases or any other involuntary displacement. For large scale displacement, the government shall conduct a social impact assessment, and appoint an Administrator for Rehabilitation and Resettlement to formulate and execute the rehabilitation and resettlement plan. While outlining the minimum benefits for displaced families, a post of Ombudsman has also been created to address the grievances in the process. The bill is yet to be passed.

6.5 Conclusion

Some time during the 1980s, thinking began in the government of India on the formulation of a policy to govern all future cases of displacement of people relating to developmental projects of all kinds, such as dams, industrial or mining projects, highways, and so on. The subject was discussed many times at inter-ministerial meetings at the level of secretaries, and at meetings of groups of ministers. However, two decades of intermittent debates over repeated redrafts failed to produce an outcome. Eventually, in October 2006, a draft National Rehabilitation Policy 2006 was posted in the public domain for comments. Taking note of the comments received, and in the light of further inter-ministerial consultations, an attempt is now being made by the ministry of rural development to draft a national act on the subject2.

There is a triad of terms: displacement, resettlement and rehabilitation. Displacement may not always be followed by resettlement; and resettlement does not necessarily imply the full rehabilitation of displaced persons. In recent years in India, it has come to be accepted that displacement of people must be followed by

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2 Ramaswamy R Iyer, Economic and Political Weekly July 28, 2007, 3103
resettlement and rehabilitation, but this was not always the case. Incidentally, in
ordinary English usage, “rehabilitation” could be of dilapidated structures, sick
industries, dysfunctional systems or institutions, declining traditions and customs,
damaged reputations, or persons addicted to alcohol or drugs. In India, however,
the word rehabilitation is almost always understood to mean the rehabilitation of
displaced people (whether they have been displaced by “developmental” activities
or by natural phenomena such as earthquakes or tsunamis).

The forced displacement of people for the purposes of various “developmental
projects” such as big dams, large industrial or mining projects, highways and
flyovers, and so on, has been going on in India for a very long time. Some dams,
barrages and canals were built in British times, but after independence and with
the commencement of centralised economic planning there was an explosion of
such projects. They were formulated, designed and executed by engineers, and
concerns about environmental impacts or about the displacement of people did
not enter into the processes of planning and decision making.

If we think of projects undertaken in the 19th century or in the early decades of the
20th century, it is evident that they were essentially engineering undertakings:
there were no environmental impact assessments or rehabilitation policies then,
and the precise environmental, social and human impacts of those projects were
undocumented and unknown, though retrospectively some studies have been
attempted in some cases.

Displacements, however, took place, because land was needed for the construction
of dams and reservoirs. There are different estimates of the total number of persons
that have been displaced by developmental projects in general and by big dams in
particular. The numbers vary from 10 million to 40 million. The latter figure has
been dismissed by some as an exaggeration; the former is clearly an under-estimate.

While a figure that commands widespread acceptance is not available, it seems
unlikely to be much lower than 20 million. The instrument of displacement was
the Land Acquisition Act 1894 under which private land could be acquired by the
state for a “public purpose”. Compensation had to be paid for the land or property
taken over, based on historical cost plus a solatium, but the concept of replacement
cost was unknown. The compensation amount was not a negotiated sum, but a
figure fixed by the government officials under certain rules. The figure could be
contested under the Act, and many cases did go to the courts, leading to some
enhancement of the valuation in some cases, but this was nowhere near replacement
cost. The Act did provide for the issue of notifications giving the persons whose
land or property was proposed to be acquired an opportunity to raise objections,
but the objections could be procedural or about valuation; the “public purpose” for which the state proposed to take over private property was not open to contestation.

There was a great deal of dissatisfaction with the Act:

a) on the part of the people on the grounds of the quantum of compensation, the delays in payments, and so on (including corruption amongst the officials dealing with the matter); and

b) on the part of the government because of the delays in land acquisition because of challenges and litigation and the delays that these caused to the implementation of the projects in question.

It must be noted that we are talking only about compensation for land and property acquired, and not about the resettlement or rehabilitation of the displaced people: the concept was unknown in the early years.

Over a period of time, it began to be recognised that something more than compensation for the land and property acquired was needed, and ideas of resettlement and rehabilitation began to emerge. These got elaborated and formulated into policies and packages in the context of certain projects. Separately, the drafting of a national rehabilitation policy to be applicable to all future dam projects as well as industrial, mining and other projects, i.e., development-related displacements of all kinds, was mooted in the mid-1980s, and was “under consideration” and undergoing repeated revisions for many years. It is that process that is still going on and seems now to be approaching finality. Regrettably, right from the beginning there was a resistance to good ideas, and drafts were progressively diluted.

The question is ‘Has the preoccupation with “development” overshadowed everything else’? We tend to assume that there are deep human and social concerns behind the official efforts to draft a national rehabilitation policy. To many development means dams, highways, flyovers, high-rise buildings, huge apartment blocks, grand shopping malls, and so on: our cities must become as resplendent as Singapore and Beijing. Let us summarise a few points that we examined in this Chapter:

1) It is wrong to talk about a rehabilitation policy or even a resettlement and rehabilitation policy, as both formulations take displacement for granted. We need a displacement and rehabilitation policy (D&R, not R&R).
2) The first thing to be said about displacement is that it is ordinarily unacceptable. Being uprooted (displacement is a bland term for this) is a traumatic experience under the best of circumstances, and should be avoided if possible. A clear recognition of this, and an explicit statement to this effect should be the starting point for any D&R policy or law.

3) It follows from the above (and from the more general “precautionary principle”) that it is for the person or organisation or authority proposing displacement to establish that it is unavoidable (i.e., that no nondisplacing alternative is available for the objective in question); that the objective itself is well-conceived, necessary and unavoidable; that displacement is minimal (i.e., that a less-displacing alternative is not available); and that the hardship involved in the displacement can be minimised and adequately compensated for.

4) The theory that development entails costs and that some must make “sacrifices” in order that others might benefit, is a disingenuous and sanctimonious one that needs to be abandoned; pain and hardship imposed by some on others cannot be described as a sacrifice by the latter.

5) Where displacement seems unavoidable, it ought not to be forced displacement, but should be voluntary. The principle of “free, informed prior consent” put forward by the World Commission on Dams should be enshrined in the policy statement or law.

6) If consent is to be “informed”, the necessary information must be provided. The people likely to be affected must be taken into confidence and provided with the fullest information about the contemplated project from the earliest stages, so that they can satisfy themselves about the desirability of the project, the nonavailability of alternatives, and the rationale of the proposed displacement.

7) There is widespread agreement that the Land Acquisition Act 1894 (LAA) needs to be radically overhauled, but that may be a difficult and long-drawn process. A quicker and easier course would be to decide that the LAA route will be used for getting the needed land only for governmental purposes such as building a school or hospital or a government office; that “public purpose” will be redefined to cover only such cases, and will not include private sector or public sector (or even governmental) projects or programmes or activities, whether industrial or commercial or other (e.g., irrigation); and that in all such cases, land will be purchased through negotiation.
8) Such a decision needs to be accompanied by special measures to protect rural (or urban) communities, particularly poor and disadvantaged groups ("weaker sections of society"), from being exploited by rich and/or politically and economically powerful project-managers and industrialists in unequal negotiations.

9) Where the LAA 1894 is used for acquiring land, the acquisition needs to be made (a) contestable (not merely in regard to compensation, but also in relation to the public purpose which is the justification for displacement), (b) procedurally more humane and equitable, and (c) just in terms of compensation, with due regard to the amount needed for buying land or property (house, shop) in the resettlement area.

10) In tribal areas, the requirement of consultation with the gram sabha under the Panchayats (Extension to Scheduled Areas) Act 1996 or PESA must be scrupulously observed.

11) Project-affected people (PAPs) should be granted through legislation the first claim on the benefits of the project for which they were displaced, and preferably resettled in the command area of the project. The political difficulties involved in this need to be overcome.

12) Rehabilitation should leave the PAPs better off than before, or at least as well off. There is general acceptance of that proposition, but no unanimity about the elements of the policy and package. Based on the rehabilitation policies and packages of some recent projects, it should be possible to work out a normative package for future projects.

13) We need a National Displacement and Rehabilitation Act, not merely a policy. If statutory clearances are needed for felling trees and for interference with the environment, there should also be a statutory clearance for displacing people and a statutory backing for the resettlement and rehabilitation package to be offered to them.

14) Finally, for giving the necessary clearances under such an Act, and for monitoring the actual implementation, there should be a national displacement and rehabilitation commission.
Migration is one of the oldest coping strategies for dealing with degradation of environmental conditions. Globally, the increase in the magnitude and geographical scale of environmental change caused or exacerbated by climate change and human activities have led many agencies including government and international organisations to refer to environmentally induced migration as a new type of phenomenon, and a new challenge for the 21st century. In this module we shall examine population displacements related to environmental events, addressing conceptual, legal and policy issues.

The UNHCR in the 1993 State of the World’s Refugees, has identified four root causes of refugee flows’ These were: political instability; economic tensions; ethnic conflict; and environmental degradation. The claim that environmental degradation was a root cause of refugee flows was a direct response to a growing number of articles positing a link between environmental degradation and population movement, and recognition that the numbers of displaced persons internationally was much larger than indicated by the statistics on refugee flows. Concerns about the consequences of climate change for human populations, the recognition that migration may be one of the most viable adaptation strategies, and the view that
such population movements would present security challenges fuel this increasing interest, which has materialised in a number of recent conferences (IOM & UNFPA, 2008; UNEP, 2008). Many writers argue that the number of people who have been displaced by environmental degradation is immense. For instance, Jacobson (1988) notes that, ‘environmental refugees have become the single largest class of displaced persons in the world’. Homer-Dixon (1991) further notes that environmental degradation is likely to produce ‘waves of environmental refugees that spill across borders with destabilizing effects’ on domestic order and international relations. Speaking of displaced persons unaccounted for in official refugee figures, the Executive Director of UNEP at the time, Mustafa Tolba (1985), stated that ‘these people are the millions fleeing the droughts of northern Africa, the victims of Bhopal and the thousands made homeless by the Mexico earthquake. They are environmental refugees’. However still, the debate on what constitutes an environmentally induced move continues, and the general agreement that environmental factors contribute to population mobility translates into a modest consensus about the mechanisms, character and extent of that contribution (IOM 1992; Suhrke 1993), a topic we shall discuss later.

7.2 Environmental Refugee: A Growing Phenomenon of 21st Century

Environmentally induced population displacement is a hot topic. There is now a new phenomenon in the global arena: environmental refugees. These are people who can no longer gain a secured livelihood in their homelands because of drought, soil erosion, desertification, deforestation and other environmental problems, together with associated problems of population pressures and profound poverty. Current trend show that impacts of climate change on environment and human mobility are becoming increasingly worrying, with the number of natural disasters doubling over the past two decades (EU, 2008). In many cases these displacement-related environmental issues are widespread and often highly visible in major camps, settlements, urban slums and return areas. It is estimated that every year 30 million people worldwide are forced to move because of serious degradation of environmental conditions, natural disasters and depletion of natural resources. However since governments generally take little official account of this unconventional category the estimates are a best guess in all cases. This figure is expected to soar by the middle of this century, as growing numbers of impoverished people press ever harder on over-loaded environments. For instance, scientists predict, when global warming takes hold, there could be as many as 200 million people are overtaken by disruptions of monsoon systems and other rainfall regimes,
droughts of unprecedented severity and duration, and by sea-level rise and coastal flooding (Myers, 1995). The International Organization for Migration (IOM, 1992) goes farther, noting that by the turn of the century there may be one billion persons who have been ‘environmentally displaced from their original habitat’. Another estimate suggested that environmental refugees scattered throughout the developing world number over 250 million people whose lives are threatened by severe desertification, and 800 million people subject to chronic water shortages. The Intergovernmental Panel on Climate Change (IPCC, 1990) noted that the greatest effect of climate change may be on human migration as millions of people will be displaced due to shoreline erosion, coastal flooding and agricultural disruption.

While Sub-Saharan remains the prime locus of environmental refugees, there are sizeable numbers in other regions and countries. In China with its 120 million internal migrants, at least six million deserve to be regarded as environmental refugees, having been obliged to abandon their farmlands due to shortages of agricultural plots in the wake of decades of population growth. Estimates suggest that in Mexico there are one million new environmental refugees each year. Some become assimilated in cities, and a few return home, leaving a cumulative total, as a bare minimum in 1995, of two million. Finally there are those people displaced involuntarily by public works projects, notably large dams, and increasing by ten million every year (with a cumulative total of 50 million in just China and India).

In most cases, poverty serves as an additional ‘push’ factor associated with the environmental problems that displace people. Most in danger are vulnerable groups in the least developed countries whose capacity to adapt to the effects of climate change is extremely poor, people residing in low-lying coastal areas and areas of considerable over-population. Broadly the suite of factors include population pressures, malnutrition, landlessness, unemployment, over-rapid urbanisation, pandemic diseases and faulty government policies, together with ethnic strife and conventional conflicts. Those people who migrate because they suffer outright poverty are frequently driven also by root factors of environmental destitution. Further to this, it is their environmental plight as much as any other factor that makes them economically impoverished. This generally applies to those refugees who migrate to areas where economic conditions are little if any better than back home, as is the case with many people who migrate within Sub-Saharan Africa and the Indian subcontinent. In this instance, with poverty and ‘life on the environmental limits’ as the main motivating force, it matters little to the migrants whether they view themselves primarily as environmental or economic refugees. In fact the consideration for people who may have been displaced by environmental
Degradation has reached far beyond a humanitarian concern for a disenfranchised population; in some quarters, it is being considered a ‘threat to security’. Betterton (1992, as cited in Honebrink, 1993) noted that the U.S. military may be needed ‘to guard the border with Mexico, as it is expected that problems may result from environmental refugees fleeing the Third World’. Indeed, the anti-immigration literature in the United States and Europe often claims that immigration is a cause of environmental degradation, thereby bringing the links full circle (see, for example, Beck, 1996). Quotes like the ones below are becoming increasingly prevalent in the popular literature.

“...Immigration has been a substantial cause of the negative environmental news that must be mixed among all the good.... Thus, to what extent environmental problems can be blamed on U.S. population growth, the preponderance of that blame rests on U.S. immigration policy. Only a reduction in numbers will deal with the environmental problem.”

Beck (1996)

For a specific instance of the problem’s scope to expand, consider the prospect for Sub-Saharan Africa— a region with half the world’s traditional refugees and at least a similar proportion of environmental refugees. Despite some advances in soil conservation (Kenya, Ethiopia), smallscale agriculture (Nigeria, Zimbabwe), reforestation (Tanzania, Malawi), anti-desertification (South Africa), and population planning (Kenya, Zimbabwe, Botswana), the outlook is unpromising. Severe desertification may well affect more than 100 million people. Ten countries are expected to be experiencing chronic water shortages or even acute water scarcity, with collective populations totalling well over 400 million people. Without greatly expanded efforts to tackle the region’s lack of development, per-capita GNP will probably stagnate in real terms at around $400, or little higher than in 1970. Most important of all will be the region’s incapacity to feed itself. Some 20 countries with a projected population of 440 million are expected to experience up to 25 percent shortfall in food supplies, and a further eight countries with a projected 75 million people face more severe deficits. The total of malnourished people will continue to grow, with at least 100 million destituates obliged to live for the most part off imported food. The food deficit could well rise to as high as 30 million...
tonnes. Because of its exceptional poverty the region will be increasingly unable to compete in the global grain market. In addition, there will be problems of global warming. Due largely to sea-level rise and flooding of coastal-zone communities, but also to increased droughts and disruptions of rainfall regimes such as monsoonal systems, global warming could threaten large numbers of people with displacement by 2050 or earlier. Preliminary estimates indicate the total of people at risk of sea-level rise in Bangladesh could be 26 million, in Egypt 12 million, in China 73 million, in India 20 million, and elsewhere, including small island states, 31 million, making a total of 162 million. At the same time, at least 50 million people could be at severe risk through increased droughts and other climate dislocations. Most in danger are vulnerable groups in the least developed countries whose capacity to adapt to the effects of climate change is extremely poor, those residing in low-lying coastal areas and areas of considerable over-population.

Despite all this, the debate on what constitutes environmentally induced move continues, and the general agreement that environmental factors contribute to population mobility translates into a modest consensus about the mechanisms, character and extent of that contribution (IOM 1992; Suhrke 1993; Swain, 1996). Some international organisation have proposed a working definitions of environmental migrants, which identifies trigger events, types of movement and also hints at the mechanisms linking environmental change and population mobility. To capture the several possible combinations, particularly for policymaking and development planning, the IOM (2007) has also suggested different scenarios as shown in Table 7.1.

Table 7.1: IOM’s Migration-Environment Scenarios, IOM, 2007

<table>
<thead>
<tr>
<th>The propensity to migrate in relation to environmental change</th>
<th>The impact of migration on the environment</th>
<th>Interactions between migration, environmental change, human security and conflict</th>
</tr>
</thead>
<tbody>
<tr>
<td>Migration at less advanced stages of gradual environmental change</td>
<td>Migration's impact on the environment in areas of destination</td>
<td>Human security challenges of environmental change and migration</td>
</tr>
<tr>
<td>Migration at advanced stages of gradual environmental change</td>
<td>Migration's impact on the environment in areas of origin</td>
<td>Conflict potential of environmental change and migration</td>
</tr>
<tr>
<td>Migration due to extreme environmental events</td>
<td></td>
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<tr>
<td>Migration due to large scale development and land conservation</td>
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<td></td>
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</tbody>
</table>
Of particular interest in this table are columns 1 and 3. Column 1 highlights the heterogeneity of trigger events in terms of intensity, predictability, and scale or magnitude, which results in critical differences in terms of people displaced, area affected and duration of the event (UNHCR, 1996). Column 3 characterises the interactions of environmentally induced displacement with human security and conflict, topics that have also been on the rise. Depending on the intensity of the hazard, the vulnerability of the exposed population, and the availability of assistance, environmentally induced mobility may be arranged in a continuum ranging from forced to compelled to voluntary (Hugo 1996), a point discussed in detail in the next section.

7.3 Explaining Environment in Migration Movements

Migration is described as ‘an extremely varied and complex manifestation and component of equally complex economic, social, cultural, demographic, and political processes operating at the local, regional, national, and international levels’ (Castles and Miller, 1993). And it is similarly problematic to remove environmental processes from the social, economic, political and institutional structures of which they are a part. Therefore, drawing a linear, deterministic relationship between environmental degradation and migration (and security) is not only inappropriate, but impossible. Nevertheless, we can try to identify certain cases where environment plays an important role as a contributor to population movement and attempt to design interventions to minimize the negative impacts associated with such cases.

While there are various estimates on the number of environmental refugees, UNHCR (1995) acknowledges that collecting accurate statistical data on refugees and asylum-seekers is ‘one of the most problematic issues’ confronting the agency, and these figures, indeed all figures cited in this article, must be treated with suspicion. Nevertheless, these rough estimates of the total number of displaced persons are often presented with abandon, either for shock value or for political reasons. Estimates as made by International Organization for Migration (IOM, 1992), as discussed in the previous section lead to much confusion and fear on the part of many, and provide ample ‘evidence’ for those wishing to promote anti-immigration rhetoric in the North. To explain this, various theories are proposed by academics world over. Broadly, theories on the causes of migration flows can generally be categorized into two broad perspectives. The first is a ‘neo-classical economics equilibrium approach’, which suggests that population movement is a ‘natural’ response to interregional differences in social and economic opportunities, and people generally move from where labour is plentiful and capital is scarce to labour-
deficit and capital-rich areas. Thus, the level of development in various regions of the globe is seen as determining the magnitude and direction of migratory streams. Extensions to the neo-classical approach explain population movements based on a combination of ‘push’ and ‘pull’ factors; existing conditions at the place of origin may motivate an individual to leave, or qualities of the area of destination may attract a potential migrant. Demographic pressures, political instability, lack of economic opportunities and, more recently, environmental degradation have been posed as possible ‘push’ factors. The second approach criticizes the neo-classical economic perspective for placing too much emphasis on the free choice of individuals, and for neglecting the macro-structural forces which lie at the base of the regional disparities to which people respond. Population movements are not unique or isolated events, but are related to the international power structure and institutional organization. According to this ‘structuralist’ approach, the explanation for population movements lies in the deeper, underlying forces which structure the unequal distribution of opportunities between regions. Population movements, then, are a response to broader structural forces in society, in particular those associated with the uneven penetration of capitalism which has created substantial spatial inequalities.

The difference between neo-classical economic theories of population movements and the structuralist approach influences all aspects of any discussion regarding the issue. Not only do the theories offer opposing views of the causes of refugee movements, but they also imply very different outcomes. The neo-classical approach, arguing that population displacements are natural occurrences, suggests that they are positive events and that policy development should reflect and reinforce the beneficial aspects of these movements. The structuralist approach, however, emphasizes that population movements are a response to unnatural imbalances in power and opportunities. Consequently, the negative aspects of population displacements are a function of inequities in development, and policy should be developed to address these imbalances and attempt to stem what must be viewed as a consequence of the inequitable distribution of resources in society.

**Advocates**

Although there is growing awareness of, and interest in, the relationship between environmental change and population movement, the traditional literature on migration has largely ignored the connection. Rogers (1992) in his discussion on migration presents four key indicators of ‘migration potential’: population growth; economic restructuring; increasing economic disparities; and increased refugee flows.
However environment is not mentioned. Other recent reviews on the causes of migration which fail to include environmental degradation or resource depletion as factors include Appleyard, 1991; and Massey, et al, 1993). This stands in stark contrast to the statements in The State of the World’s Refugees (UNHCR, 1993), which clearly identify environmental degradation as a root cause of population displacement, as mentioned above (it is worth noting, however, that the 1995 volume by UNHCR does not make a similar claim).

Countering the traditional perspective on migration is a growing literature which claims that traditional theories fail to recognize the true extent and complexity of migratory responses to environmental degradation (cf. Hall and Hanson, 1992). Most attention has focused on the plight of ‘ecological refugees’ or ‘environmental Refugees’ (UNHCR, 1993). While the World Commission on Environment and Development (WCED) identified environmentally induced population displacement as a ‘recent phenomenon’ (WCED, 1987), there is little doubt that throughout history people have had to move from their land because it has become degraded through natural disasters, warfare or over-exploitation. The concern that environmental degradation will produce ‘waves of refugees,’ however, is more recent, based largely on the writings of El-Hinnawi (1985), Jacobson (1988) and Myers (1993; 1995). Suhrke (1992) labels this group the ‘maximalists.’ Supporting their arguments is the fact that environmental disasters such as floods, droughts and earthquakes are displacing ever larger numbers of people, not necessarily because the severity of these events is becoming greater, but because population density, especially in regions which are prone to disaster, is increasing rapidly. Land and resource scarcity elsewhere may also be a strong contributor to these increases in density in vulnerable areas.

Since its first official use in 1985 by El-Hinnawi in his United Nations Environment Programme (UNEP) report, the phrase ‘environmental refugee’ has appeared with increasing frequency in the literature on environment and development. ‘Environmental refugees’ are defined by El-Hinnawi as:

...those people who have been forced to leave their traditional habitat, temporarily or permanently, because of a marked environmental disruption (natural and/or triggered by people) that jeopardized their existence and/or seriously affected the quality of their life (El-Hinnawi, 1985, p.4). And the conclusion by the UNHCR is unequivocal: ‘There are, nevertheless, clear links between environmental degradation and refugee flows’ (UNHCR, 1993, p. 18). While the UNHCR claim may be true, it does not necessarily follow that environmental degradation has been the cause of a majority of ‘refugee’ flows.
Contrarians

Despite these claims, it remains that there has been little substantive research directed at the question of the role of environmental change in population movement. Considerable confusion has arisen over definitions, the size of these ‘refugee’ flows and whether one, indeed, can isolate environmental causes from the complex set of variables affecting population movement. While there is a sense that drastic environmental change may affect the structural forces which, in turn, link to population movement, the environment is seen as little more than a ‘contextual factor’ which is taken into consideration in decision-making (Suhrke, 1992, labels this perspective the ‘minimalist’). The arguments presented by the ‘maximalists’ (it is claimed) are ill-founded, and based on anecdotal information. For instance, Myers (1993) estimates that for every person who moves across an international boundary to escape environmental pressures there may be two or three similarly displaced people who move within their territory of nationhood—so-called ‘internally displaced persons.’ Myers adds these two categories of population movement together and estimates the total number of ‘environmentally displaced’ persons to be as high as 25 million (he further predicts, as a worst case scenario, that this figure may increase to 150 million by the year 2050 as a result of the ‘greenhouse effect’ and rising sea-levels). Westing (1992) speculates that the growth in the world’s refugee and internally displaced population from 26.4 million in 1986 to 41.5 million in 1990 may have been attributable to environmental degradation, which has forced people from their land.

The writings noted above which have popularized the phenomenon of ‘environmental refugees’ are problematic for reasons which are both definitional and substantive. First, the words ‘estimate’ and ‘speculate’ above are used advisedly: in most cases these figures are little more than educated guesswork—there is little empirical evidence with which to authenticate these authors’ claims (Mougeot, 1992). Second, there is too often an uncritical acceptance of a direct causal link between environmental degradation and population displacement. Implicit in these writings is the belief that environmental degradation—as a possible cause of population displacement—can be separated from other social, economic or political causes. It must be recognized that the degradation of the environment is socially and spatially constructed; only through a structural understanding of the environment in the broader political and cultural context of a region or country can one begin to understand the ‘role’ it plays as a factor in population movement. Third, not only are the definitions offered for environmental refugees ambiguous
and inconsistent, the projections of future numbers do not take into consideration adaptation, there is no discussion of the role of public policy—or other factors—in the increase in the numbers of displaced people, and the analyses are, in most cases, quite superficial. Why do people continue to move into Mexico City and Chongqing, China, two of the most polluted places on Earth? Why does severe environmental degradation not generate large outmigration in many cases? Last, some authors are concerned that there is no legal basis for the definition of ‘environmental refugee.’ Not only does this conflict with the standard definition of refugees which was codified in the 1951 Convention and 1967 Protocol relating to the Status of Refugees, but it may undermine current work towards using broader human rights criteria to determine refugee status (McGregor, 1993). Despite these criticisms, it is important not to trivialize the potential role environmental change may play in population movement. It is entirely possible that the impact of environmental degradation and resource depletion on population movement may be even more important than these authors suggest.

7.4 Situating Environment in Migration

Part of the difficulty in determining what role the ‘environment’ plays as a cause of, or contributor to, population movement is that authors interpret ‘environment’ quite broadly, or keep it ill-defined. El-Hinnawi (1985), for example, notes three categories of ‘environmental refugees:

i) Those temporarily displaced because of an environmental stress such as an earthquake, or cyclone, and who will likely return to their original habitat;

ii) Those permanently displaced because of permanent changes to their habitat, such as dams or lakes; and

iii) Those who are permanently displaced desiring an improved quality of life because their original habitat can no longer provide for their basic needs.

In these three categories, El-Hinnawi has incorporated three very different groups of migrants. In the first case, there is a temporary movement from physical danger; the second category involves development projects where individuals are forced to resettle within a region (and there is a question how many ‘internal’ refugees are generated by these processes); and the third reflects a voluntary movement based on the ‘push-pull’ model noted above. It is useful to categorize environmental stress, as follows (Lonergan, 1994):
Natural Disasters

Natural disasters include floods, volcanoes and earthquakes. They are usually characterized by a rapid onset, and their impact (destructiveness) is a function of the number of vulnerable people in the region rather than the severity of the disaster, per se. Poor people in developing countries are the most affected because they are the most vulnerable. (Droughts, despite a slower onset, are also included in this category.) Recent earthquakes in Pakistan and flooding in many regions of the world indicates not only the destructiveness of disasters, but their ability to displace large numbers of people.

Cumulative Changes or 'Slow-Onset Changes'

Cumulative changes are generally natural processes occurring at a slower rate which interact with—and are advanced by—human activities. The processes include deforestation, land degradation, erosion, salinity, siltation, waterlogging, desertification and climate warming. Human-induced soil degradation is one factor which directly affects economic sufficiency in rural areas. Water availability is another factor which may affect sustainable livelihoods. Do factors such as water scarcity and human-induced soil degradation in and of themselves cause population displacement? The linkage is much more indirect; in most cases, one or more of rapid population growth, economic decline, inequitable distribution of resources, lack of institutional support and political repression are also present.

Accidental Disruptions or Industrial Accidents

This category includes chemical manufacture and transport and nuclear reactor accidents. The two most obvious examples are the nuclear accident at Chernobyl, in the former USSR in 1986, and the Union Carbide accident in Bhopal, India, in 1987. Between 1986 and 1992, there were over 75 major chemical accidents which killed almost 4000 persons worldwide, injured another 62,000, and displaced over 2 million (UNEP, 1993). Most of these displacements, however, were temporary. In the case of the accident at Bhopal, despite the death of 2,800 people and illnesses to 200,000 more, there was virtually no mass movement of population out of the region.

Development Projects

Development projects which involve forced resettlement include dams and irrigation projects. In India, for example, it has been estimated that over 20 million persons have been uprooted by development projects in the past three decades
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(Fornos, 1992). The Three Gorges Dam project in China - expected to displace over 1 million persons - and the Sardar Sarovar Dam project in India are the most notable present examples. Rapid urbanization in some regions of the world is also forcing people from their land; conversion of agricultural land to urban uses has long been a phenomenon in the North, and increasingly this is the case in the South as well.

Conflict and Warfare

Environmental degradation is considered by many to be both a cause and effect of armed conflict. Although the evidence of wars being fought over the environment is weak (except, of course, over land), there is an increasing use of the environment as a ‘weapon’ of war or, as Gleick (1990) notes, as a ‘strategic tool.’ One obvious example in this category was the threat by then President Ozal of Turkey to restrict the flow of the Euphrates to Syria and Iraq in order to pressure Syria to discontinue its support of Kurdish separatists in Turkey. Other examples include the purposeful discharge of oil into the Persian Gulf during the Gulf War and the destruction of irrigation systems during conflicts in Somalia. Such activities have similar—and, indeed, more immediate—consequences as the slow-onset changes noted above. But in these cases, it seems clear that the ‘environment’ is merely a symptom of a larger conflict, and the root cause of any population movement is the conflict itself, and the reasons behind it. Collectively, it is claimed that these ‘environmental’ changes have resulted in millions of displaced persons. The global deterioration of the environment, continued population growth, and increasing resource scarcity will likely play an increasing role in population movement in the future. But are these factors all ‘environmental?’ And what are the links to migration?

To understand causal relationships, and to better design policy interventions, it is imperative that these five categories be treated separately, and not considered collectively as ‘environmental degradation.’ In some cases, there is minimal impact on population movement, while in others, the role of ‘environment’ is extremely difficult to ascertain. It is clear, for example, that industrial accidents have had relatively little impact on migration, with the exception of Chernobyl. Most accidents have resulted in a short-term relocation, but very few (of the more than 2 million cited above) have been displaced permanently from their homes. In the context of other changes, this is a relatively minor concern. Development projects, while there is little question that they displace large populations, should also be treated separately from other categories. The magnitude of some of the projects is, indeed, daunting, and it has caused the World Bank to avoid any projects which involve major resettlement programs (such as Sardar Sarovar in India). In theory, these projects include a resettlement component, and are unlikely to produce the
‘waves of environmental refugees’ that Homer-Dixon cautions about. The links between natural disasters and population displacement are also problematic. Sadako Ogata, the UN High Commissioner on Refugees, stated in 1992 that the ‘majority of refugees are found in arid and semi-arid areas of the poorest countries of the world.’ Examples of the devastating impact of natural disasters, however, generally come from Bangladesh, Central America, Haiti and South Korea. There is little question that the number of people affected by natural disasters has increased markedly over the past three decades (from 28 million in the 1960s to 64 million in the 1980s). Population growth—particularly in vulnerable areas—and poverty have combined to make larger numbers of people susceptible to environmental disasters. And while the number of homeless is significant, it does not imply that these people migrated to different regions or countries. Indeed, some authors claim that sudden-onset disasters have resulted more in increased death rather than increased flight (Lee, 1996).

The category of cumulative, or slow-onset, change, may well be the most important in terms of being a force in population migration, but it is also the most difficult to measure. Environmental changes such as increased water scarcity and soil degradation may be one factor among many facing a potential migrant. As was noted before, removing environmental processes from the social, economic and political processes in which they are embedded is virtually impossible.

Numerous examples are presented to substantiate the link between environmental change and population movement, but the most common are the Sahel in Africa, El Salvador, Haiti, and Bangladesh (El Hinnawi, 1985; Hall and Hanson, 1992; Surhke, 1992; Myers, 1995). There is little doubt that each of these regions/countries has experienced significant environmental stress: droughts, deforestation, soil degradation, and flooding are the most notable. But it is also clear that there are a myriad of other social, economic and institutional processes which are present. Rapid population growth, inequitable land distribution, civil war, extreme poverty, and so on. For example, the Kissinger Report of 1984 attributed the conflict in El Salvador to poverty and inequality; the conflict in the country has resulted in over a million people displaced. But what role did the environment play? Deforestation, exploitation of coastal resources, and the civil war have resulted in substantial environmental damage in the country (Hall and Hanson, 1992). In turn, as Leonard (1989) notes, If deterioration of these natural resource systems continues, political and social instability will be exacerbated as will economic stagnation and rural poverty. This phenomenon in turn will constrain future economic and social development in all seven countries of greater Central
America. Is environmental degradation a root cause of population movement in El Salvador? It likely played a role, but it was certainly not a root cause. Another often used example is the Sahel, where droughts and famine have severely impacted people in almost every country in the region. But poverty, marginal agricultural land, institutional constraints, war, inflation and landlessness not only increased the vulnerability of the population to climate variation, but affected the ability of individuals and communities to adapt to a changing environment. The people became more vulnerable, not because of environmental degradation, per se, but because of a host of other social, economic and institutional factors. The same is true in all cases which are used as ‘evidence’ of environmental refugees. The key factor is that certain populations are becoming more vulnerable to environmental change because of other factors; primary among these are poverty and resource inequality, coupled with population growth, institutional constraints, and economic insufficiency.

7.5 Concerns for Environmental Security

Environmentally induced migration is rarely mono-causal. The cause-consequence relations are increasingly complex and multi-factorial. A growing number of people flee because of multiple causes of injustice, exclusion, environmental degradation, competition for scarce resources and economic hardship caused by dysfunctional states. Some leave voluntarily, some flee because there is no other choice; and some may make the decision to move before they have no other choice but to flee. The different degrees of force and the complex set of influencing factors blurs the traditional concepts of migration and displacement sometimes creating confusion among the international community about whether to talk about migration or displacement in the case of people fleeing disasters and environmental degradation. All in all, the issue of environmental refugees promises to rank as one of the foremost human crises of our times. To date, however, it has been viewed as a peripheral concern, a kind of aberration from the normal order of things—even though it is an outward manifestation of profound deprivation and despair. While it derives primarily from environmental problems, it generates myriad problems of political, social and economic sorts. As such, it could readily become a cause of turmoil and confrontation, leading to conflict and violence. Yet as the problem becomes more pressing, our policy responses fall further short of measuring up to the challenge. To repeat a key point: environmental refugees have still to be officially recognized as a problem at all.
7.6 Conclusion

The four general conclusions below (some of which are adapted from Lonergan and Parnwell, forthcoming), reflect the answers to the questions above. Generalizations about the relationship between environmental degradation and population movement mask a great deal of the complexity which characterizes migration decision-making. Much of the literature suggests a deterministic cause and effect model where a set of environmental stresses will result in a similar response—migration—from individuals and communities. This may occur with certain forms of environmental catastrophe, where there is no option but to move. But in general such a model is very misleading. Levels of internal differentiation within communities are typically high, and thus people will have different levels of ability to cope with environmental stresses. Furthermore, people’s ‘tolerance thresholds’ are highly variable, being surpassed very readily in some (perhaps the more footloose members of a rural community), and being almost insurmountable in others (for instance, older residents who have a strong attachment to the home area and thus a built-in inertia). A proper appreciation and understanding of the complexity and diversity of human responses to environmental degradation is essential if we are to identify the full extent of the phenomenon and plan accordingly. It is extremely difficult to isolate the specific contribution of environmental change in many forms of population movement, especially those which are more ‘voluntary’ in nature. It may be relatively easy to identify the parallel occurrence of environmental degradation and population movement, but assuming a causal link may be misleading and dangerous. In reality, movement takes place in response to a combination of environmental, economic, social and political (including armed conflict) stimuli. Thus separating environmental processes from the structures within which they are embedded is both difficult and a distortion of reality. There is also an implicit assumption in the literature that movement is an assured means of obtaining relief from environmental pressures. Despite the ancient Chinese proverb that states ‘Of thirty ways to escape danger, running away is the best’ (from El-Hinnawi, 1985), it is not necessarily the case that movement always reduces environmental—or other—stress. In reality, movement may lead to the substitution of one set of stresses (environmental) for another (economic, social, political and/or further environmental stresses). Movers may have to accept whatever opportunities come their way in the new location.

An important question—often overlooked where the central preoccupation is with identifying the volume of the migratory movement—concerns the future intentions of environmentally-displaced persons, not least with regard to the duration of
their sojourn. Do migrants intend to return to their home area, if that option is available, or remain in their new location? The answer to this question will have a significant bearing upon their actions and behaviour in their place of refuge, and is also crucial to the planning process reaching any one of these stages will be a function of the severity of the environmental crisis and the opportunities which become available to the displacee through movement.

Policy Options

These four general conclusions underscore the difficulty in developing policy prescriptions to deal with the issue of environmental degradation and population movement. Migration is a complex phenomenon, and it is not clear what role environmental degradation plays in influencing a person’s decision to migrate. It is also difficult, if not impossible, to isolate environment from other social, economic, and political factors. And there has been a dearth of research that focuses on individual or collective human perceptions and evaluations of actual and expected conditions of the environment as a source of insecurity and migration stress. Developing policy prescriptions in this context, therefore, is a risky enterprise, at best. However, accepting these difficulties, two sets of recommendations are presented below. The first set presents general policy recommendations for assisting communities and regions under environmental stress, particularly where that stress may contribute to population movement. The second set provides specific policy recommendations for agencies involved in setting refugee policy.

Despite the complex nature of migration flows, and the ongoing debate on the role of environmental degradation as a cause of, or contributor to, migration, there is little doubt that we need to give greater consideration to environmental deterioration and resource scarcity in our development assistance activities. This implies a major emphasis on promoting sustainable development and its ecological, economic and social manifestations, and ensuring human security. More specific recommendations include:

i) Develop a system to help anticipate migrations which might be triggered by environmental disruptions;

ii) Focus efforts on identifying adaptation mechanisms, and how these mechanisms might be reinforced in vulnerable communities and regions;

iii) Develop case studies of how environmental degradation influences migration, with specific consideration of developing procedures to assist those affected by environmental disruptions;
iv) Develop better working relationships among human rights, environment, population and migration organizations;

v) Involve migrants and refugees directly in the development of programs to assist those affected by environmental deterioration;

vi) Recognize the cumulative causality of environmental degradation and population movement, and assist receiving regions to ensure minimal environmental impacts of the migration flows;

vii) Provide assistance to countries most vulnerable to future environmental change; and

viii) Recognize that human rights and the environment—indeed, human security and all its components—should be the cornerstone of any assistance policies.

Can we make more specific policy recommendations that are relevant to government agencies? As noted above, environmental degradation and resource depletion are only two of many factors that may contribute to insecurity and, as a response, population movement. Other key factors surely include population growth and an inequitable distribution of income and/or resources (often linked to impoverishment). This implies that policy prescriptions should focus on promoting sustainability in resource use, reducing rates of population growth, and addressing the inequitable distribution of income and access to resources between and within countries. Such policies should also incorporate activities which will assist in reducing both the biophysical and social vulnerability of individuals and communities to environmental change.

Examples include:

i) An increase in support for family planning in developing countries. Since population growth is a threat to the environment and to the economic livelihood of many people, it is imperative that birth rates are brought down.

ii) There must be greater focus on agricultural activities in developing countries. This should focus on reducing erosion and deforestation, and increasing the sustainability of small farms in marginal areas.

iii) Greater effort should be made to improve education and awareness with respect to the environment. This includes care for the environment and sustainable resource use.
iv) In this context, an adequate supply of freshwater is crucial. It is also imperative that treated water be recycled to agricultural uses. Inefficient use of water, water loss in urban areas, and the lack of systems to use recycled water greatly affect social welfare.

v) There must be greater capacity building in the administration of environmental programs. This ranges from increased support for NGOs in the environmental field to the development of government agencies that can participate in international environmental work.

The complex nature of environment—population linkages makes it difficult to develop policy recommendations that are as concrete as many would like. However, it is apparent that environmental degradation and resource depletion may play a contributing role in affecting population movement, often filtered through contexts of poverty and inequity. In turn, it is clear that some population movements—particularly large scale, mass movements—have a negative impact on the natural environment of receiving regions. In order to develop a more concise policy agenda, it is imperative that further attention be given to the links among environment, population and poverty; to which groups are most vulnerable to environmental change; and to identifying vulnerable regions and future ‘hot spots’ of insecurity and potential migration/refugee pressure.
Environment primarily refers to the ecological dimension (ecosystems), but can also take account of social dimension (quality of life) and an economic dimension (resource management). As the principal user of nature, humanity is responsible for ensuring that its environmental impacts are benign rather than catastrophic. Environmental management (EM) is the tool by which humanity can ensure the optimum use of our resources with minimal impact to the environment. It is the regulation of interaction between the modern human societies and the environment with the basic aim of reduction of adverse impact upon the latter. Environmental management involves the management of all components of the bio-physical environment, both living (biotic) and non-living (abiotic). This is due to the interconnected and network of relationships amongst all living species and their habitats. The environment also involves the relationships of the human environment, such as the social, cultural and economic environment with the bio-physical environment.

The need for EM environmental management can be viewed from a variety of perspectives. The scope of EM ranges from the use and conservation of natural resources, to protection of habitats and control of hazards as well as spanning up to the field of applied ecology. The development of EM as a subject owes to the contributions drawn from biology, botany, climatology, ecology, ecological
economics, environmental engineering, fisheries, environmental law, forest sciences, geology, information science, public affairs, zoology and more. It is an evolving body of work containing inputs from not just academic researchers and environmental professionals but also professionals outside the traditional streams including those in business, government, research establishments, and public interest groups, etc. presenting a wide spectrum of viewpoints and approaches.

**EM in theory and practice**

Since the end of the 1980s the concept of sustainable development has gained general acceptance, but much uncertainty still exists on how to operationalize this concept. With global warming and environment protection major areas of concern across nations, environmental management has emerged as focus area by government departments, and social organizations. Indiscriminate deforestation, industrial pollution, rampant construction, and unprecedented increase in fossil fuel run vehicles all have contributed to the alarming levels of pollution worldwide. Carbon di-oxide generated has resulted in an increase in atmospheric temperature which in turn contributed to melting of ice caps and diminishing of ice fields. Environmental scientists are seeking avenues to prevent further damage to the earth’s atmosphere and surroundings thereby making our earth a healthier place to live.

A more common philosophy and impetus behind environmental management is the concept of carrying capacity. Simply put, carrying capacity refers to the maximum number of organisms a particular resource can sustain. EM is therefore not the conservation of the environment solely for the environment’s sake, but rather the conservation of the environment for humankind’s sake.

Practitioners and stakeholders involved in environmental and risk assessment and decision-making efforts have access to a growing list of policies and guidance for implementing good process. The advice is often general. There is little understanding of how situation specific features are relevant in new circumstances.

The three main issues that affect environmental managers are those involving politics (networking), programs (projects), and resources (money, facilities, etc.). As with all management functions, effective management tools, standards and systems are required. An ‘environmental management standard or system or protocol attempts to reduce environmental impact as measured by some objective criteria. The ISO 14001 standard is the most widely used standard for environmental risk management and is closely aligned to the European Eco-Management and Audit Scheme (EMAS). As a common auditing standard, the ISO 19011 standard explains how to combine this with quality management.
8.2 Environmental Policy and Management

Policy can be defined as a “course of action or principle adopted or proposed by a government, party, business or individual”. Thus, environmental policy focuses on problems arising from human impact on the environment, which retroacts onto human society by having a (negative) impact on human values such as good health or the ‘clean and green’ environment.

Environmental policy generally addresses environmental issues that include, but are not limited to air, water, land pollution etc, waste management, conservation of wildlife and endangered species as well as natural resources, biodiversity protection, ecosystems management and so on. Relatively recently, environmental policy has also attended to the communication of environmental issues.

Environmental policy instruments are tools used by governments to implement their environmental policies. Governments may use a number of different types of instruments. Recently, policy makers have started to actively explore new tools for environmental protection, notably market-based instruments (e.g. environmental taxes and tradable permits) and voluntary agreements. Such instruments are typically regarded as being more flexible and efficient than traditional (‘command and control’) regulation. Although the idea of using such tools is not new, the political demand for and use of ‘New Environmental Policy Instruments’ (NEPIs) has grown considerably in recent years. However, relatively little is known about the politics surrounding their adoption and implementation.

Voluntary measures, such as bilateral agreements negotiated between the government and private firms and commitments made by firms independent of government pressure, are other instruments used in environmental policy. Another instrument is the implementation of greener public purchasing programs.

Often, several instruments are combined in an instrument mix formulated to address a certain environmental problem. Since environmental issues often have many different aspects, several policy instruments may be needed to adequately address each one. Furthermore, instrument mixes may allow companies and firms greater flexibility in finding ways to comply with government policy while reducing the uncertainty in the cost of doing so. However, instrument mixes must be carefully formulated so that the individual measures within them do not undermine each other or create a rigid and cost-ineffective compliance framework. Also, overlapping instruments lead to unnecessary administrative costs, making implementation of environmental policies more costly than necessary.
National Environment Policy in India: At the national level, the Ministry of Environment and Forests had prepared a draft Environment Policy (NEP). The NEP 2006 has since been approved by the Union Cabinet in May 2006. The National Environment Policy builds on the existing policies (e.g. National Forest Policy, 1988; National Conservation Strategy and Policy Statement on Environment and Development, 1992; and the Policy Statement on Abatement of Pollution, 1992; National Agriculture Policy, 2000; National Population Policy, 2000; National Water Policy, 2002 etc). It is intended to be a guide to action: in regulatory reform; programmes and projects for environmental conservation; review and enactment of legislations by Central, State and Local Government.

The dominant theme of this policy is that while conservation of environmental resources is necessary to secure livelihoods and well-being of all, the most secure basis for conservation is to ensure that people dependent on particular resources obtain better livelihoods from the fact of conservation, than from degradation of the resource. The policy also seeks to stimulate partnerships of different stakeholders, i.e. public agencies, local communities, academic and scientific institutions, the investment community, and international development partners, in harnessing their respective resources and strengths for environmental management.

8.3 Legal Framework for Environmental Management in India

As mentioned before, India has prepared pollution abatement strategy, which includes the legal framework and the Environment Authorities.

Environment Authorities: In addition to Pollution Control Boards, 6 Environmental Authorities have been constituted under the Environment (Protection) Act 1986, including the National Environment Appellate Authority. These are:

- The Central Ground Water Authority - Aqua Culture Authority
- Dahanu Taluka Environment (Protection) Authority
- Environment Pollution (Prevention & Control) Authority for National Capital Region of Delhi
- National Environment Appellate Authority, 1997
Measures for control of different types of pollution:

**Noise Pollution**

Ambient standards in respect of noise for different categories of areas (residential, commercial, industrial) and silence zones have been notified under the Environment (Protection) Act, 1986. Noise limits have been prescribed for automobiles, domestic appliances and construction equipment at the manufacturing stage. Standards have been evolved and notified for the gen sets, fire crackers and coal mines. Regulatory agencies have been directed to enforce the standards for control and regulate noise pollution.

In addition, to combat noise pollution from fire crackers, the Govt. of India has enacted noise standards for fire-crackers vide G.S.R.682(E), dated 5th October, 1999, in an effort to control noise pollution due to fire crackers. In March 2001, Central Pollution Control Board in association with National Physical Laboratory (NPL), Delhi initiated a study on measurement of noise levels of fire-crackers available in the market. The study indicates that 95% of the fire-crackers samples exceed the prescribed noise limits. Consequently, CPCB issued notice under Section 5, of the Environment (Protection) Act, 1986 to the Department of Explosives, Nagpur, to take immediate steps to control manufacturing of fire-crackers exceeding the prescribed limits. All the State Pollution Control Boards/Committees were also requested to initiate steps to control sale of fire-crackers exceeding the notified limits, in consultation with their respective local administrations.

To control noise pollution in the country the following steps were taken:

♦ Ambient noise standards were notified in 1989, which formed the basis for State Pollution Control Boards to initiate action against violating sources.

♦ The vehicular noise standards, notified in 1990, are being implemented by Ministry of Science and Technology, to reduce traffic noise. These standards have been made more stringent vide a notification in September 2000 and will be effective from January, 2003.

♦ Noise standards for diesel genset were prescribed in Dec. 1998. Govt. has been pursuing with State Pollution Control Boards, generator manufacturing and major users, for implementation of these standards. Presently these standards are being revised (the MoEF is in the process of issuing notification) making it mandatory for all generator manufacturers to provide acoustic enclosure at the manufacturing stage itself. This will have a major impact on noise from DG sets.
Noise standards for fire-crackers were developed in October, 1999. Central Pollution Control Board had carried out a compliance testing of the fire crackers available in the market and also taken up with the Department of Explosives for compliance with these standards.

Noise standards for petrol and kerosene generator sets were notified in September, 2000, and will be effective from September, 2002. The sale of these gensets will be prohibited if not certified by the testing agencies, identified for the purpose.

The Noise Rules, 2000, regulates noise due to Public Address System/ Loud speakers and also prescribed procedures for noise complaint handling.

Central Pollution Control Board has taken up a study on aircraft noise monitoring in Indira Gandhi International Airport, Delhi. This will be followed by development of guidelines/ standards for aircraft noise.

**Vehicular Pollution and Air Quality**

- Establishment of Ambient Air Quality Monitoring throughout India
- Notification of Ambient Air Quality Standards under Environment (Protection) Act.
- Improving fuel quality by phasing out lead from gasoline, reducing diesel sulphur, reducing gasoline benzene, and etc.
- Introduction of alternate fuelled vehicles like CNG/LPG.
- Improvement of public transport system.
- Phasing out of grossly polluting commercial vehicles.
- Public awareness & campaigns.

Impacts of the steps taken in Delhi: All regulatory pollutants show a decreasing trend in concentrations in Delhi. CO decreased to 3069 ug/m3 in 2000-2001 from 5450 ug/m3 in 1998. NO2 decreased from 75 ug/m3 in 1996 to 59 ug/m3 in 2000. Lead which is harmful especially for children, decreased remarkably due to phasing out of lead from gasoline. Another critical pollutant RSPM also shows a decreasing trend in Delhi.
Constitutional Measures

India is the first country in the world which has provided for constitutional safeguards for the protection and preservation of the environment. In the constitution of India, specific provisions for the protection of environment have been incorporated by the Constitution (42 amendment) Act, 1976. Now, it is an obligatory duty of the State and every citizen to protect and improve the environment. The Directive Principles of State Policy contain specific provisions enunciating the State commitment for protecting the environment.

“The State shall endeavor to protect and improve the environment and to safeguard forests and wildlife of the country”.

Furthermore, duties of the citizens towards environment are contained in Article 51 -A(g). This Article says :-

“It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures”

Legislative Measures

The constitutional provisions are implemented through environmental protection laws of the country. India has a large body of laws and regulations governing the environment. These include laws enacted by Central and State Governments as well as an increasing body of judicial decision's affecting industrial activities that generate pollution. Further, there are more than 200 statutes that have a bearing on environmental matters in India. However, the major legal provisions made in the last twenty years are summarized below.

♦ The Environment (Protection) Act, 1986.


A notification of Environmental Statement, 1993.


The existing laws and regulations on environmental pollution which are administered by the Ministry of Environment and Forests are:


vi) The National Environment Tribunal Act, 1995

The main provisions under these Acts are given here.

The Water (Prevention and Control of Pollution) Act, 1974 (As Amended In 1978 And 1988).

The Water Act is a comprehensive legislation providing for the Prevention and Control of Water Pollution and for maintaining or restoring the wholesomeness of water in streams or wells. The Act provides for the establishment of the Central Pollution Control Board at the Centre and State Pollution Control Boards in the respective States.

A) The functions of the Central Board at the national level are to

i) Advise the Central Govt. on matters relating to prevention and control of water pollution.

ii) Coordinate the activities of the State Board and resolve disputes among them.
iii) Provide technical assistance and guidance to the State Boards.
iv) Carry out and sponsor research and investigation in the problems of water pollution.
v) Set the standards for streams and wells.
vi) Create environmental awareness and
vii) To act as State Board for the Union Territories.

B) State Board has executive and territorial functions which include:
i) Planning for prevention, control or abatement of pollution of streams and wells.
ii) Advise the State Govt. on matters relating to water pollution-
iii) Inspection of sewage or industrial effluent, including municipal wastewater treatment plants for the treatment of sewage or trade effluents.
iv) Setting standards for the sewage and industrial effluents discharge.

There is a provision of joint boards for two or more contiguous States. In case of dispute between two State Boards, the Central Board has authority to arbitrate.

Important provisions in the Water (Prevention and Control of Pollution) Act, 1974 (As amended In 1978 And 1988) are:
i) Pollution Control Board (PCB) has the right
   — to obtain any information regarding the construction, installation or operation of an industrial establishment or treatment and disposal system
   — to take samples of trade effluent for the purpose of analysis in the prescribed manner
   — to enter and inspect any industrial establishment, record, register, document or any other material object.
   — to prohibit use of stream or sewer or land for disposal system without prior consent of the PCB.

ii) Restriction on establishment and the operation of any industry process or any treatment and disposal system without prior consent of the PCB.

iii) PCB’s right to refuse or withdraw consent, for discharge of effluents.

iv) Industry to comply with the conditions stipulated in the consent.
v) PCB’s to grant consent within four months after the date of receipt of the application complete in all respects.

vi) Industry to appeal to the Appellate Authority, in case of grievances against the order passed by the PCB regarding grant, refusal or withdrawal of the consent within the specified time in the prescribed manner.

vii) Industry to furnish information to the PCB and other specified agency (ies) in case of discharge of poisonous, noxious or polluting matter into a stream, sewer or land, occurred or likely to occur resulting in pollution due to an accident or any other unforeseen event.

viii) PCB’s right to issue orders restraining or prohibiting an industry from discharging any poisonous, noxious or polluting matter in case of emergencies, warranting immediate action.

ix) PCB’s have power to make an application to the court for restraining likely disposal of polluting matter in a stream or on land.

x) Bar of jurisdiction in civil court in respect of any matter under purview of the Appellate Authority constituted under the Act and no grant of injunction in respect of any action taken or proposed in pursuance of the Act.

xi) Bar on filing of any suit or legal proceedings against the Government or Board officials, for action taken in good faith in pursuance of the Act.

xii) PCB’s to make inquiries, in the prescribed manner, for grant of consent for discharge of effluents.

xiii) PCB’s power to issue directions for

   — the closure, prohibition or regulation of any industry, operation or process or,
   — the stoppage or regulation of supply electricity, water or any other service to industry in the prescribed manner

xiv) Industry to comply with the directions of the PCB within the specified time.

xv) PCB’s to maintain a consent register containing particulars of the consent issued and to provide access to industry at all reasonable hours.

The Water Cess Act provides for the levy of a cess on water consumed by persons carrying on specified industries given in Schedule-I of the Act and also local authorities entrusted with the duty of supplying water under the laws by or under which they are constituted at the rates specified in Schedule-II of the Act.
The Cess is levied and collected by the State Government concerned and credited to the consolidated Fund of India. An industry which installs and operates its effluent treatment plant is entitled to a rebate of 25% on the cess payable. The cess has been introduced mainly to augment the resources of the Central and the State Pollution Control Boards.

The Air (Prevention and Control of Pollution) Act, 1981 (Amended in 1987)

The Act provides for the setting up of Central / State Boards for prevention and control of Air Pollution, however, Section 4 of the Act stipulates that in any State in which the Water (Prevention and Control of Pollution) Act, 1974 is in force and the State Government has constituted a State Pollution Control Board, that State Board shall be deemed to be the State Board for the prevention and control of air pollution.

For Union Territories the Central Pollution Control Board is empowered to perform the functions of a State Pollution Control Board under the Act. The State Governments in consultation with their respective State Boards are empowered to declare air pollution control areas. As per the provisions of the Air Act no person can establish or operate any industrial plant in an air pollution control area without obtaining the consent from the concerned State Board.

The Environment (Protection) Act, 1986

The provisions under this Act are :-

♦ Take all necessary measures for protecting the quality of environment.
♦ Plan and execute a nationwide programme for the prevention, control and abatement of environmental pollution.
♦ Lay down standards for discharge of environmental pollutants.
♦ Empower any persons to enter, inspect, take samples and test.
♦ Establish or recognise environmental laboratories.
♦ Appoint or recognise government analysts
♦ Lay down standards for the quality of environment.
♦ Restrict areas in which any industries, operations, processes may not be carried out or shall be carried out subject to certain safeguards
♦ Lay down safeguards for prevention of accidents and take remedial measures in case of such accidents
♦ Lay down procedures and safeguards for handling hazardous substances
Constitute an authority or authorities for exercising its powers
- Issue directions to any person, officer or authority including the power to
direct closure, prohibition or regulation of any industry, operation or process
or stoppage or regulation of supply of electricity, water or any other service.

It confers powers on persons to complain to the courts regarding any violation of
the provisions of the Act, after a notice of 60 days to the prescribed authorities.

The Central Government is empowered to take action under the provision of the
Environment (Protection) Act, 1986. Powers under Section 5 of the Environment
(Protection) Act, 1986 have been delegated by the Central Government to States
and Union Territories.

Rules have been framed and agencies/authorities have been notified under specific
sections for carrying out specific functions. These include:

Environmental Statement

All those carrying on an industry, operation or process requiring consent under
Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) and/or under Air
(Prevention and Control of Pollution) Act, 1981 (84 of 1981) and or authorization
under the Hazardous Waste (Management & Handling) Rules, 1989, are required
to submit the Environmental Statement in prescribed ‘Form -V’, for the Financial
Year ending 31st March to the concerned State Pollution Control Boards / Pollution
Control Committees in the Union Territories on or before 30th September every
year.

Hazardous Waste (Management & Handling) Rules, 1989

The Hazardous Wastes (Management and Handling) Rules, 1989, provide for an
effective inventory and controlled handling and disposal of hazardous wastes.
Under the rules 18, categories of hazardous waste are identified along with their
regulatory quantity Industries generating any of these waste beyond the regulatory
quantity are required to seek authorization from the concerned State Pollution
Control Board for its temporary storage in the premises and their disposal.
Possibility, of common treatment facilities including landfill are envisaged. The
operator of such facility is also required to obtain authorization from the Board.
The Boards are expected to specify conditions on safe handling and disposal of
the waste in the authorization. Treatment of the waste at the premises before disposal
could also be specified. Import of hazardous waste for processing has to be got
approved by the Central Government.
Manufacture, Storage & Import of Hazardous Chemical Rules 1989

The principal objective of the regulation is the prevention of major accidents arising from industrial activity, the limitation of the effects of such accidents both on humans and the environment and the harmonization of the various control measures and the agencies to prevent and limit major accidents. The industrial activities covered by the regulation are defined in terms of process and storage methods involving specified hazardous chemicals.

An important feature of the regulation is that the storage of hazardous chemicals not associated with the process is treated differently from those coming under process use for which a different list of hazardous chemicals and their manufacture and storage procedures applies. Under the provisions isolated storage / cover sites are to be separate tank farms or warehouses. The Central Pollution Control Board and the State Pollution Control Board, as the case may be, are the enforcement agency for these storages.

Safety Report

A safety report is required to be prepared as per Rule 10 in this Act. It involves identification of the nature and use of hazardous chemicals at the installation. The report will also give account of arrangements for safe operation of an installation including control of any serious deviation that could lead to a major accident and for emergency preparedness at the site. The report will identify the type, and the relative likelihood of consequences for any major accident that might occur. It will also demonstrate that the manufacturer or the occupier has identified the major potential accidents from the activity and has provided appropriate controls.

The Public Liability Insurance Act, 1991

This is an Act to provide for Liability Insurance for the purpose of providing immediate relief to the persons affected by accidents occurring while handling hazardous substances. The Act casts on the person, who has control over handling any hazardous substance, the liability to give the reliefs specified in the Act to all the victims of any accident which occurs while handling such substance. It would be the duty of every owner to take necessary insurance policies to discharge his liabilities.

National Environmental Tribunal Act-1995

This is an Act to provide for strict liability for damages arising out of any accident occurring while handling any hazardous substance and for the establishment of a
National Environment Tribunal for effective and expeditious disposal of cases arising from such accident. This was enacted with a view to giving relief and compensation for damages to persons, property and the environment and for matters connected therewith or incidental thereto.

Regulatory Standards
Standards for effluent and emissions from industries have been notified and the industries have been directed to adopt action programs leading to compliance with these standards on a time bound basis. The Central and the state government are playing a more active role in enforcing these environmental standards. Many polluting units in the country face shifting / closure orders from the courts. It is to be noted that with increasing awareness on environment related issues in the country, the public is becoming more active in highlighting polluting industries and there is an increasing number of Public Interest Litigations in the court.

8.4 Environmental Management Systems (EMS)

Environmental management system (EMS) refers to the management of an organisation's environmental programs in a comprehensive, systematic, planned and documented manner. It includes the organisational structure, planning and resources for developing, implementing and maintaining policy for environmental protection.

EMS is similar to other management systems, such as those that manage quality or safety. It assesses your business' strengths and weaknesses, helps you identify and manage significant impacts, saves you money by increasing efficiency, ensures you comply with environmental legislation and provides benchmarks for improvements. An EMS can also help you manage your resources, and improves the reliability and credibility of your environmental policy. You can prove to customers that you are committed to meeting your environmental responsibilities by getting your EMS certified, such as through ISO 14001, BS 8555, Green Dragon or the Eco-Management and Audit Scheme.

An Environmental Management System (EMS):
- Serves as a tool to improve environmental performance
- Provides a systematic way of managing an organization’s environmental affairs
- Is the aspect of the organization’s overall management structure that addresses immediate and long-term impacts of its products, services and processes on the environment
Gives order and consistency for organizations to address environmental concerns through the allocation of resources, assignment of responsibility and ongoing evaluation of practices, procedures and processes.

Focuses on continual improvement of the system.

**Box 8.1: Basics of EMS**

What is the EMS Model?

An EMS follows a process that includes checking the system and acting on it. An EMS model presents a process of continual improvement in which an organization is constantly reviewing and revising the system.

This is a model that can be used by a wide range of organizations — from manufacturing facilities to service industries to government agencies.

What are some key elements of an EMS?

- **Policy Statement** - a statement of the organization’s commitment to the environment
- **Identification of Significant Environmental Impacts** - environmental attributes of products, activities and services and their effects on the environment
- **Development of Objectives and Targets** - environmental goals for the organization
- **Implementation** - plans to meet objectives and targets
- **Training** - instruction to ensure employees are aware and capable of fulfilling their environmental responsibilities
- **Management Review**

Can existing environmental management activities be integrated into the EMS?

Yes. An EMS is flexible and does not require organizations to necessarily “retool” their existing activities. An EMS establishes a management framework by which an organization’s impacts on the environment can be systematically identified and reduced. For example, many organizations, including counties and municipalities, have active and effective pollution prevention activities underway. These could be incorporated into the overall EMS.

Can EMS be used to assist with maintaining compliance?

Yes. As an example, the Massachusetts DEP has opted to assist with the use of EMS in compliance cases. The EPA also produces a Guidance on the Use of EMS in Enforcement.
What are ISO, ISO 14000, and ISO 14001?

ISO stands for the International Organisation for Standardisation, located in Geneva, Switzerland. ISO is a non-governamental organization established in 1947. The organization mainly functions to develop voluntary technical standards that aim at making the development, manufacture and supply of goods and services more efficient, safe and clean.

ISO 14000 refers to a family of voluntary standards and guidance documents to help organizations address environmental issues. Included in the family are standards for Environmental Management Systems, environmental and EMS auditing, environmental labeling, performance evaluation and life-cycle assessment.

In September 1996, the International Organization for Standardization published the first edition of ISO 14001, the Environmental Management Systems standard. This is an international voluntary standard describing specific requirements for an EMS. ISO 14001 is a specification standard to which an organization may receive certification or registration. ISO 14001 is considered the foundation document of the entire series. A second edition of ISO 14001 was published in 2004, updating the standard.

The ISO 14000 standards reflect different aspects of environmental management. The following list outlines the broad coverage of each:

- Environmental Management Systems:
  14001-2004, 14002, 14004

- Environmental Auditing:
  19011

- Environmental Labeling:
  14020, 14021, 14022, 14023, 14024, 14025

- Life Cycle Assessment:
  14040, 14041, 14042, 14043

The benefits of an EMS

Setting up and running an environmental management system (EMS) can provide significant benefits across a number of areas of your business.
Key benefits

Running an effective EMS will help you with:

♦ better regulatory compliance - running an EMS will help ensure your legal responsibilities are met and more easily managed on a day-to-day basis

♦ more effective use of resources - you will have policies and procedures in place that help you manage waste and resources more effectively and reduce costs

♦ marketing - running an EMS will help you prove your business’ credentials as an environmentally aware operation that has made a commitment to continual environmental improvement

♦ finance - you may find it easier to raise investment from banks and other financial institutions, which are increasingly keen to see businesses controlling their environmental impact

♦ increased sales opportunities - large businesses and government departments may only deal with businesses that have an EMS

♦ lighter regulation - even if an EMS is not a regulatory requirement, by showing your commitment to environmental management, you may benefit through reduced fees and charges from environmental regulators

There are a range of benefits associated with operating an effective Environmental Management Systems (EMS):

Financial

♦ Cost savings through the reduction of waste and more efficient use of natural resources (electricity, water, gas and fuels.)

♦ Avoiding fines and penalties from not meeting environmental legislation by identifying environmental risks and addressing weaknesses.

♦ Reduction in insurance costs by demonstrating better risk management

Operational and Internal

♦ Improved overall performance and efficiency.

♦ Able to monitor and reflect (audit) your business and see which areas need intervention
External

- Better public perception of the organization, leading to improved sales
- Reduction of the impact (e.g. noises, smells, dust) of your activities on the local residents, leading to more community support

This guide provides an introduction to EMS. It describes the main elements of an EMS using the information in the British Standard BS 8555, which breaks the process down into clear stages.

8.5 Conclusion

The goal of sustainable development, which is now integrated into the European Union objectives, calls for the use of a wider range of tools for environmental policy. The 6th Community Environmental Action Programme, “Environment 2010: Our Future, Our Choice”, recognises this and aims to be a programme that “…completes and reinforces our body of environmental legislation where there are gaps and takes forward the implementation of our directives…does more in terms of mobilising stakeholders for the environment and ‘greening’ the market”. European Commissioner for the Environment at the time, Margot Wallström said:

“…we will not solve environmental problems by simply adding a few new directives every year to our existing 270 or so pieces of European environmental law, especially if we discover later on that these directives are not implemented by the Member States…we need a broader range of instruments to tackle ever more diffuse sources of environmental pressures…We need instruments which:

Promote information, awareness and commitment with citizens and in the business community; Give the right incentives for environmental improvements in the market place; and ensure the integration of the environment into other policies.”

At the level of the European Commission such an instrument is already evident in EMAS, the Eco-Management and Audit Scheme.

An Environmental Management System (EMS) is a problem identification and problem solving tool that provides organisations with a method to systematically manage their environmental activities, products and services and helps to achieve their environmental obligations and performance goals. ISO defines an EMS as “the part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy.”
The EMS provides a systematic way of addressing and managing immediate and long-term impacts of an organisation's products, services and processes on the environment and gives order and consistency to address environmental concerns through the allocation of resources, assignment of responsibility and ongoing evaluation of practices, procedures and processes.

An EMS can be implemented in many different ways depending on the precise sector or activity and the needs perceived by management, but several common core elements should be present: environmental policy, environmental programme or action plan, organisational structure, integration into operations, a documentation system in order to collect, analyze, monitor and retrieve information, corrective & preventive action, EMS audits, management review, training and external communications.

These systems are different from eco-labelling schemes — here the focus is on environmental performance of an organisation's production processes, activities and sites while eco-labels apply more specifically to the environmental characteristics of single products and services for which a set of criteria are elaborated which need to be met. The life-cycle approach which is applied to both schemes is therefore used in a broader way in the EMS. In a simple way, one could say that eco-labels consider the life-cycle of products or services whereas the EMS looks at the life-cycle of the entire organisation.

These systems also go beyond, mere environmental reporting, which is the main way for organisations to inform stakeholders of their activities, progress and future and can also include “green accounts”. The environmental performance of an organisation is of increasing interest to investors, creditors, governments and the public at large, however, although mandatory reporting to authorities is more widespread, mandatory public reporting of environmental information is currently limited to very few countries. One of the main challenges in this sector is the development of an agreed set of indicators which is necessary if environmental reporting is to be integrated into strategic and budgetary planning and if comparability and benchmarking is to be guaranteed.
9

Air, Water and Land Management

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9.1 Introduction

Mahatma Gandhi had said -“The Earth has enough for everybody’s need but not for everybody’s greed”.

Environment is our surroundings which include all forms of life including plants, animals, human beings, as well as non living external physical matters like air, water, land, buildings, parks, vehicles, etc. Our environmental is in a dynamic state. It keeps changing every now and then. You would have observed many changes around you, like floods or drought in certain years, new industries, multi-storey buildings, new means of transport, etc. If these changes are favorable to life, then the environment is not harmed. However, unfavorable changes lead to degradation of the environment.

As the use of these natural resources increases, waster and pollution also increases. This is because waste is a by-product of the use of natural resources. Wastes damage the environment after an extent, and turn into pollutants. Thus, we can say that overuse of natural resources leads to pollution. Moderation, industry, machines and transport have speeded up the consumption of all natural resources. The resultant pollution has affected air, water, soil and life on the earth, chemically, physically and as far as human beings is concerned, even psychologically. Our worked to day is affected by different kinds of pollution. Air, water, soil, noise,
waste and heat radiation are a result of speedy consumption of natural resources.

Management of air, water and land is a broadly distributed function at all levels of municipal, state, and central government.

In India some of the important Environmental Laws are:

- Water (Prevention and Control of Pollution) Act, 1974;
- Air (Prevention and Control of Pollution) Act, 1981,
- Cess Act, 1977, - Environment (Protection) Act, 1986 and Rules there under
- Public Liability Insurance Act, 1981,
- National Environmental Tribunal Act, 1995
- National Environment Appellate Authority Act, 1997

State Boards are implementing following programmes:

- Pollution control in 17 categories of highly polluting industries
- Pollution control from industries discharging waste water into rivers and lakes
- Inventorization of pollution industries in the State and ensuring their compliance to the Pollution control norms
- Restoration of environmental quality in critically polluted areas
- Monitoring of water and ambient air quality in the States
- Hazardous waste
- Bio-medical and Management of Municipal Solid Wastes

9.2 Air Policies and Management

Air pollution is a problem for all of us. The average adult breathes over 3,000 gallons of air every day. Children breathe even more air per pound of body weight and are more susceptible to air pollution. Many air pollutants, such as those that form urban smog and toxic compounds, remain in the environment for long periods of time and are carried by the winds hundreds of miles from their origin. Millions of people live in areas where urban smog, very small particles, and toxic pollutants pose serious health concerns. People exposed to high enough levels of certain air pollutants may experience burning in their eyes, an irritated throat, or breathing difficulties. Long-term exposure to air pollution can cause cancer and long-term damage to the immune, neurological, reproductive, and respiratory systems. In extreme cases, it can even cause death.
In this day and age, there is an urgent need to not just protect but also manage our natural resources, especially Air. The atmosphere is a complex dynamic natural gaseous system that is essential to support life on our planet. Stratospheric ozone depletion due to air pollution has long been recognized as a threat to human health as well as to the Earth’s ecosystems.

Air pollution can be defined as “the presence in the external atmosphere of one or more contaminants (pollutants) or combinations thereof, in such quantities and of such duration as may be or may cause injury to human health, plant or animal life, or property (materials), or which unreasonably interfere with the comfortable enjoyment of life, or property, or the conduct of business” (Canter, 1996). The principal sources of air pollutants, particularly in the industrialized countries, are human activities. Some of the most important air pollutants are “secondary air pollutants” (formed in the atmosphere from primary pollutants), e.g. ozone, aldehydes, peroxyacetyl nitrates, etc. formed by photochemical reactions from nitrogen oxides and hydrocarbons and sunlight. Until recently, public interest in air pollution problem has continued to increase dramatically and has remained high.

In general, air pollution problems can be solved by reducing pollutant emissions. It is unlikely that a cheap and simple solution to these problems can be found. Instead, many small steps have to be made in order to achieve the air quality goal. Therefore, air pollution management plays an important role in reaching the air quality goal efficiently and effectively.

Air management includes not just conserving the air by decreasing the pollution levels in air but also management of air quality, increasing awareness of the impacts of air quality and climate change and increasing government policy towards sustainable futures. Air management broadly includes knowledge and application of air laws and climate change legislations, air quality management, forecasting and regulation, industrial emission monitoring and control, environmental and human health impact assessment, the transport, energy, waste and chemical industrial sectors and the related national and state policies.

In factories and industrial plants, the main culprit is the process adopted to manufacture chemicals etc. Manufacturing an item is required, but equally necessary is the necessity to control the pollutants created during this manufacturing process as byproducts. If a system is well designed to produce, chances of pollution are remote. However, many of the plant designers do not have the concept of pollution control in their minds while designing plants. They normally have the objective to design to manufacture the right product at low capital and power costs.
Pollution is considered as optional. Due to this approach, most of the industrial plants generate large quantities of pollutants in air, mostly in form of gases. Another reason of this is the dearth of pollution control consultants. Each and every unit has to be doubly checked with in-house consultants to ensure that problems do not arise later.

The main products polluting air are acid vapors, sulphur-di-oxide, chlorine, carbon monoxide, hydrogen sulphide, ammonia, particulates, benzene byproducts etc. These products are not supposed to be released in the atmosphere. Also, as these products are expensive, prevention of these products also provides the owner some gains. Faulty pipes, duct joint openings are the main source from which these products escape.

There are various air pollution control technologies and land use planning strategies available to reduce air pollution. At its most basic level land use planning is likely to involve zoning and transport infrastructure planning. In most developed countries, land use planning is an important part of social policy, ensuring that land is used efficiently for the benefit of the wider economy and population as well as to protect the environment.

There is a growing interest among various groups, including the general public, media, international organizations and policy-makers, for an understanding of the air quality management status and trends of different nations of the world, especially at the city-level. While there are tools available that measure environmental performance in general, there is limited methodology specifically for assessment of air quality management for cities. Air quality management in cities have been traditionally evaluated using the good versus bad list analysis—“100 Dirtiest Cities” or “Top 10 Cities with Best Air Quality”, usually only considering air quality levels for a city. This provides a subjective and incomplete picture as it does not consider the institutional capacity as well as the programs and actions being implemented in the city. Another limitation is it does not provide guidance where cities can improve. Aside from addressing traditional air pollutants (particulate matter, Sulphur dioxide, Nitrogen dioxide, Carbon monoxide, ozone, and Lead), cities are also pressed to reduce greenhouse gas (GHG) emissions (Carbon dioxide, methane, Nitrous oxide, among others).

Need for strong air management legislations

- Polluted air and water are harmful to life. Air pollution creates problems for healthy living beings, plants and also material. Water pollution also creates problems for all living beings, agriculture, water bodies, all plants and animals
living in water, land fertility etc. Thus, one’s consciousness should always attempt to generate means to control pollution of any type.

- Most of the governments all over the world have laws by which no one is suppose to exceed creating pollution in air or water beyond prescribed limits. Law breakers often face punishments to the tune of heavy fines and even stoppage of work.

Bhopal, India gas tragedy is the best example to explain the necessity to take adequate measures to control pollution. Thousands of people were affected due to lack of adequate measures. The managing director of the company Union carbide, India was arrested and a warrant issued against the name of Union carbide USA till he lived.

Another example is the BSES plant at Dahanu, India. While preparation of the feasibility report, plant designers had not considered the low sulphonation plant while starting the unit. With more than 10 years of litigation, it has surfaced now that the court had to order stoppage of work or take necessary steps.

<table>
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<th>Some suggestive steps to prevent Industrial Air Pollution</th>
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<td>For existing plants, thorough study should be made to locate the sources. Pressures, Temperatures etc. should be adjusted so that the leakages are minimum. At a level when reduction is not possible, steps should be taken to collect the same and then provide treatment. Plants designed 10 years or before or by lowly equipped designs are sure cases for detailed study. For prevention generous use of scrubbers &amp; filters will be necessary. It is said that a routine check will reduce 10%, a minor modification will reduce 15-20% and a thorough overhauling of the system will reduce more than 30% of power consumption and pollution creation.</td>
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9.3 Water Policy and Management

Water pollution has emerged as one of the gravest environmental threats in India. Its biggest sources are city sewage and industrial waste that are discharged untreated into the rivers. Despite the best efforts of the government, only about 10% of the waste water that is generated in the cities is treated and the rest is discharged into the rivers. It is estimated that 75% to 80% of water pollution by volume is caused by domestic sewage. The major industries causing water pollution include: distilleries, sugar, textile, electroplating, pesticides, pharmaceuticals, pulp & paper mills, tanneries, dyes and dye intermediates, petro-chemicals, steel plants etc. Non-point sources such as fertilizer and pesticide run-offs in rural areas also
cause pollution. Only 60% of chemical fertilizers are utilized in soils and the balance is leached into soil polluting the ground water. Excess phosphate run-off leads to eutrophication in lakes and water bodies.

The entry of toxic substances into water bodies like lakes, streams and rivers leads to deterioration in the quality of water and severely affects the aquatic ecosystems. Due to this, even the ground water gets contaminated. All these have a devastating effect on all living creatures that exist near the polluted water bodies. Urgent steps are needed to be taken by the Indian government on the water pollution management front and the flawed policies need to be amended in order to obtain concrete results.

Water pollution is a reality of human existence. When various byproducts are released in drains they travel to the common drains. The washing of the equipment also adds water to this. These are the main causes of contamination of water. Activities like agriculture and industrial production generate water pollution apart from the biological waste. In India, every year, approximately 50,000 million litres of wastewater, both industrial and domestic, is generated in urban areas. If the data of rural areas is also taken into account, the overall figure will be much higher. The materials that constitute industrial waste include highly harmful substances like salts, chemicals, grease, oils, paints, iron, cadmium, lead, arsenic, zinc, tin, etc. In some cases even radio-active materials are discharged into the rivers bodies by some companies, who for the sake of saving money on water treatment, throw all the norms to the winds.

All efforts by the government to put a check on wastewater management have not yielded desired results. This is because the treatment systems require high capital investment for installation and also high cost is incurred on operational maintenance. This is a sore point not only for the farmers but also for the factory owners as the high cost of treating industrial wastewater affects their bottom-line. The cost of establishing and running a wastewater treatment plant in a factory can be as high as 20 percent of the total expenditure. Hence we see a situation where, despite the presence of government norms, effluents continue to flow into the river bodies untreated.

On the other hand, the government of India is spending millions of rupees every year on water pollution control. According to rough estimates, Indian government has spent nearly 20,000 crore rupees till now on various schemes in India, like the Ganga Action Plan and Yamuna Action Plan, to control water pollution in rivers. But no positive results have been achieved as yet. The government should realise that all efforts to get the river-bodies free from water pollution will fail unless the
process of untreated industrial and other wastewater getting into the water bodies is not stopped.

Hence the government should, instead of spending money on pollution control schemes, divert its resources to encourage wastewater treatment in agriculture and industrial sector. The money spent on pollution control should be spent on giving subsidies to the industries which generate wastewater and on strict monitoring of their adherence to the norms. Research should be promoted in areas like nanotechnology to find out ways and means to build cheaper wastewater management plants. Here also, the approach should be to re-use the treated water for agriculture instead of letting it go into the rivers and streams.

It should not be forgotten that only 0.3 per cent of total water available on this planet is fit for consumption for human beings, animals & plants. The remaining 99.7 per cent is present either as sea water or as glaciers on the mountains. Hence ignoring the issue of water pollution any longer would mean inviting a Third World War which would be fought for the control of water resources.

The Central Pollution Control Board in consultation with State Pollution Control Boards has identified 24 areas in the country as critically polluted areas. These are: Bhadravati (Karnataka), Chembur (Maharashtra), Digboi (Assam), Govindgarh (Punjab), Greater Cochin (Kerala), Kala-Amb (Himachal Pradesh), Parwanoo (Himachal Pradesh), Korba (Madhya Pradesh), Manali (Tamil Nadu), North Arcot (Tamil Nadu), Pali (Rajasthan), Talcher (Orissa), Vapi (Gujarat), Visakhapatnam (Andhra Pradesh), Dhanbad (Bihar), Durgapur (West Bengal), Howrah (West Bengal), Jodhpur (Rajasthan), Nagda- Ratlam (Madhya Pradesh), Najafgarh Drain (Delhi), Patancheru Bollaram (Andhra Pradesh), Singrauli (Uttar Pradesh), Ankleshwar (Gujarat), Tarapur (Maharashtra)

9.4 Land Policy and Management

The widespread use of Land is crucial for the economic, social, and environmental advancement of all countries. Although it is part of man’s natural heritage, access to land is controlled by ownership patterns. Land is partitioned for administrative and economic purposes, and it is used and transformed in a myriad ways.

Land is one of the basic elements of life support system on our planet since the dawn of civilization. All great civilizations, flourished where resources like land were available in plenty and they declined or perished with the depletion of these resources. In recent years, the land resource has been subjected to a variety of pressures. Still it is surviving and sustaining mankind. What is alarming in the
way land is being used is the tendency towards over-exploitation on account of a number of reasons leading this pristine resource being robbed of its resilience.

Of all the species on the earth, man is the chief culprit of this degradation. He views land in terms of its utility, meaning the capability to meet his perceived needs and wants. The most easily categorised varieties of land from the utility point of view are - land fit for use, land with potential for use and land which appears useless at least in the foreseeable future.

The advent of modern age and the advent of newer forces, our land resource is fast deteriorating mainly on account of consumerism, materialistic value systems, short-term profit-driven motives and greed of the users. As a result, land has degraded, soil fertility depleted, the rivers polluted and the forests destroyed.

The current trend of economic and industrial development coupled with the steady growth of human as well as livestock population have been the major reasons behind the incidence of land degradation in India. These factors exert pressure on limited land resources of the country for agricultural, industrial and housing needs of the growing population. It is the lands under cultivation which face the biggest challenge of land degradation in India.

Land degradation refers to a decline in the overall quality of soil, water or vegetation condition commonly caused by human activities. The Vegetation Management Act 1999 states that the phrase includes soil erosion, rising water tables, the expression of salinity, mass movement by gravity of soil or rock, stream bank instability and a process that results in declining water quality. Degradation is also considered to include a change in the ground cover to less palatable species, or a change from predominantly perennial grasses to predominantly annual grasses. Environmental dilapidation is brought about by pollution especially in urban areas, which not only experience a rapid growth of population due to high fertility rates, low mortality and increasing rural-urban migration, but also due to the rapid industrialization.

Major ecological and socio-economic crisis are perpetrated by land/soil degradation. Direct impacts of agricultural development on the environment arise from farming activities, which contribute to soil erosion, salinity/brackishness of land and loss of nutrients. The Green Revolution has been accompanied by over exploitation of land and water resources and use of fertilizers and pesticides have increased manifold. In the race to urbanize virgin territory, there has been random violation of the land laws.
According to the Indian Constitution, state legislatures are empowered to make laws and regulations regarding to a number of subject-matters, including water, land (rights in or over land, land tenure, transfer and alienation of agricultural land), as well as the preservation, protection and improvement of stock and the prevention of animal disease.

India constitutes 18 per cent of the world’s population, 15 per cent of the live stock population and only 2 per cent of the geographic area, one per cent of the forest area and 0.5 per cent of pasture lands. The per capita availability of forests in India is only 0.08 per ha. as against the world average of 0.8 per cent, thus leading to the pressure on land and forests. This poses a major and urgent concern. In accordance with the National Remote Sensing Agency’s (NRSA) findings there are 75.5 million ha. of wastelands in the country. It has been estimated that out of these around 58 million ha. are treatable and can be brought back to original productive levels through appropriate measures. At the moment, taking into account the efforts being made by all the various players in this field treating facilities are in place only for around 1 million ha. per year. At this rate, that there is no further degradation and also assuming that our efforts are 100 per cent successful, it will take around 58 years to complete the process.

**Watershed Management**

Watershed is a like a drainage basin. A watershed may also be known as a catchment, catchment area, catchment basin, drainage area, river basin or water basin. It refers to an extent or area of land where water from rain and melting snow or ice drains downhill into a body of water, such as a river, leke, reservoir, estuary, wetland, sea or ocean. The drainage basin includes both the streams and rivers that convey the water as well as the land surfaces from which water drains into those channels, and is separated from adjacent basins by a drainage divide.

The drainage basin acts as a funnel by collecting all the water within the area covered by the basin and channelling it into a waterway. Each drainage basin is separated topographically from adjacent basins by a geographical barrier such as a hill, ridge or mountain. Watershed is a geo-hydrological unit which drains at a common point. Rains falling on the mountain start flowing down into small rivulets. Many of them, as they come down, join to form small streams. The small streams form bigger streams and then finally the bigger streams join to form a *nallah* to drain out of a village. The entire area that supplies water to a stream or river, i.e. the drainage basin or catchment area, is called the watershed of that particular stream or river.
Watershed management is the process of creating and implementing plans, programs, and projects to sustain and enhance watershed functions that affect the plant, animal and human communities within a watershed boundary. Features of a watershed that agencies seek to manage include water rights and the overall planning and utilization of watersheds. Landowners, land use agencies, stormwater management experts, environmental specialists, water use surveyors and communities all play an integral part in the management of a watershed. Watershed degradation in the third world countries threatens the livelihood of millions of people and constraints the ability of countries to develop a healthy agricultural and natural resource base. Increasing population and livestock are rapidly depleting the existing natural resource base because the soil and vegetation system cannot support present level of use. As population continues to rise, the pressure on forests, community lands and marginal agricultural lands lead to inappropriate cultivation practices, forests removal and grazing intensities that leave a barren environment yielding unwanted sediment and damaging stream flow to downstream communities.

Management of watershed thus entails the rational utilisation of land and water resources for optimum production but with minimum hazard to natural and human resources. The main objectives of watershed management are to protect the natural resources such as soil, water and vegetation from degradation. In the broader sense, it is an undertaking to maintain the equilibrium between elements of natural ecosystem of vegetation, land or water on the one hand and man’s activities on the other hand.

When all possible inputs are obtaining, the man in the watershed still remains the most important component of the entire watershed system. The key issue is how far the people can be motivated, involved and organised to drive the movement. No significant improvement can be expected without the people being brought to centre-stage.

Role of Ministry of Rural Development

The Ministry of Rural Development, Government of India, has recently created a Department of Land Resources to act as a nodal department in the field of watershed management and development. This has the mandate of developing the valuable land resources of India, which are presently under various stages of degradation and it also endeavors to prevent further degradation of these resources through appropriate management and necessary measures.
The Department of Land Resources, being the nodal department has taken up certain new initiatives to play a more pro-active role in the Land Resource management in the country. At the conceptual level it has been realised that the management rather than the mere use of land is the central theme. There is no dearth of land, the real issue is management which should include: dynamic conservation, sustainable development and equitable access to the benefits of intervention.

The concept of sustainable development focuses on help for the very poor because they are left with no option but to destroy their own environment. It also includes the idea of cost-effective development using differing economic criteria to the traditional approach; that is to say development should not degrade environment quality, or reduce productivity in the long run. The greater issues of health control, appropriate technologies, food self-reliance, clean water and shelter for all are to be addressed. Sustainable development should seek to maintain an acceptable rate of growth in per capita real incomes without depleting the national capital asset stock or the natural environmental asset stock.

Equitable access to the benefits of development could be achieved either through land reforms or a dedicated and institutionalised mode of people’s participation. Here, besides the Government, other players like the corporate sector, NGOs, various institutions and self-help groups can be involved.

### 9.5 Conclusion

The Environment is everything, which surrounds an organism and influences its life in many ways. It includes physical and biological components. The physical components of the environment are soil, water, air, light and temperature. These are termed as abiotic components. The plants and animals are collectively referred to as biotic components. All these components of the environment work together, interact and modify the effect of one another. These resources are unlimited in nature, and they are not likely to be exhausted by human activities. Examples are solar radiation, air, water, precipitation (rainfall, snow fall, etc.,) and atomic power.

About 70-73% of earth is covered by water. Water is available in the form of oceans, seas, rivers, lakes, ponds, pools, polar ice caps and water vapour and this forms the hydrosphere. The main component of hydrosphere is water. Water exists in all the three forms i.e., solid (snow), liquid (water) and gas (water vapour). Air is an inexhaustible natural resource. It is very essential for the survival of all the living organisms on earth. In atmosphere, about 95% of the total air is present upto a height of 20 km above the earth's surface. The remaining 5% of air is present up to
a height of about 280 km. Air is a mixture of different gases; nitrogen and oxygen are the major components. Thus, total volume of air present in atmosphere consists of 78% nitrogen 21% oxygen and remaining 1% is made up of other gases such as argon, neon, helium, krypton, xenon and radon. The word soil is derived from a Latin word solum meaning ground. It is a stratified mixture of inorganic and organic materials, both of which are products of decomposition. Flora refers to plant species and fauna refers to animal species. The term biota includes both plant as well as the domesticated and wild species of animals. Our country has a rich diversity of flora and fauna. There are over 45,000 plant species and 81,251 animal species. It represents about 7% of world’s flora and 6.5% of world’s fauna.

There is an urgent need to think deeply about destruction of natural resources. With the exponential increase in human population and increased technological advancement, the natural resources get relentlessly exploited. There is a need for optimisation of its usage. This is possible only when we adopt the concepts of management and conservation of natural resources. Management and conservation mean scientific utilisation of resources while maintaining their sustained yield and quality. Mutual relation exists between forests (trees), rainfall concentration, the amount of water in rivers and conservation of wild animals.

A species is considered extinct when there is no reasonable doubt that its last individual has died, e.g., mountain quail, pink headed duck, one horned rhino and cheetah. In India, birds and animals are worshipped from time immemorial. They are considered to be cultural assets and have a profound effect on Indian art, sculpture, literature and religion. It is imperative that we protect wildlife. Awareness should be created amongst the masses using the various media of communication like the TV, radio, newspapers and the magazines.
Balancing the effective, sustainable management of forest resources with economic, social and environmental factors has emerged as one of the key challenges in natural resource management. The environment and fora in which decisions concerning natural resource management are made are evolving as a result of global trends such as the globalization of the economy; growing awareness of and response to environmental concerns; decentralization and devolution of government control; the need for secured property rights; and increasing pressure for democratization.

Among the responses to these trends is a greater willingness to consider local forest management as a viable alternative to centralized State control. Throughout the world, a large number of forestry activities (national, multilateral, bilateral and non-governmental) with participatory, local or community forestry components are being implemented. Although much remains to be done, participatory approaches are increasingly recognized as essential to sustainable forest management.
What are forests?

The Oxford English Dictionary defines forests as, ‘An extensive tract of land covered with trees and undergrowth, sometimes intermingled with pasture (in proper names also a district formerly forest but now cultivated); and the trees growing in such a tract.’

The Encyclopedia Britannica considers a forest to be a, ‘Complex ecological system, in which trees are the dominant life form’. A more ecological definition can be seen in Wikipedia.org that states, ‘A forest is an area with a high density of trees. These plant communities cover large areas of the globe and function as carbon dioxide sinks, animal habitats, hydrologic flow modulators, and soil conservers, constituting one of the most important aspects of the Earth’s biosphere’.

Some other important definitions of ‘Forest’:


2) UN-FAO- Land under forestry or no land use spanning more than 0.5 hectares; with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. NOTE: Forests are determined both by the presence of trees and the absence of other predominant land uses. The term specifically includes forest roads, firebreaks and other small open areas; forest in national parks, nature reserves and other protected areas such as those of specific scientific, historical, cultural or spiritual interest; windbreaks, shelterbelts and corridors of trees with an area of more than 0.5 hectare and width of more than 20 meters; plantations primarily used for forestry purposes, including rubberwood plantations and cork oak stands.

3 United Nations Framework Convention on Climate – Young natural stands and all plantations which have yet to reach a crown density of 10-30 per cent or tree height of 2-5 meters are included under forest, as are areas normally forming part of the forest area which are temporarily unstocked as a result of human intervention such as harvesting or natural causes but which are expected to revert to forest.

4) Kyoto Forest – A forest planted since 1 January 1990 on land that was previously non-forest. A NON-KYOTO FOREST or ‘pre-1990 forest’, refers to forests already in existence on 1 January 1990.

Despite the existence of these explanations to the term ‘forest’, no specific definition of the term ‘Forest’ has been provided in any of the legislations. The definition that...
exists is the one pronounced by the Supreme Court in the case of T.N. Godavarman Thirumulpad v Union of India, (Writ Petition No.202 of 1995) commonly known as Godavarman case, wherein the court expanded the definition of “forests” to include not only forests as mentioned in government record but all areas that are forests as per the dictionary meaning of the term irrespective of the nature of ownership and classification thereof.

Another significant case after the Godavarman concerning forests is the case titled CEL, WWF India vs. Union of India (W.P 337 of 1995). The case concerns largely with the implementation of the Wildlife (Protection) Act. Just in the way the Godavarman case did not limit itself to the Forest (Conservation) Act, 1980 but included within its scope other Acts, similarly the CEL case had an impact on other Acts and the most significant being the Forest (Conservation) Act, 1980.

### 10.2 Judicial Interpretation of ‘Forest’

Donning the mantle of the principal decision-maker in issues relating to forests and wildlife, the Indian judiciary has played a pioneering role in forest conservation. This has led to fundamental changes in the pattern of forest governance and decision-making. The two landmark cases that have paved way to the forest governance in India are:

1) **T. N. Godavarman Thirumulpad vs. Union of India and ors (WP No 202 of 1995)** - The case, popularly known as the Godavarman case, pertains to the implementation of the Forest Conservation Act, 1980. In this case, the SC reinterpreted the Forest (Conservation) Act, 1980.

   In its order dated 12 December 1996, the SC expanded the scope of the term “forest”. Before this order, the word ‘forest’ was limited only to government declared forests irrespective of whether it had tree cover or not. Likewise, areas with significant tree cover were not regarded as ‘forest’ simply because in government records it was not declared as ‘forest’. Due to this, large areas under good forest cover were outside the purview of the Forest (Conservation) Act, 1980. However, by its order, the SC expanded the term which now included within its scope not only forests as mentioned in government record but all areas that are forests in the dictionary meaning of the term irrespective of the nature of ownership and classification thereof.

   The court’s clarification expanded the statutory recognition to forests irrespective of nature of ownership and classification. This implies that forests could be designated as reserved and protected whether they are privately owned or otherwise under the Forest (Conservation) Act, section 2(l).
The question being debated in the case was the scope of the Forest Conservation Act 1980 (FCA). This Act, which itself is a watershed in forest governance in the country, requires that any conversion of forest land to non-forest uses (which are defined in the Act) must be approved by the central government (i.e., Ministry of Environment and Forests or MoEF). Conventionally, in the application of this act, “Forest land” was assumed to be only that land which has been legally notified as forest according to the Indian Forest Act or state forest Acts, i.e., typically Reserve or Protected Forest. Even this narrow interpretation of the Act had slowed down and often halted certain kinds of forest land conversions that state governments seemed to have mindlessly engaged in during the 1960s and 1970s. However the Godavaran case highlighted the fact that significant tracts of lands that were physically forested had, due to some quirk of history or anomaly of administration, not been notified as Reserved Forests or Protected Forests and hence were denied the “protection” of the FCA. The Supreme Court, in its landmark order of December 12, 1996, sought to rectify this anomaly by stating that the FCA applied to “all areas that are forests in the dictionary meaning of the term irrespective of the nature of ownership and classification thereof”.

2) The Centre for Environmental Law (CEL), WWF vs. Union of India and others (WP No 337 of 1995)- This case pertains to the issue of settlement of Rights in National Parks and Sanctuaries and certain other issues under the Wildlife (Protection) Act, 1972. The most significant orders in the CEL case were the orders dated August 22, 1997 and the order dated November 13, 2000.

The following are excerpts from the order dated August 22, 1997, 22-7, which have been of immense consequence:

♦ **On Settlement** – “Even though notification in respect of sanctuaries/national parks have been issued under Section 18/35 in all the States/ Union Territories, further proceedings are required under the Act i.e. issue of proclamation under Section 21 and other steps as contemplated has not been taken. The concerned State Governments/ Union territories are directed to issue proclamation under Section 21 in respect of the sanctuaries/ national parks within two months and complete the process of determination of rights and acquisition of land or rights as contemplated by the Act within a period of one year...”

♦ **On Poaching** – “In order to effectively control the growing increase of poaching in the Sanctuaries/National Parks the Central Government as well as the Government of the States/ UT’s are directed to ensure that the forest guards in the Sanctuaries/ National Parks are provided modern arms, communication facilities viz. wireless sets and other necessary equipments in that regards. Necessary steps in this regards shall be taken within six months.”
On Denotification – “As regards denotification of any area which is included in a Sanctuary/national park, it is directed that before placing the proposal before the Legislative Assembly the concerned State Government shall refer the proposal to the Indian Board for Wildlife for its opinion and the proposal shall be placed for consideration before the legislative Assembly along with the opinion of the Indian Board for Wildlife.”

[However this direction of the Supreme Court will no longer be applicable because of the fact that by the virtue of the 2002 amendment of the Wildlife Protection Act, 1972, the power to denotify has been taken away from the Legislative Assembly and conferred on the National Board for Wildlife.]

Excerpts from the order dated November 13, 2000

“this Court while directing to list the above application after five weeks DOETH ORDER THAT pending further orders no dereservation of forest/Sanctuaries/National Parks shall be effected”

By this single order, the Supreme Court divested the Central government (in respect to forests) and the State Legislature (concerning National Parks and Sanctuaries) of all powers of dereservation/ denotification. Thus while the Godavarman case prohibited non forest use of forest land without Central Government approval, the CEL prohibited dereservation without Supreme Court approval.

Both the Godavarman and the Centre for Environmental Law (CEL), WWF vs Union of India and others cases have led to fundamental changes that have wide impact on forest management. These cases are being heard for over a decade now and are a part of what is termed as “continuing mandamus”, whereby the Courts, rather than passing final judgments, keep on passing orders and directions with a aim of monitoring the functioning of the executive. These orders have tremendous affect and implication on forest management and governance. For example:

1) No forest, National Park or Sanctuary can be de-reserved without the approval of the Supreme Court.

2) No non-forest activity is permitted in any National Park or Sanctuary even if prior approval under the Forest (Conservation) Act, 1980 had been obtained.

3) An interim order in 2000 prohibited the removal of any dead or decaying trees, grasses, driftwood, etc from any area comprising a National Park or Sanctuary. It was also directed that if any order to the contrary had been passed by any State government or other authorities, that order shall be stayed.

4) New authorities, committees and agencies have been set up such as the Central Empowered Committee (CEC) and the Compensatory Afforestation Management and Planning Agency.
10.3 Attempts to Define the Term ‘Forest’

The orders of the court in these two cases were pronounced to further the spirit of the FCA. There certainly are significant areas of (currently or till recently) forested lands whose legal status for some reason was not that of Reserved Forest, Protected Forest or Village forest. However, some experts have urged the orders, especially the order dated 12 December 1996 (passed in the Godavarman case) is flawed and inadequate in law since it attempts to move away the definition of forest land from a ‘legal forest’ to a ‘physical forest’ by replacing a due process with a single universal definition.

The need to evolve a definition of the word ‘Forest’ thus received an unprecedented attention after the Supreme Court of India referred to the term Forest in its various pronouncements.

On February 7, 2006, the MoEF of the government of India invited “expressions of interest” for a study to establish the definition of “forests”. It was recommended that a holistic definition of the term forest must be evolved.

For this purpose, five institutions were shortlisted by the ministry to act as a consultant. Letter F. No. 15-1/2005-FP dated July 4, 2006 was sent to all the five shortlisted institutions. It outlines two purposes:

♦ To evolve the definition(s) of forest in Indian context keeping international commitments and different orders of the apex court of the country into consideration.

♦ To develop ecologically sound and socially desirable definition of forests.

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2 The ‘international commitments’ mentioned in the letter is left completely undefined. Consultants are merely required to keep within their scope, “Forest-related definitions accepted in various international conventions such as cbd, unccd, unfccc and unff etc”. In all these conventions, the definitions follow the technicist tenets of ‘scientific forestry’. Moreover, when the terms of reference (in the letter) stated the need to make allowance for the “different orders of the apex court of the country”, the reference is to T N Godavarman Thirumalpad v Union of India, an ongoing case under whose umbrella all forest cases are today sheltered. In a December 12, 1996 order, the SC provided the definition of ‘forest’ by bringing all areas into the ‘dictionary meaning’ of forests. This rewrote the law, by bringing into the ambit areas of forests not under the forest department, but under tree cover.
The MoEF awarded a consultancy to Ashoka Trust for Research in Ecology and the Environment (ATREE), which was one of the five shortlisted institutions, with the objective of evolving the definition(s) of forest in an Indian context keeping international commitments and different orders of the apex court of the country into consideration. An allied objective was to develop ecologically sound and socially desirable definition of forest. The consultant (ATREE) in turn began widespread consultations from February 2007 for the purpose of developing a sound and appropriate definition to the term ‘Forest’.

The project team at ATREE prepared a draft document on “Definition of the Forest an Indian Context”. This draft document was presented and discussed in a two day meeting on April 30 - May 1, 2007. This meeting was an important step in the process of finalizing the recommendations of the study undertaken by ATREE.

An array of forest officials along with Non Governmental Organizations (NGOs) attended the two days meeting. The meeting discussed history of forests in India, the forests of India, the valuation of forests, various National Forest Policies and definition of forests under various forest Acts and forest policies, as well as the international conventions and treaties. All these efforts were aimed to evolve a Definition of Forest. ATREE proposed to define a forest as “An area under Government control notified or recorded as forests under any Act for the conservation and management of ecological and biological resources.”

Explanation: Such forests will include areas with trees, scrubland, grasslands, wetlands, water bodies, deserts, glaciers, geomorphic features or any other area that is necessary to maintain ecological security.

On the basis of consultation made with different stakeholders throughout the country, the possible options for the definition of Forests were derived as under:

Option-1

“An area under Government control notified or recorded as forests under any Act for the conservation and management of ecological and biological resources.”

Explanation: Such forests will include areas with trees, scrubland, grasslands, wetlands, water bodies, deserts, glaciers, geomorphic features or any other area that is necessary to maintain ecological security.

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3 Minutes of the Meeting of the Expert Group on Definition of Forests at MoEF New Delhi, on 30th April and 1st May 2007.
Option -2

“An area owned by Government and notified as forest under any act or recorded as a forest in any Government record functioning as ecological, biological, livelihood-support and/or social resource”

Explanation: such forests will include areas having trees, scrub, grasslands, wetlands, water bodies, deserts, glaciers, geomorphic features or any other area fulfilling the functions of a forest.

Option-3

“An area notified as forests in any Act or recorded as forests in any Government record functioning as ecological, biological, social resource or livelihood support system. “

Explanation

1) Such forests will include areas having trees, scrub, grassland, wetland, water bodies, deserts, geomorphic features or any other that is necessary for ecological security of the nation.

2) This will also include areas recorded as jungle such as Jhupudi Jungal, Doli Land etc and unclassified state forests, community owned or privately owned lands.

However, these definitions exclude areas that may not have trees but are part of the forest system, man-made plantations, and tree crops on private and community-owned land. It also does away with the broad classification of forests as understood by the dictionary meaning. There are certain other shortcomings in this definition. For example riverbeds are presently included in the forest areas and thus covered under the forest Act. But they will be open for exploitation if as explained by ATREE. Similarly there may be certain areas that are snow bound. With the melting of snows, they act as catchment areas. But this snow bound area again fall outside the purview of the definition of forests. Then there are rocky areas that have their own set of vegetations. It may be in the form of lichens or others and they too stand excluded from the proposed definition of forests.

Ecologists weigh the unscientific use of the term against their wish to ensure forest conservation by whatever means possible. Social activists warn that sweeping definitions will antagonize local communities. Foresters seem to be interested in ensuring that their domain does not shrink. Other ministries probably want definitions that will enable easy setting up of development projects like dams and
roads. The corporate sector would like definitions that will make the leasing-in of state land for commercial forestry free of legal hassles. In this situation, it may be worth asking whether the issue itself has really been tackled from the right perspective, or is it a case of missing the woods for the trees?

10.4 Forest Conservation in India

A forest is a terrestrial ecosystem, a community of plants and animals interacting with one another and with the physical environment. They are natural renewable resources. Depending on the potential of climate and land area, all countries differ in their forest resources.

In recent times, there has been a considerable reduction in the forest cover throughout the world. Today, forests cover only nearly 30 to 40 percent of the world’s land.

India is the seventh largest country in the world occupying 2.5 percent of the world area. However, only 1.8 percent of forest covers lies in India. Despite recent efforts to increase forest cover through reforestation, India’s forests are in a devastated condition, with less than 18 percent of India under forest cover in 1997. Dense forests cover only 12 percent of land. The policy requirement is that the forest cover should be 33 percent of the area of the country, and all of this should be closed forest. However, we are far from achieving this figure.

Forests are a precious resource of economic development and environmental stability. However, forests today are under immense threat of deforestation. They are reducing at an alarming rate. This process of deforestation is a serious threat to the economy, quality of life and the future of environment in our country.

It is estimated that some 1.6 billion people worldwide depend on forests for their livelihoods. 60 million indigenous people depend on forests for their subsistence. Forest resources also represent a survival base for as many as 200-300 million small farmers and shifting cultivators around the world. Seasonal harvesting of forest products is of vital importance to most shifting cultivator households especially during the hungry period between harvests. Some 350 million people that live in or near forests depend on them for income and subsistence. Some additional 1 billion people worldwide, constituting about 20 percent of the global population, depend on varying degrees on forests or agro-forestry farming.

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Forests are major stores of carbon and other greenhouse gases such as methane. They play a crucial role in conserving the world’s biodiversity. Forests provide habitats for at least two-thirds of the world’s species and contain at least 80 percent of the remaining earth’s biodiversity.

Forests also play a major role in containing soil erosion and in regulating water supplies. They contribute to reducing sedimentation in dams and reservoirs, to clean rivers and protect fishery resources, to maintaining agricultural productivity. Tree shelterbelts slow wind velocity and lower temperature thus contributing to moisture conservation and agricultural productivity. Trees and forests critically contribute to food security in most of the food-deficient countries of the world.

**Box 10.1**

Some major reasons for degradation and decline of forests are:
- Rapid explosion of human and livestock population
- Over utilization of forest resources by local communities
- Conversion of land to non-forestry use
- Expansion of agricultural cropland for farming
- Practice of slash and burn agriculture on invaded lands
- Enhanced grazing by cattle
- Increased demand in fuel-wood, timber, wooden crates, paper, medicines, and other forest dependent products
- Impact of other commercial activity
- Impact of developmental activity
- Impact of chemicals and other hazardous substances
- Illegal forest activities

**Forest Conservation and the Constitutional Mandate**

At the time of framing of the Constitution forest was a ‘State’ subject place under Entry 19, List II of the Seventh Schedule. The forests departments of individual states regulated forests in accordance with the pre-existing Forest Act of 1927, as implemented by state regulations.

However, the Indian Parliament, realizing the national significance of the forests, made certain changes to the Seventh Schedule. In 1976, the Forty-second
Amendment Act led to the deletion of Entry 19 from List II of the Schedule. A new entry (Entry 17-A) related to forests was inserted in the Concurrent list or List III of Seventh Schedule. Now, Forestry is a concurrent subject in the Indian Constitution, being under the purview of both the central and state government. Hence, as per the Constitution, both Centre and State may legislate on issues related to forests and protection of wildlife.

The provisions directly related to the conservation of forests were also included in the Constitution of India by the Constitution (Forty-second Amendment) Act, 1976. The Forty-second Amendment introduced a new Directive Principle of State Policy [Article 48-A] under Part IV and a Fundamental Duty [51 (A) (g)] under Part IV A for the protection and improvement of the forests. These provisions provide as under:

1) **Article 48-A** – Protection and improvement of environment and safeguarding of forests and wildlife. The State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country.

2) **Article 51(A) (g)** – It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures.

**Forest Conservation and Legislative Action**

Even prior to the British era, customary rules have regulated the use of forests in India. Certain types of trees were regarded as sacred and never cut. Certain areas under forest were regarded as God’s groves and not even deadwood and leaves were taken out from these areas. Even today, some such areas in their natural condition are found in different parts of the country, though their condition is rapidly worsening.

The history of modern forest legislation in India is more than a century old. The first codification which came to the statute book in relation to the administration of forest in India was the Indian Forest Act, 1865. It empowered the government to declare any land covered with trees or brushwood as government forest and to make rules to manage them. The Act was applicable only to the forests in control of the government and did not cover private forests. It made no provision regarding the rights of the users.

The Act of 1865 was replaced by a more comprehensive Indian Forest Act of 1878. Forests were divided into reserve forests, protected forests and village forests. Several restrictions were imposed upon the people’s rights over forest land and
produce in the protected and reserved forests. The act empowered the local
government to levy duty on timber produced in British India or brought from any
place beyond the frontier of British India, thus encouraging them to earn revenue
from forests. The Act radically changed the nature of common property and made
it state property.

The Act was amended from time to time and was ultimately repealed and replaced
by the Indian Forest Act, 1927.

**Current Forest Legislations in India**

The important forest legislations in India are:

1) The Indian Forest Act, 1927
2) The Wildlife Protection Act, 1972
3) The Forest Conservation Act, 1980
4) The Scheduled Tribes and other Traditional Forest Dwellers Act, 2006

♦ **The Indian Forest Act, 1927**

The Indian Forest Act, 1927 was enacted during pre-independence era with the
object to consolidate the law relating to forests, the transit of forest-produce and
the duty leviable on timber and other forest-produce. It also sought to consolidate
and reserve the areas having forest cover, or significant wildlife.

The Act contains 86 Sections and still remains in force. However, has been subjected
to amendments from time to time to make it more in tune with the current situation.
The Forests Act establishes three kinds of forests, namely, Reserve forests, Protected
forests and Village forests. Reserved forests are the most restrictive category of
forests. These forests are constituted by the State Government on any forestland or
wasteland which is the property of the government or on which the government
has proprietary rights. Protected forests, constituted by the state government, are
forests other than reserved forests over which the government has proprietary
rights. Village forests, on the other hand, are those in which the state government
assigns to “any village-community the rights of government to or over any land
which has been constituted a reserved forest”. The categories are explained in detail
as follows:

1) **Reserved Forests** – Reserved forest is dealt with in Chapter II of the Act. It is
an area or mass of land duly notified under section 20 or under the reservation
provisions of the Forest Acts of the State Governments of the Indian Union. It
is within power of a State Government to issue a preliminary notification under section 4 of the Act declaring that it has been decided to constitute such land, as specified in a Schedule with details of its location, area and boundary description, into a Reserved Forest.

Such a notification also appoints an officer of the State Government, normally the Deputy Commissioner of the concerned district, as Forest Settlement Officer. The Forest Settlement Officer fixes a period not less than three months, to hear the claims and objections of every person having or claiming any rights over the land which is so notified to be reserved and conducts inquiries into the claims of rights, and may reject or accept the same. He is empowered even to acquire land over which right is claimed. For rights other than that of right of way, right of pasture, right to forest produce, or right to a water course, the Forest Settlement Officer may exclude such land in whole or in part, or come to an agreement with the owner for surrender of his rights, or proceed to acquire such land in the manner prescribed under the Land Acquisition Act, 1894. Once the Forest Settlement Officer settles all the rights either by admitting them or rejecting them, as per the provisions of the Act, and has heard appeals, if any, and settled the same, all the rights with the said piece of land, with or without alteration or modification of boundaries, vest with the State Government. Thereafter, the State Government issues notification under section 20 of the Indian Forest Act, 1927 declaring that piece of land to be a Reserved Forest.

2) Village Forests – Village forest is dealt with in Chapter III of the Act. It is constituted under section 28. The Government may assign to any village community the rights over a land which may be a part of a reserved forest for use of the community. Usually, forested community lands are constituted into Village Grazing Reserve (VGR). Parcels of land so notified are marked on the settlement revenue maps of the villages.

A Village forest is different from a Forest Village. Though many a times both terms are used interchangeably, both are different in their meaning. While village forest is a legal category under the Indian Forest Act forest village is merely an administrative category. Although forest village is recognized as a forest department, the revenue benefits cannot accrue to such villages as they are not technically under the revenue departments.

3) Protected Forests – Protected forest is dealt with in Chapter IV of the Act. It is an area or mass of land, which is not a reserved forest, and over which the Government has property rights, declared to be so by a State Government.
under the provisions of the section 29. It does not require the long and tedious process of settlement, as in case of declaration of a reserved forest. However, if such a declaration infringes upon a person's rights, the Government may cause an inquiry into the same; but pending such inquiries, the declaration cannot abridge or affect such rights of persons or communities. Further, in a protected forest, the Government may issue notifications declaring certain trees to be reserved, or suspend private rights, if any, for a period not exceeding 30 years, or prohibit quarrying, removal of any forest produce, breaking of land, etc.

There is another type of forests known as Non-government Forests. Though this category is not expressly termed as a separate category, it is dealt with in Chapter V of the Act. It covers the forests and land not being in control of the government. The State government can, by notification, regulate or prohibit the breaking up or clearing of land for cultivation, the pasture for cattle or the firing or clearing of vegetation to protect against storms, winds, rolling stones, floods and avalanches, to preserve soil from erosion, to maintain water supply in springs, rivers and tanks, to protect roads, bridges, railway, lines of communication and to preserve public health.

The State Governments are also empowered under the Act to impose duty bon timber and other forest produce as well as control transit of the same. The Act also defines a forest offense and vests power in the State Governments to impose penalties on violation of the provisions of the Act.

♦ The Forest Conservation Act, 1980

In 1980, the Parliament, in response to the rapid decline in the forest covers in India, and also to fulfill the Constitutional obligation under Article 48-A, enacted a new legislation called the Forest Conservation Act, 1980.

Deforestation causes ecological imbalance and leads to environmental deterioration. With a view to check further deforestation, the President promulgated the Forest (Conservation) Ordinance, 1980 on the October 25, 1980. The Ordinance made the prior approval of the Central Government necessary for de-reservation of reserved forest and for use of forest land for non-forest purposes. Ordinance also provided for the constitution of an advisory Committee to advise the Central Government with regard to grant of such approval.

The Ordinance was later on replaced with the enactment of the Forest Conservation Act, 1980 that came into force on October 25, 1980, which is the date on which the Forest Conservation Ordinance was promulgated. The Act too was passed with a
view to check deforestation. The basic aim of the Act was to provide for the
conservation of forests and for matters connected therewith or ancillary or incidental
thereto. Under the provisions of this Act, prior approval of the Central Government
is essential for diversion of forest lands for the non-forestry purposes. In the national
interest and in the interest of future generations, this Act, therefore, regulates the
diversion of forest lands to non forestry purposes. The basic objective of the Act is,
to regulate the indiscriminate diversion of forest lands for non forestry uses and to
maintain a logical balance between the developmental needs of the country and
the conservation of natural heritage. The, guidelines have been issued under the
Act from time to time, to simplify the procedures, to cut down delays and to make
the Act more user friendly.

Prior to 1980, the rate of diversion of forest lands for non forestry purposes was
about 1.43 lakh hectare per annum. However, with the advent of the Forest
(Conservation) Act, 1980, the rate of diversion of forest lands were controlled to a
certain extent. The Act allows the diversion of forest land only for certain purposes
such as to meet the developmental needs for drinking water projects, irrigation
projects, transmission lines, railway lines, roads, power projects, defense related
projects, mining etc. For such diversions of forest lands for non forestry purposes,
compensatory afforestation is stipulated and catchment area treatment plan, wildlife
habitat improvement plan, rehabilitation plan etc. are implemented, to mitigate
the ill effects of diversion of such vast area of green forests.

To monitor the effective implementation of the compensatory afforestation in the
country, an authority named as “Compensatory Afforestation Management and
Planning Authority (CAMPA)” is being constituted at the national level. A
monitoring cell is also being set up in the Ministry of Environment & Forests to
monitor the movement of proposals at various stages and the compliance of the
conditions stipulated in the forestry clearances by the user agencies. Clearance
from Central Government for de-reservation of Reserve Forests, for use of forestland
for non-forest purpose and for assignment of leases has been made mandatory
under The Forest Conservation Act, 1980. Under section 2 of the Act, prior approval
of Central Government has to be obtained by the State Government or other
authority for undertaking any of the above mentioned activities. For this purpose,
the proposal has to be sent to the Central Government in the form specified in The
Forest Conservation Rules, 1982.

In case the proposal for clearances are rejected, a person aggrieved by an order
granting environmental clearance can appeal to National Environmental Appellate
Authority set up under National Environmental Appellate Authority Act, 1997
within thirty days from the rejection of the proposal.
The Scheduled Tribe and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006

The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 was passed almost unanimously by the Lok Sabha as well as the Rajya Sabha on December 18, 2006. This legislation, aimed at giving ownership rights over forestland to traditional forest dwellers. The law concerns the rights of forest dwelling communities to land and other resources, denied to them over decades as a result of the continuance of colonial forest laws in India.

A little over one year after it was passed, the Act was notified into force on December 31, 2007. On January 1, 2008, this was followed by the notification of the “Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Rules, 2007” framed by the Ministry of Tribal Affairs to supplement the procedural aspects of the Act. The Ministry of Tribal Affairs was established as an independent ministry in 1999 to deal specifically with scheduled tribes. The criteria for designating a tribe as “scheduled” include having ‘primitive’ traits, dwelling in geographical isolation, having a distinct culture, being shy of contact with the outside world and being economically ‘backward’. There are more than 600 officially listed scheduled tribes in the country, comprising less than 10% of the country’s total population and with little over 2% believed to be dwelling in forests.

The list of rights as provided under the Act includes:

- Right to live in the forest under the individual or common occupation for habitation or for self-cultivation for livelihood
- Right to access, use or dispose of minor forest produce
- Rights of entitlement such as grazing and traditional seasonal resource access
- Rights for conversion of leases or grants issued by any local authority or any state government on forest lands to titles
- Right to protect, regenerate or conserve or manage any community forest resource which the scheduled tribes and other traditional forest dwellers have been traditionally protecting and conserving

The Act grants four types of rights. Section 3(1) of the Act grants Title rights, that is, ownership to land that is being farmed by tribals or forest dwellers as on December 13, 2005, subject to a maximum of 4 hectares. Ownership is only for land that is actually being cultivated by the concerned family as on that date, meaning that no new lands are granted. Section 3 (1) also grants
Use rights over minor forest produce, including the ownership, to grazing areas, to pastoralist routes, etc.

Relief and development rights are granted under Sections 3 (1) and 3 (2) of the Act. It includes the right to rehabilitation in case of illegal eviction or forced displacement and to basic amenities, subject to restrictions for forest protection.

Forest management rights are granted under Section 3 (1) and Section 5 of the Act with the view to protect forests and wildlife.

Opposition to the Act

The Act is one of the most controversial and strongly opposed legislations right from the very beginning. Since the bill was drafted and introduced in the parliament, it has generated a lot of debate. It is perhaps the first and only Act in the history of India to have been opposed through a TV campaign. In October 2003, Vanshakti, an group based in Mumbai, ran TV advertisements against the Act.

The Act was vehemently opposed by the wildlife conservation lobby and the Ministry of Environment and Forests who termed it as the ideal recipe to ensure the destruction of India’s forests and wildlife by “legalizing encroachments”. The forest department, together with the timber mafia, too had been blocking it, since it would severely erode their stranglehold over forest products. Corporates are also against it, since the illegal status of tribals and other forest dwellers makes the process of eviction and land acquisition for industrial projects easier. Some of this opposition has been motivated by those who see the law as a land distribution scheme that will lead to the handing over of forests to tribals and forest dwellers. However, the strongest opposition to the Act has come from wildlife conservationists who fear that the law will make it impossible to create “inviolate spaces”, or areas free of human presence, for the purposes of wildlife conservation. Tiger conservation in particular has been an object of concern. Many conservationists have also given recommendations for the amendment of the Act.

Parliamentarians supporting the Act have been accused by some as pursuing vote-bank politics to appease tribals. There is a view that the Act itself is capable of providing the basis for the extension of the rights to other forest dwellers. On the other hand, the supporters of the Act argue that it is large developmental projects, such as large dams, power plants and mining activities, etc., that need to be checked, rather than the forceful eviction of traditional forest-dependent communities to save the forests. Several groups contend that it is not tribals who are bringing in commercial activities into forests, but external commercial pressures that are
degrading the forest resources and thereby eroding the traditional lifestyles of tribal communities. Meanwhile the more radical green groups warn against the land mafia misusing the provisions of the proposed law into conning unsuspecting tribals vested with land rights to part with their land in prime forest areas. They also fear that the proposed legal provision allowing for the “sale of forest-based products for their household needs”, would translate into large-scale commercialization of forest resources.

However, supporters of the Act take the position that the Act is not a land distribution measure, and further that the Act is more transparent than existing law and so can help stop land grabbing. Regarding wildlife conservation, they have argued that the Act actually provides a clear and explicit procedure for resettling people where necessary for wildlife protection, but also provides safeguards to prevent this being done arbitrarily. Supporters of the Act and others also argue that the provisions in the Act for community conservation will in fact strengthen forest protection in the country. This is said to be because it will provide a legal right for communities themselves to protect the forest, as thousands of villages are already doing in the face of official opposition.

10.5 Forest Management and Social Forestry

India is one of the First countries in the world to have stated scientific management of its forests. During the year 1864 the then British India Government started the Imperial Forest Department. The first Inspector General of Forests was Dr. Dietrich Brandis, a German Forest officer who was appointed in 1866. In 1987, the Imperial Forest Service was constituted to organize the affairs of the Imperial Forest Department. In addition, Provincial Forest Service and Executive & Subordinate Services were also constituted for effective management of forest resources the British India Government. Initially, the subject of “Forestry” which was managed by the Federal Government which was later transferred to the “Provincial List” by the Government of India Act, 1935 and subsequently recruitment to the Imperial Forest Service was discontinued.

The Indian Forest Service was constituted in the year 1966 under the All India Services Act, 1951 by the Government of India. The main mandate of the service is the implementation of the National Forest Policies. Since 1935 the management of the forests remained in the hands of the Provincial Governments in pre-independence era, and even today the Forest Departments are managing the forests of the country under the respective State governments.
Systematic management of forests began in the mid-nineteenth century. The first forest policy of India enunciated in 1894 focused on commercial exploitation of timber and gave importance to permanent cultivation. The 1952 revision of the policy recognized the protective role of forests and proposed that one-third of the land area of the country be retained under forest and tree cover. The Forest policy of 1988 focused on environmental stability and maintenance of ecological balance.

**International Conventions and Initiatives signed by India pertaining to Forests**

India has participated in international dialogues on forests. The important international conventions concerning forests to which India is a signatory are:

1. International Convention for Regulation of Whaling – Signed in 1946
2. Convention for Protection of World Cultural and Natural Heritage – Signed in 1972
4. Convention on Wetlands of International Importance especially as Waterfowl Habitat, Ramsar – Signed in 1971

The provisions on trade and environment measures by the World Trade Organization (WTO) Agreement significantly affect the forestry sector. Moreover, Chapter XI of Agenda 21 and the non-binding Forestry Principles also contain provisions for protection and improvement of forests. Agenda 21 recognizes the need for specific actions to combat deforestation. Chapter 11 of the document identifies four program areas for action.
Policies pertaining to Forests-National Forest Policies

Since independence, there have been three forest policy pronouncements in India. They are listed as follows:

1) National Forest policy, 1952
2) The National Commission on Agriculture, 1972
3) National Forest Policy, 1988

The first National Forest Policy Resolution was adopted by the government in 1952. Though the resolution highlighted the ecological and social aspects of forest management, giving secondary importance to the needs of commerce, industry and revenue, it did not call for any change in the forest law and remained only a pious declaration.

The Ministry of Forest was originally a part of the Ministry of Agriculture. In 1972, the Ministry appointed a National Commission on Agriculture. The multi-volume Report of the National Commission on Agriculture, published in 1976, covered forests in the 9th Part. The commission recommended that the revised national forest policy should be based on important needs of the country. All forest lands should be classified into protection forests, production forests and social forests. It gave the highest priority to production forests and the lowest priority to social forests. The object of forest management should be that ‘each hectare of forest land should be in a position to yield a net income of many more times than is being obtained at present.’ It recommended enactment of a revised all India Forest Act.

However, in 1985, the Forest Department was shifted from the Ministry of Agriculture to the Ministry of Environment and Forests (MoEF). The MoEF was established as a nodal agency for planning, coordination and implementation of environmental and forestry programs. This helped to shift the emphasis from revenue to environmental concerns. In December 1988, the Parliament passed a new forest policy resolution more or less rejecting the recommendations of the National Commission on Agriculture. The resolution stressed the welfare of forest dwelling communities as a major objective of the forest policy, and categorically stated that the life of tribals and other poor living within and near forests revolves around forests and that the rights and the concessions enjoyed by them should be fully protected. Their domestic requirements of fuel-wood, fodder, minor forest produce and construction timber should be the first charge on forest produce.

However, while the resolution adopted a pro-tribal policy, the old Act of 1927 with all the subsequent amendments remained unchanged.
The National Forestry Action Program (NFAP) was initiated in 1999. It is a comprehensive long-term strategic plan for the next 20 years. It identifies the issues and programs for achieving sustainable forestry development in India by harmonizing the activities of different stakeholders. The NFAP evolved through coordinated centre-state strategic planning with inputs from many national and international consultants. It identifies five programs:

1) Protect existing forest resources
2) Improve forest productivity
3) Reduce total demand,
4) Strengthen the policy and institutional framework and
5) Expand the forest area.

**Current National Forest Policy – National Forest Policy, 1988**

The National Forest Policy, 1988, is the primary policy statement related to forestry reflecting the ethical standards on the natural environment enshrined in the constitution. Forestry and the environment interface with many other sectors, which affect the forest and wildlife resources. The principal aim of the policy is to ensure environmental stability and maintenance of ecological balance including atmospheric stability, which is vital for sustenance of all life forms, human, animal and plant. It unambiguously states that the derivation of direct economic benefit must be subordinated to this principal aim, and that conservation includes preservation, maintenance, sustainable utilization, restoration and enhancement of the natural environment.

The main objectives of the National Forest Policy, 1988 are as follows:

♦ Maintenance of environmental stability through preservation and, where necessary, restoration of the ecological balance that has been adversely disturbed by serious depletion of the forests of the country.

♦ Conserving the natural heritage of the country by preserving the remaining natural forests with the vast variety of flora and fauna, which represent the remarkable biological diversity and genetic resources of the country.

♦ Checking soil erosion and denudation in the catchment areas of rivers, lakes, reservoirs in the “interest of soil and water conservation, for mitigating floods and droughts and for the retardation of siltation of reservoirs.

♦ Checking the extension of sand-dunes in the desert areas of Rajasthan and along the coastal tracts.
Increasing substantially the forest/tree cover in the country through massive afforestation and social forestry programs, especially on all denuded, degraded and unproductive lands.

Meeting the requirements of fuel-wood, fodder, minor forest produce and small timber of the rural and tribal populations.

Increasing the productivity of forests to meet essential national needs.

Encouraging efficient utilization of forest produce and maximizing substitution of wood.

Creating a massive people’s movement with the involvement of women, for achieving these objectives and to minimize pressure on existing forests.

Creating a massive people’s movement including the involvement of women and indigenous people for forest conservation is an integral feature of the policy. The policy underscores the full protection of customary rights and concessions of tribal communities and other rural poor living within and near forests. It recognizes their requirements for fuel wood, fodder, construction timber, etc. The basic objectives and strategies defined in the policy are still relevant, and guide forest conservation in India.

The National Forest Policy advocates the use of miscellaneous policy instruments including legislation and regulation, voluntary agreements, fiscal incentives, research and educational and extension campaigns for the conservation and sustainable development of forests. The administrative framework of the forestry sector has changed significantly from regulatory to participatory. The legal framework of the forestry sector can be classified into three categories:

1) The first set of Acts regulates access and use of forest products such as the Indian Forest Act (1927).
2) The second set focuses on conservation such as the Wildlife Act (1972) and the Forest Conservation Act (1980).
3) The third set comprises enabling laws that encourage private investment as well as restrictive laws with regard to land ceilings, tree felling, transit passes and marketing that have discouraged the private sector from engaging in farm forestry and agro-forestry.
10.6 Conclusion

The term ‘Social Forestry’ first used in the National Commission on Agriculture in its report in 1976. Social forestry aimed at raising plantations by the common man so as to meet the growing demand for timber, fuel wood, fodder, etc., thereby reducing the pressure on the traditional forest area. This concept of village forests was developed to meet the needs of the rural people. However, this concept is not new as it has existed through the centuries all over the country.

Social Forestry is an umbrella term for farm forestry where the whole village or community are engaged in communal village planting. It basically includes the participatory forest management methodologies where the forest department sponsors plantations on variety of wastelands and provides technical assistance, subsidies, etc to the local communities who manage such forestry activities on those unproductive and fallow grounds that may be government or community lands.

The social forestry was introduced in late 1970s and early 1980s. With the introduction of Social Forestry, it was the first time in India that the rights of the local communities to forest resources were formally recognized. It was aimed at encouraging rural participation in the management of natural resources as well as to involve them in a drive towards afforestation.

Social forestry, however, was a mixed blessing. It had certain implemental shortcomings. Some villagers perceived the woodlots to be sources of communal incomes rather than sources of fuel-wood to meet village needs. Panchayats could not impose the discipline required to manage the plantations as the Forest Department extension staff primarily interacted only with the Panchayat Pradhans (heads), making little effort to involve local community as a whole. There was also no continuity of management and control of numerous scattered pieces of planted village lands. Moreover, the shares that would go to the forest department, panchayat, village, individuals, etc. was not clearly laid down. All these factors with a combination of other practical problems led to the decline of popularity of this concept in the mid-1980s.

However, with the dwindling of Social Forestry, new concepts began to emerge for the efficient management of the forests.

1) Participatory Forest Management

Since the eighteenth century forests have been savagely degraded through commercial exploitation during colonization and post-independence felling for
supportive infrastructure for national growth. The colonial and post colonial state’s custodianship and policing of forests has vitiated human-nature interactions. In response to this crisis various strategies for ecological restoration have emerged in independent India, some exclusively among community groups, others that involve community groups and state agencies in collaboration. Participatory Forest Management (PFM) has emerged as result of the failure of colonial and post colonial system of governance to conserve the forests.

PFM is a term widely used when describing the forest management systems that are collaborative in nature, involving local community groups and state forest departments, as well as other agencies. Involving local communities is a vital step since the primary stakeholders in a forest are the communities that directly depend on it for their subsistence.

2) Joint Forest Management

Joint Forest Management (JFM) is the official term for partnerships in-forest management involving both the state forest departments and local communities. JFM was a scheme launched by the Government in 1990 by way of a circular. The scheme provided for an ‘arrangement’ between the village community, the NGO’s and the state government for regeneration and maintenance of forest areas. The policies and objectives of Joint Forest Management are detailed in the Indian comprehensive National Forest Policy of 1988 and the Joint Forest Management Guidelines of 1990.

Although schemes vary from state to state and are known by different names in different Indian languages, usually in a JFM, the villagers agree to assist in the safeguarding of forest resources through protection from fire, grazing, and illegal harvesting in exchange for which they receive non-timber forest products and a share of the revenue from the sale of timber products of the forest. The committee representing the village or local community is most commonly referred to as the Forest Protection Committee (FPC). In some states, panchayats can also enter into a JFM agreement with the Forest Department. Under the JFM, an FPC takes the responsibility for protecting a forest area in return of greater access to forest produce and a share in income earned from that forest area.

Some states have provided a statutory backing to the scheme by amending the provisions relating to village forests under their respective Forests Acts. The novel idea behind the scheme was to involve people in the development and protection of forests and to motivate forest communities to identify themselves with the
development and protection of forests from which they derive benefits. JFM aims at involving people in resource generation activities through motivation, and eliciting their participation in forest management and the sharing of benefits through adequate institutional arrangements.

JFM program in the present form can be traced to the Arabari experiment initiated by foresters in the state of West Bengal. This experiment provided a strong feedback for incorporation of the system in the National Forest Policy of 1988. In many locations people’s voluntary groups were engaged in protection of forests without any initiative from the Government. Subsequently, based on the experience, the process of institutionalizing people’s participation in forest protection and regeneration began.

Issues related to JFM

Following the launch of the JFM program in India in the last decade, several issues of importance have emerged, like the diversity in institutional and benefit-sharing arrangements, development of technology and silvicultural practices to increase the productivity of degraded forests, etc.

While the scheme is revolutionary, many NGOs facilitating the same have gained an insight into the institutional arrangements, productivity, silviculture, benefit sharing, marketing, etc. NGOs have gained considerable knowledge on the strengths, unique features, weakness, and ambiguities in the manner in which the program has evolved in different states. Some of these issues are:

- **Fund Allocation** - Most state orders and resolutions have not spelt out provisions for flow of funds for the JFM program. Budgetary allocations for JFM-related activities by the Forest are lacking. Consequently the JFM program relies heavily on foreign aid in the form of World Bank funds, etc. which is important but needs to be balanced against long-term sustainability needs. There is lack of coordination and inter-sectoral or interdepartmental linkage is quite poor. Joint departmental implementation is also virtually a missing feature.

- **Gender involvement in JFM institutions** - Field studies suggest that women’s participation in JFM-related activities is by and large inadequate.

  As a first step JFM resolutions of many states need to be altered to ensure women’s participation.

- **Institutional and benefit sharing** - Following the June 1990 resolution of the Government of India, the JFM program was formally introduced in the country, which involved village communities and NGOs in the regeneration,
management, and protection of degraded forests. The development of JFM institutions became imperative and various state governments have also provided in their resolutions, the modalities of forest protection, benefit-sharing arrangements, and membership norms. However, to what extent have these arrangements been implemented, is a different question altogether.

♦ Legal and statutory provisions – There is a morass of resolutions, laws, policies, Acts, etc., many of which are conflicting, ambiguous and contradict each other, and lack legal validity or can be superseded on the basis of legal technicalities, are an implementation hurdle.

♦ Limited Awareness - Awareness of the program and its ramifications should be created through regular discussions and meetings with the people, putting up notice boards in the regional language, or by describing the terms of the JFM agreement and entitlements. Similarly, the schedule of rates for wages should be circulated amongst members and displayed on notice boards. Their involvement in preparing micro-plans and annual work plans would be crucial to villagers being more aware on activities/interventions planned, likely benefits, scope for their participation, etc. this however, is not being done to make the scheme effective.

♦ Membership norms, rules and composition of the JFM committees - Membership composition, rules, and norms as stipulated in the government orders vary across the country. This diversity of resolution structures is important and symbolizes the attempt of each state to keep these in consonance with local needs, socio-cultural situations and the nature of the forest resource base. Nonetheless, certain uniform norms need to emerge which ensure equity, participation of the landless, the marginalized, and women to ensure people’s needs are met, while the integrity of the forest cover is maintained and improved.

♦ Microplan - Many current provisions in the government orders have also created legally ambiguous situations with respect to microplans. Some like Madhya Pradesh even have provisions whereby the microplan would supersede any existing Working Plan for the allocated JFM area. This stipulation has several legal ramifications since currently under a Supreme Court ruling; no forest area can be worked unless it is covered by a working plan duly approved by the Government of India. The Forest (Conservation) Act, 1980, additionally states that all proposals involving clearing of naturally grown trees in forest land or portion thereof, for the purpose of using it for reforestation, can only be sent in the form of a Working Plan / Management
Plan. Provisions for forestry operations therefore, cannot take place at the behest of a micro-plan.

♦ Role of the Forest Department in the institutional structure - While JFM has helped bring the people and Forest Department together, several committees are seen to be heavily dependent upon the Forest Department for their day-to-day functioning, convening meetings, record maintenance, preparation of plans, etc. Forest Department officials are also member secretaries of village committees in many states. With powers to disband a badly functioning committee, cancel membership, and nominate NGOs for membership, the relationship is unequal. An important requirement of the JFM institutional design is therefore, making executive/management committees more accountable and which would take care of record maintenance and day-to-day functioning.

♦ Status of JFM committees - The legal status of JFM committees, the powers they possess to carry out their daily patrolling activities for sharing benefits and, for taking recourse to legal action to protect their own interests, are crucial issues. Field visits have indicated that when the members of protection committees sought to fine offenders, found illicitly felling wood in contravention of rules, they were often challenged and threatened with legal action. In practice, however, it was found that many JFM Committees function by imposing such fines which act as a deterrent to forest violators while the Indian Forest Act, 1927 does not recognize these functions of the Committees.

♦ Village funds - Village funds, with a proportion of revenue derived from the sale of forest produce; to be utilized for forest or village development activities is neither mandatory nor binding on the people or the Forest Department. The current sources include voluntary contributions, money obtained in lieu of protection, membership fees, voluntary labor contributions, the sale of surplus forest produce and of timber harvests, fines generated through social fencing activities, revenue generated against the use of the committee's forests, etc. While community funds need to be encouraged and diversified, other interventions for promoting greater self-sufficiency at the village level needs to be implemented.

3) Community Forest Management

The ever-expanding human and livestock populations and large-scale poverty exert unrelenting pressure on forests. In view of the severe degradation of India's forest resources, the Government has attempted to cut down losses to its forests and
increase tree cover through Community Forest Management (CFM). This attempt is to further decentralize the management of forests, moving from conventional “State-controlled forest management” to “decentralized community forest management”.

CFM refers to processes that enable those people who have a direct stake in forest resources to be part of decision-making in all aspects of forest management, from managing resources to formulating and implementing institutional frameworks. CFM is a component of participatory forestry that focuses on local communities as key stakeholders in managing common property resources.

CFM involves the raising of trees on community land and not on private land. The program aims to provide for the entire community and not for any individual. The government has the responsibility of providing seedlings, fertilizer but the community has to take responsibility of protecting the trees.

The community institution is created to manage the forests in a sustainable way. It is through the community institution that individual forest users are reached. Its principal function is to provide an institutional framework, which can articulate and represent the interests of all user sub-groups of a forest area in partnership agreement with the Forest Department. The community institution that comes into play in CFM is the Gram Sabha which is the local body that is given usufruct rights over timber, fuel wood, fodder and bamboo produced from the forest area developed, managed and protected by the community.

Under the CFM Scheme, some communities managed the plantations sensibly and in a sustainable manner in order to utilize optimum benefits in a positive way. However, some others took advantage of the common land which was easy to exploit and sold the timber for a short-term individual profit.
11 Urban Development Policy

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11.1 Introduction

Urbanisation is the physical growth of urban areas. It can be defined as the rapid and massive growth of, and migration to, large cities resulting in both positive and negative consequences. Urbanisation is also defined by the as the movement of people from rural to urban areas with population growth equating to urban migration. Hence, it is the increase over time in the population of cities in relation to the region’s rural population. Urbanisation has intense effects on the ecology and economy of a region. To explain the definition of Urban area and Urbanisation more clearly, let us examine the following phrases provided by United Nations Statistics Division. The United Nations Demographic Yearbook: Population Density and Urbanisation, states:\n
\[\text{United Nations Statistics Division which collects, compiles and disseminates data from national statistical offices on population density and urbanisation through the Demographic Yearbook data collection system has compiled data population density in urban areas}\]
“Because of national differences in the characteristics that distinguish urban from rural areas, the distinction between the urban and the rural population is not yet amenable to a single definition that would be applicable to all countries or, for the most part, even to the countries within a region. Where there are no regional recommendations on the matter, countries must establish their own definitions in accordance with their own needs.

The traditional distinction between urban and rural areas within a country has been based on the assumption that urban areas, no matter how they are defined, provide a different way of life and usually a higher standard of living than are found in rural areas. In many industrialized countries, this distinction has become blurred and the principal difference between urban and rural areas in terms of the circumstances of living tends to be a matter of the degree of concentration of population. Although the differences between urban and rural ways of life and standards of living remain significant in developing countries, rapid urbanisation in these countries has created a great need for information related to different sizes of urban areas.

Hence, although the traditional urban-rural dichotomy is still needed, classification by size of locality can usefully supplement the dichotomy or even replace it where the major concern is with characteristics related only to density along the continuum from the most sparsely settled areas to the most densely built-up localities.

Density of settlement may not, however, be a sufficient criterion in many countries, particularly where there are large localities that are still characterized by a truly rural way of life. Such countries will find it necessary to use additional criteria in developing classifications that are more distinctive than a simple urban rural differentiation. Some of the additional criteria that may be useful are the percentage of the economically active population employed in agriculture, the general availability of electricity and/or piped water in living quarters and the ease of access to medical care, schools and recreation facilities. For certain countries where the facilities noted above are available in some areas that are still rural since agriculture is the predominant source of employment, it might be advisable to adopt different criteria in different parts of the country. Care must be taken, however, to ensure that the definition used does not become too complicated for application to the census and for comprehension by the users of the census results.

Even in the industrialized countries, it may be considered appropriate to distinguish between agricultural localities, market towns, industrial centers, service centers and so forth, within size-categories of localities.”
The widespread and all pervading urbanization of the twenty first century is historically unprecedented in modern times. Urbanization and its key characteristics that constitute the major determinants of the political process have historically shaped the urban structures and economic policies of the modern governments. Over the last two decades, most growth sectors in the national economies of the countries have been largely based on activities located in urban areas. Experience worldwide indicates that cities and towns are central to economic growth a phenomena which can be explained by a well established theory that acceleration of urbanization takes place with the corresponding increase in economic growth promoted through the economies of scale in production, existence of information externalities and the substitution of capital for land. Cities that consistently provide a conducive environment for the institutional and technological innovations are often referred as the ‘engines of economic growth’, ‘agents of change’ and ‘incubators of innovation’. Further the forces of globalisation that led to the internationalisation of production, finance, banking and services, coupled with cheap labour and advances in telecommunications and information technology, has increased the pace of urbanization. These emerging patterns of urbanization and the cities direct relationship to the global economic processes have made today’s cities very important in locating businesses and attracting population. For instance, in the year 2000, nearly half the world’s population lived in urban areas. While the urbanization phenomenon is widely accepted as being an inevitable by-product of development, there are many undesirable outcomes that have resulted from urbanization. In such a scenario local city level planning and management innovations have become more important than the national policies itself.

11.2 Relevant Provisions from the Indian Constitution

While India, like many other regions, has always had local councils of some sort, the mechanisms in existence today are rooted in the period during which it was a colony of the United Kingdom. A major foundation of the British roots of Indian local government was Lord Ripon’s resolution of May, 1882, on the subject of local self-government covering the structure and establishment of local bodies, their functions, finances and powers. This is the root of local self-government in post-Independence India. In the context of the Indian Constitution, local government bodies are the subject of the State List and are thereby governed by State Statutes, or in the case of Union Territories, by the Union Parliament. Federal recognition of local government was substantively expressed in the 74th Constitution Amendment Act of 1992.
Constitution may be defined as a document having a special legal sanctity which sets out the framework and principal function. Aspen of urban laws is widespread and requires a minute study to give it relevancy to the Indian constitution, constitution and urban laws maintain a chain reaction as the laws enacted by the law framers supplement the stumbling attribute of urban laws and policies similarly the laws which supplement these urban policies derive their basis from the constitution itself.

Relevant provisions -

I) Directive Principals of the State Policy

Part 4\textsuperscript{th} of the Indian constitution relates to the directive principals of the state policy. It sets forth the ideals and objectives to be achieved by the state for setting up in India a social welfare state as distinguish from the mere police state, which aims at the social welfare and the common good and to secure to all its citizens, justice social and economic. The inspiration for including in the constitution was drawn from the constitution of Ireland, 1937. The basic aim of the welfare state is the attainment of substantial degree of social, economic, and political equalities, as well as the assumption by the community acting through the State. These provisions that pertain to a welfare state also, indirectly lend the bearing of an ideal urban India. These provisions are as follows:

a) \textbf{Article 39 (b) and (c)} are very significant constitutional provisions as they effect the entire economic system in India. It relates to the distribution of the ownership and control of the material resources of the community. An act falling under the clause of this Article must have in operation in the economic system.

b) \textbf{Article 39(b) and 39(c)} relate to distribution of ownership and control of material resources of the community. The aim of socialism is the distributions of the material resources of the community in such a way as to sub serve the common good. A socialistic state secure to its people socio-economic justice.

c) \textbf{Article 39(d)} ensures \textbf{equal pay for equal work}. The Article states that the State has to ensure that there is equal pay for equal work for both men and women. The Act also ensures that there will be no discrimination against the recruitment of the women and provides for the setting up of the advisory committees to promote employment opportunities for women.

Parliament has enacted the \textbf{Equal Remuneration Act, 1976}, to implement \textbf{Article 39(d)}. The act provides for equal remuneration for both men and women workers.
for the same work, or work of similar nature and for the prevention of discrimination on the grounds of sex.

Besides the principals of gender equality in the matter specifically embodied in the Article 39(d) the Supreme Court has extracted the general principals of equal pay for equal work by reading Article 14, 16 and 39(d).

II) Relations between the union and the states -

A federal constitution establishes a dual polity with the union at the center and the states at the periphery, each endowed with the powers to be exercised in the field assigned to them. The legislative, executive and the financial authority is divided between the center and the units not by any law passed by the centre but the constitution itself.

The Indian constitution provides a new kind of federalism to meet India’s peculiar needs. In the matter of distribution of powers, the framers followed the pattern of the government of India Act, 1935, which had laid the foundation for a federal set up of the nation.

The seventh schedule to the Indian constitution divides the subject of the legislations under three lists, viz. Union, state and concurrent list.

The Union list (list 1) contains as many as 97 items and comprises of the subjects which affect the entire country and are of general interest and admit of uniform laws for the whole of the country. These matters lie within the exclusive legislation competence of the union parliament.

The state list (list II) enumerates 66 items and comprises of subjects of subjects of local or state interest and as such lie within the legislative competence of the state legislatures.

The concurrent list (list III) enumerates 47 items, with respect to which both union parliament and the state legislatures have concurrent power of legislation. The union list has overlapping and shared jurisdiction over 52 subjects including forests.

III) Environment Protection and Improvement (Article 48 A)

Environment protection and improvement were explicitly incorporated into the constitution by the constitution (Forty- second amendment) Act 1976. Article 48 A was added to the directive principals. It declares: ‘the state shall Endeavour to protect and improve the environment and to safeguard the forests. Article 51 A (g) in the new chapter entitled the fundamental duties, imposes a similar responsibility on every citizen.
Constitution 74th Amendment Act, 1992

The 73rd and 74th Constitutional Amendments Acts were introduced in the early 1990's in a bid to achieve democratic decentralization and provide constitutional endorsement of local self governance authorities. These amendments confer authority on legislatures of States to endow respectively Panchayats and Municipalities with such powers and functions as may be necessary to enable them to act as institutions of self – government. For the purpose, the Panchayats and Municipalities have been charged with the responsibility of preparing and implementing plans for economic development and social justice including those in relation to matters listed in the Eleventh and Twelfth Schedules of the Constitution. The central objective of these amendments is the decentralization of planning and decision making procedures. It also has the implicit intention of removing centralized notions of control and monopoly overdevelopment of resources.

Panchayats - Article 243G provides that, subject to the provisions of the Constitution, the legislature of any State may, bylaw, endow the Panchayats, with such powers and authority as may be necessary to enable them to function as institutions of self-government and such law may contain provisions for the devolution of powers and responsibilities upon Panchayat at the appropriate level.

The Panchayats have been entrusted with the implementation of schemes for economic development and social justice including those in relation to the matters listed in the Eleventh schedule. The Municipalities have been entrusted with the implementation of schemes for economic development and listed in the Twelfth schedule. These being, among others,

♦ Urban Planning and town planning
♦ Regulation of land-use and construction of buildings
♦ Planning for social and economic development
♦ Slum improvement and up gradation
♦ Provision of urban amenities and facilities such as parks, gardens, playgrounds
♦ Public amenities including street lighting, parking lots, bus stops and public conveniences.

Municipalities- Articles 243W provides that, subject to the provisions of the Constitution, the legislature of any State may, bylaw, endow the Municipalities, with such powers and authority as may be necessary to enable them to functions
institutions of self-government and such law may contain provisions for the devolution of powers and responsibilities upon Municipalities respectively at the appropriate level.

Article 243ZD provides for the creation of a district level planning committee for the preparation of the District Development Plan. The District Planning Committee has been placed with the powers to draft district development plan to consolidate the plans prepared by the panchayats and municipalities, having regard to matters of common interest including spatial planning, sharing of water and other natural and physical resources, the integrated development of infrastructure and environmental considerations. Further, the district development plans should be prepared to consolidate the plans prepared by the panchayat and municipalities. Article 243ZE provides that for metropolitan areas, an metropolitan Planning Committee shall be elected by and from amongst the elected members of the municipalities and chairpersons of the panchayats within the metropolitan area in proportion to the ratio between the population of the municipalities and panchayats in the metropolitan areas having the same mandate as mentioned above for the district planning committee.

**Background of The Constitution (74th Amendment) Act, 1992** - Towns and cities contribute substantially to the economic development of the country. These urban centres also play an important support role in the development of rural hinterland. To keep this economic transformation in line with needs and realities at the grass-root level, it was deemed necessary that the people and their representatives are fully involved in the planning and implementation of the programmes at local level. Hence the 74th Amendment Act was enacted with the aim of strengthening the roots of democracy by extending their reach to towns, villages and the cities where the people live.

The Constitution of India has made detailed provisions for ensuring protection of democracy in Parliament and in State Legislatures. Hence, democracy in these institutions has survived and flourished since last numerous decades. Initially, the Constitution had not made Local Self Government in urban areas a clear-cut Constitutional obligation. While the Directive Principles of State Policy referred to Village Panchayats, there was no specific reference to municipalities except implicitly in Entry-5 of the State List, which placed the subject t of Local Self Government as a responsibility of the State². As a consequence of this inadequate

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² Entry-5 reads as under:- *Local Government, that is to say, the constitution and powers of municipal corporations, improvement trusts, district boards, mining settlement authorities and other local authorities for the purpose of local self-Government or village administration.*
Constitutional provision for Local Self Government, democracy in municipal governance was not stable. Though the respective municipal acts of the States provided for regular elections to municipal bodies, they were frequently suspended and superseded for indefinite periods of time. Frequent and indefinite suspensions or supersessions eroded the very basis of local self-government and had a negative effect on democracy at the grassroots level.

The general position with regard to financial resources of the municipal bodies was also not satisfactory. Over the years, there was a steady encroachment on the assigned functions and revenues of Urban Local Bodies by specialized agencies of the State Governments. As a result, many urban local bodies became weak and were not able to perform effectively. The weakened status of ULBs crystallized public opinion in favour of need for a Constitutional guarantee to safeguard the interests of urban local bodies in order to provide for

- Regular and fair conduct of elections to these bodies
- Holding of elections within a specified time limit in case of supersession
- Adequate representation of SC/ST and women in the elected bodies
- Placing on firm footing the relationship between the State Governments and the urban local bodies with respect to:
  - functions and taxation powers of the urban local bodies
  - arrangement for revenue sharing between the State Government and the urban local bodies.
- Involvement of elected representatives at grassroots level in planning at the district and metropolitan levels.

Accordingly, the Constitution (73rd Amendment) Bill was introduced in the Parliament in 1991, which was referred to the Joint Parliamentary Committee with Members from both Lok Sabha and Rajya Sabha for consideration. The Committee held several sittings and also took oral evidence and written comments from various organisations and individuals. The Committee had the opportunity of visiting various municipalities and held detailed discussions with their officers and elected representatives as well as with several State Governments. This was probably the first time that the Parliamentary Committee had deliberated so extensively on a legislation concerning local self-government.

The Bill as reported by the Joint Parliamentary Committee was taken up for consideration and passed by the Lok Sabha on 22nd December, 1992 and by the Rajya Sabha on 23rd December, 1992 and it received the assent of President on
20th April, 1993. It was published in the Government Gazette on 20th April, 1993 as the “Constitution (Seventy Forth Amendment) Act, 1992”. The 74th Constitutional Amendment Act came into force on 1st June, 1993. It had introduced a new part to the Constitution namely, Part IXA in the Constitution, which deals with the issues relating to municipalities. The main provisions introduced by the above Act are as under:-

i) Constitution of Municipalities- It provides for constitution of 3 types of municipalities depending upon the size and area namely

a) Nagar Panchayat for an area in transition from rural to urban area;
b) Municipal Council for smaller urban area; and
c) Municipal Corporation for larger urban area.

Demographic and other conditions, which are determining factors for constituting a particular type of municipality differ a great deal from one State to another. It has, therefore, been left to the State Legislatures to decide which specific type of municipality will be constituted for particular urban area.

ii) Composition of Municipalities- The seats are filled by direct elections. Besides the seats filled by direct elections, some seats may be filled by nomination of persons having special knowledge and experience in municipal administration. Persons so nominated shall not have the right to vote in the meetings of the municipality. The Legislature of a State may, by law, also provide for the representation in a municipality of members of the House of the People and the members of the Legislative Assembly of the State representing constituencies which comprise wholly or partly the Municipal area and also the Members of the Council of States and the members of the Legislative Council of the State registered as electors within the municipal area. The manner of election of Chairpersons of municipalities has been left to be specified by the State Legislature.

iii) Constitution of Wards Committees- This provides for constitution of Ward Committees in all municipalities with a population of 3 lakhs or more.

iv) Reservation of seats- In order to provide for adequate representation of SC/ST and of women in the municipal bodies, provisions have been made for reservation of seats. The proportion of seats to be reserved for SC/ST to the total number of seats shall be same as the proportion of the population of SC/ST in the municipal area. The reservation would be made in respect of seats to be filled by direct elections only. Not less than one-third of the total number
of seats reserved for SC/ST shall be reserved for women belonging to SC/ST. This is a mandatory provision.

In respect of women, the seats shall be reserved to the extent of not less than one-third of the total number of seats. This includes seats reserved for women belonging to SC/ST. These reservations will apply for direct elections only. This is also a mandatory provision. There will be no bar on State Legislatures from making provisions for reservation of seats in any municipality or office of Chairperson in the municipalities in favour of backward class of citizens. This is an optional provision.

v) Duration of Municipalities- The municipality has a fixed term of 5 years from the date appointed for its first meeting. Elections to constitute a municipality are required to be completed before the expiration of the duration of the municipality. If the municipality is dissolved before the expiry of 5 years, the elections for constituting a new municipality are required to be completed within a period of 6 months from the date of its dissolution.

vi) Powers and Functions of the Municipalities- All municipalities would be empowered with such powers and responsibilities as may be necessary to enable them to function as effective institutions of self-government. The State Legislature may, by law, specify what powers and responsibilities would be given to the municipalities in respect of preparation of plans for economic development and social justice and for implementation of schemes as may be entrusted to them. An illustrative list of functions that may be entrusted to the municipalities has been incorporated as the Twelfth Schedule of the Constitution.

vii) Finances of Municipalities- It has been left to the Legislature of a State to specify by law matters relating to imposition of taxes. Such law may specify:

♦ Taxes, duties, fees, etc. which could be levied and collected by the Municipalities, as per the procedure to be laid down in the State law

♦ Taxes, duties, fees, etc. which would be levied and collected by the State Government and a share passed on to the Municipalities

♦ Grant-in-aid that would be given to the Municipalities from the State

♦ Constitution of funds for crediting and withdrawal of moneys by the Municipality.
viii) **Finance Commission**- The Finance Commission constituted under Article 243-I to review the financial positions of Panchayati Raj Institutions shall also review the financial position of the municipalities and will make recommendations to the Governor.

The recommendations of the Finance Commission will cover the following:

- Distribution between the State Government and Municipalities of the net proceeds of the taxes, duties, tolls and fees leviable by the State
- Allocation of share of such proceeds between the Municipalities at all levels in the State
- Determination of taxes, duties, tolls and fees to be assigned or appropriated by the Municipalities
- Grants-in-aid to Municipalities from the Consolidated Fund of the State
- Measures needed to improve the financial position of the Municipalities.

ix) **Elections to Municipalities**- The superintendence, direction and control of the preparation of the electoral rolls for, and the conduct of, all elections to the panchayats and municipalities shall be vested in the State Election Commissions.

x) **Audit and Accounts**- The maintenance of the accounts of the municipalities and other audit shall be done in accordance with the provisions in the State law. The State Legislatures will be free to make appropriate provisions in this regard depending upon the local needs and institutional framework available for this purpose.

xi) **Committee for District Planning**- Planning and allocation of resources at the district level for the Panchayati Raj institutions are normally to be done by the Zilla Parishad. With regard to urban areas, municipal bodies discharge these functions within their respective jurisdictions. However, some important questions may arise, which would concern the urban-rural interface, and it may be necessary to take an overall view with regard to development of the district as a whole and decide on allocation of investments between the rural and urban institutions.

Provision has, therefore, been made for the constitution of a Planning Committee at the district level with a view to consolidating the plans prepared by the Panchayats and the Municipalities and preparing a development plan for the district as a whole.
The District Planning Committee in preparing the Draft Development Plan shall have regard to:

♦ Matter of common interest between the Panchayats and the Municipalities including spatial planning
♦ Sharing of water and other physical and natural resources
♦ Integrated development of infrastructure and environment conservation
♦ Extent and type of available resources, whether financial or otherwise.

The Draft District Development Plan so prepared and recommended by the District Planning Committee shall be forwarded by the Chairperson of the Committee to the State Government.

xii) Metropolitan Planning Committees- It is provided in the Act that in every Metropolitan area (with a population of 10 lakhs or more), a Metropolitan Planning Committee shall be constituted for preparing a draft development plan for the metropolitan area as a whole. The Metropolitan Planning Committee shall take into account the following for preparation of the Draft Development Plan:

♦ Plan prepared by the Municipalities and the Panchayats in the metropolitan area
♦ Matter of common interest between the Municipalities and Panchayats including coordinated spatial plans of the area
♦ Sharing of water and other physical and natural resources
♦ Integrated development of infrastructure and environmental conservation
♦ Overall objectives and priorities set by the Government of India and the State Government
♦ Extent and nature of investments likely to be made in the metropolitan area by agencies of the Government
♦ Other available resources, financial and otherwise.

In terms of Article 243ZC of the Constitution, nothing in Part IXA shall apply to Scheduled areas and Tribal areas as referred to in Article 244 of the Constitution. However, Parliament may by law, extend the provisions of Part IXA to these areas subject to such exceptions and modifications as may be specified in that law.
Implementation of Part IXA - In order to provide time to allow changes to be made in the then existing laws which were inconsistent with the provisions of the Constitution (74th Amendment) Act, a transition period of one year was provided for. Immediately after the Constitution (74th Amendment) Act came into force on 1st June, 1993, the Ministry of Urban Development took necessary steps to ensure that the provisions of the State Municipal Laws are brought in conformity with the provisions of the above Act. As a result of various steps taken up by the Ministry of Urban Development through correspondence and also organising meetings of the State level Secretaries, the State Governments brought in place the conformity legislations by target date i.e. 31st May, 1994.

The amended State municipal laws provide for detailed provisions for constitution and composition of municipalities, reservation of seats for SC/ST and women, fixed term of 5 years and re-election of municipalities within a period of 6 months in case of dissolution, functions and financial powers of municipalities, setting up of State Finance Commission etc.

What has actually changed after 74th Constitution Amendment Act of 1992?

Municipalities have been in existent in several cities of India before 1992 as well. The question that arose hence was that what exactly have changed after this Amendment. The difference between the municipal bodies functioning pre and post the 1992 Amendment Act are as follows:

♦ The municipalities in pre-1992 era did not have the constitutional status and the State governments were free to extend or control the functional sphere through executive decisions. This was done away with post 1992.

♦ Before the amendment, the State government could control the municipalities by controlling the funds. Amendment the State government is mandated to transfer the funds in accordance with the recommendations of the State Finance Commission.

♦ The subject of jurisdiction was clearly defined in the 74th amendment with municipalities having exclusive control over 18 listed subjects.

♦ Representation of SCs/ST and women was laid down in the Act itself making the municipalities a more representative body.

I) Constitutional provisions pertaining to Noise Pollution

Noise by definition is unwanted sound. Noise pollution can be divided into two categories viz. Natural and man-made. Natural causes of noise pollution are air, noise, volcanoes, seas, rivers, exchanging voices of living organs including man and animals. Some of the chief causes of manmade noise pollution are machines and modern equipment of various types, automobiles, trains, planes, use of explosive, bursting of firecracker and new age machineries.

Noise affects human life in many ways. It affects sleep, hearing, communication and mental health and physical health and finally the peace of living. It may even lead to madness in some persons. However, noise, which is melodious whether natural or man-made, cannot always be considered as a contributor to pollution.

The Right to means of expressions and sound: The Indian Constitution under Art. 19 grants fundamental right to every citizen to freedom of speech and expression, with reasonable restriction of decency, morality, security of State, defamation, incitement of offence etc. The use of loudspeaker as a means of expression is regulated by reasonable restriction so as to meet public order and safety. Having regard to the provision of Art. 19(1)(a) of the Constitution, it cannot be said that the District Magistrate, Sub-Divisional Officer and the Police authorities are the sole authority who can grant at will permission without having any regard to the fundamental rights of the fellow citizens.

A bye-law of a municipality requiring permission for using a loudspeaker does not infringe Article 19(1)(a). State can regulate the use of loudspeakers and mechanical or other contrivances to amplify sound, and does not amount to an infringement of the right under Article 19(1)(a). Similar is the case with explosives, fire cracker, etc. Article 25 of the Constitution also grants the right to use loud speaker protecting the freedom, conscience and free profession, practice and propagation of religion.

Some legal response to Noise Pollution:

1) **Railways Act, 1890 and noise**: A large amount of noise pollution is advanced by the noise emitted from railway engines and carriages. There is no check to curb this noise pollution under the **Railways Act, 1890 (Act No. IX OF 1890)** statutory authority for the use of locomotives to railways administration.

II) Constitutional provisions pertaining to Sanitation

If the human race is to survive and progress, preservation of good health is a must. Worldwide, nations are seeking viable answers to the question of how to offer a health care system. Healthy living conditions and good quality health is not only a necessary requirement it is also an recognized fundamental rights for each and every Indian and do play crucial factor for socio-economic maturity of the nation. The country’s policy towards health has been traditionally identified by the provision of primary healthcare as the states responsibility.

At the beginning of 2000 one-sixth of the world’s population was without access to improved water supply and two-fifth lacked access to improved sanitation\(^3\). In the absence of proper sanitation, people suffered from high levels of infectious diseases leading to high incidences of morbidity and mortality. Inadequate sanitation like unsafe disposal of human excreta, open defecation, lack of infrastructure (sewerage, drainage/silages), and absence of hygiene management constitute a major threat to the health of the people. Despite the efforts and investment many low-income countries continue to suffer from inadequate and unsafe sanitation India falls one of those countries. Despite the global commitments, the improvements made by many countries during the last one decade are very poor and the constraints identified are: financial difficulties, institutional problems, inadequate human resources, and lack of political commitment, insufficient community involvement, inadequate operation and maintenance, lack of hygiene education, poor water quality, people’s attitudes towards sanitation and insufficient information and communication.

11.4 Urbanization in India: Trends and Explanations

Cities are probably the most complex things that human beings have ever created. They are the wellsprings of culture, technology, wealth and power. People have love-hate relationship with cities. We are torn between our needs for community and privacy and the conflicting attractions of urban and rural life. Urban Planning

\(^3\) Global Water Supply and Sanitation Assessment Report, 2002
can be defined as the design and regulation of the uses of space that focus on the
physical form, economic functions, and social impacts of the urban environment
and on the location of different activities within it.

According to the oxford dictionary word urban means a city or a large permanent
settlement. The U.S census bureau defines urban areas on the basis of the census
blocks. Urban areas can include an entire country or parts of the country; it is a
contiguous area of census blocks. An urban area is usually known as a city. There is
no one standard international definition of a city: the term may be used either for
a town possessing city status; for an urban locality exceeding an arbitrary population
size; for a town dominating other towns with particular regional economic or
administrative significance. Although city can refer to an agglomeration including
suburban and satellite areas, the term is not appropriate for a con-urban (cluster)
of distinct urban places, nor for a wider metropolitan area including more than
one city, each acting as a focus for parts of the area.

An urban area usually consists of residential, industrial and business areas together
with administrative functions which may relate to a wider geographical area. A
large share of a city's area is generally taken up by houses, roads, and streets. Lakes
and rivers may be the only undeveloped areas within the city. Cities generally
have advanced systems for sanitation, utilities, land usage, housing, and
transportation. The concentration of development greatly facilitates interaction
between people and businesses, benefiting both parties in the process. A big city,
or metropolis, usually has associated suburbs. Such cities are usually associated
with metropolitan areas and urban sprawl, creating numerous business commuters
traveling to urban centers of employment.

Urbanization in India is characterized by unplanned and uncontrolled growth
leading to urban sprawl. Land use planning and the pattern of development,
relationship between residential areas and industrial, commercial and office
complexes have a considerable impact on the environment. Most of all, appropriate
infrastructure provision has not kept pace with economic growth. Consequently,
the environment of urban areas, particularly of larger cities, has been deteriorating
rapidly.

Urban local bodies (ULBs) in India are faced with a plethora of issues that directly
impact their capacity to manage municipal service delivery while simultaneously
addressing environmental concerns.

These include:

♦ multiplicity of organizations;
♦ inadequate resource mobilization;
♦ lack of capability to adopt proper corporate planning;
♦ lack of information and information systems; and
♦ inadequate monitoring of policy implementation.

Where the municipalities are struggling to provide basic amenities to citizens, issues of environmental pollution or hazard management are not accorded priority till matters reach the proportions of a crisis. A primary reason for the delay was that local governments were perceived to be rivals, rather than complements, by state governments. Hence, local government was generally not a level that was maintained with commitment and sufficiently empowered in the post-Independence era. For that reason, it could be said that even by 2004, the state of West Bengal distinguished itself by its commitment to having regular local elections once the current ruling party of West Bengal came to power in the 1970s. In other states, these bodies were frequently superseded for long periods by state governments. West Bengal's commitment to local government in fact had an important role to play in the national recognition accorded local government. Its commitment inspired the 74th Amendment Act that formerly gave constitutional recognition to local government.

However, it can also be said that there is today a growing awareness of the need and importance of local self-government, as being a provider of services to local communities and as a mechanism for democratic self-government. There are currently two distinct types of local government system: urban local system and the rural local system. The structure of the latter is multi-tiered and will not form the subject of this article, which focuses on urban local government. The urbanization pattern in India is undergoing a significant change, consistent with the worldwide phenomenon. Urbanization as recorded in the various censuses of India are broadly summarised here. The level of urbanization that was around 11-12% during the first three decades of the twentieth century rose from 79 million in 1961 to 285.4 million in 2001, registering a three and a half times increase in population in the last four decades. The relatively slower growth in urban population during the 1950s and the 1960s can be attributed to the physical planning controls on the location of economic activities and the urban land-use, imposed through master plans that had put a ‘ceiling’ on the absorptive capacity of large Indian cities. Also the success of green revolution had further dampened the urban-rural migration.

The country recorded the fastest urban growth rate of the twentieth century during the 1970s. The high rate of 3.8 per cent a year can be attributed to an increase in population in the industrialising towns causing large migration and to the
emergence of a large number of new towns. In 1991–2001, while the total population of India increased by 21.3%, the urban population rose by 31.2%. The country with one of the largest urban systems in the world, is projected to increase its urban population to over 400 million in the year 2011 and 553 million by 2021 (NIUA, 2000), accounting to about 40 per cent of the country’s population. Demographically, urbanization patterns developed differently across different states. According to the 2001 census about half of the country’s urban population was found to be concentrated in the six most developed states of Tamil Nadu, Maharashtra, Gujarat, Punjab, West Bengal and Karnataka, where the urban population was found to be much above the national average of 27.7 percent. Even within the state while some larger urban agglomerations attracted most of the emerging business and economic activity the smaller one’s were left behind. In 1991, the cities with over 100,000 populations accounted for 56.68 per cent of the total urban population raised to 61.48 percent in 2001. As per the Census of 2001, the thirty-five urban agglomerations that have a population of over one million accounted for about 37% of India’s total urban population.

<table>
<thead>
<tr>
<th>Class</th>
<th>Population size</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I</td>
<td>&gt;1,00,000</td>
<td>393</td>
</tr>
<tr>
<td>Class II</td>
<td>50,000-99,999</td>
<td>401</td>
</tr>
<tr>
<td>Class III</td>
<td>20,000-49,999</td>
<td>1151</td>
</tr>
<tr>
<td>Class IV</td>
<td>10,000-19,999</td>
<td>1344</td>
</tr>
<tr>
<td>Class V</td>
<td>5,000-9,999</td>
<td>888</td>
</tr>
<tr>
<td>Class VI</td>
<td>&lt;5,000</td>
<td>191</td>
</tr>
<tr>
<td>Unclassified</td>
<td>&lt;5,000</td>
<td>10</td>
</tr>
</tbody>
</table>

### Changing structure of Urbanization

With the historical pattern of urbanization suggesting that countries tend to urbanise slowly until they attain 25 to 30 percent of urbanization, increases its pace with economic growth, causing rapid structural shifts in the economy. Many urban researchers predict, that urbanisation in India is likely to persist at least until 2030 when India will achieve 50 per cent of urbanization (World Bank, 2004). An analysis
of the distribution of urban population across different size categories in India reveals that the process of urbanization in Class I cities, whose share grew from 26.0 percent in 1901 to 68.7 percent in 2001 (Kundu, 2002). However the percentage share of Class IV, V and VI towns, (cities with population less than 20,000 people), has gone down drastically (Kundu, 2001).

It is often argued that only large cities would experience high growth rates because of the large part of the incremental migrant population getting absorbed into their peripheries and neighbouring towns because of its linkages to the national and international economies (Nagaraj 1987, Kundu 1983 and Bhalla and Kundu 1982). For instance the number of towns merging with neighbouring towns/cities were noted to be 221 in 20012, revealing a considerable dynamism around these existing agglomerations.

Table 11.2: Growth in Population across different urban classes in India

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Class I</td>
<td>44.8</td>
<td>49.2</td>
<td>52.6</td>
<td>56.7</td>
<td>62.3</td>
</tr>
<tr>
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<td>12.1</td>
<td>13.4</td>
<td>14.0</td>
<td>13.3</td>
<td>12.0</td>
</tr>
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<td>18.3</td>
<td>17.1</td>
<td>16.3</td>
<td>14.7</td>
</tr>
<tr>
<td>Class IV</td>
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<td>12.6</td>
<td>11.2</td>
<td>9.7</td>
<td>7.9</td>
</tr>
<tr>
<td>Class V</td>
<td>7.9</td>
<td>5.6</td>
<td>4.4</td>
<td>3.4</td>
<td>2.8</td>
</tr>
<tr>
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<td>0.8</td>
<td>0.7</td>
<td>0.4</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Source: www.thehoot.org/SRR/general.xls

It is often argued that only large cities would experience high growth rates because of the large part of the incremental migrant population getting absorbed into their peripheries and neighbouring towns because of its linkages to the national and international economies (Nagaraj 1987, Kundu 1983 and Bhalla and Kundu 1982). For instance the number of towns merging with neighbouring towns/cities were noted to be 221 in 20012, revealing a considerable dynamism around these existing agglomerations.

The dynamics of urban development in India can be analysed by looking at the interdependence of the level and pace of urbanization in relation to the indicators of economic development. The urbanization, urban growth and new dimensions of macro-economic management emanating from the economic liberalisation, fiscal adjustment and financial sector reform that are leading to new investments in the
form of trade and industrial activities in the urban centres or in its fringes. The Expert Group on the Commercialisation of Infrastructure Projects (1996), in its report states that the rapid pace of urbanization is a consequence of the new economic policy. The recent growth in the number of Indian cities can be crucially linked to the above discussion. While the country’s urban population grew from 23.3% in 1981 to about 30% in 2001, the contribution of the urban sector to the country’s GDP rose from 45 per cent in 1993-94 to 60 per cent in 2001 (and is expected to reach 70% by 2020). This can partly be explained by the changing employment structure in the country following the liberalisation policies of the 1990s that led to the successive boom in the economic activities, mainly the information technology, business process outsourcing services and so on. Also the linking of the economic policy to the global economy pursuing open trade policy is bringing in massive inflow of capital both, indigenous and exogenous investments fostering the process of urbanization even further. In particular the large cities in the developed states have attracted most of the emerging business and economic activities, experiencing high economic and demographic growth. For instance, Bangalore in Karnataka (industries, services, and information technology), Hyderabad in Andhra Pradesh (information technology), Chennai in Tamil Nadu (manufacturing and services) and Pune in Maharashtra (manufacturing and services) grew at faster rates. The increase in economic integration has obliged cities to take their own economic environments more seriously, especially with the macroeconomic policies and their correlation to urban demands becoming increasingly important within the emerging scenario. At the practical level this requires that the governments at all levels to provide the much needed urban infrastructure support for higher productivity and to enhance the quality of life, by facilitating policies that increase the local resource base, which is otherwise declining.

11.5 Urban local bodies in India

According to the census of 2001, in India there are 3,682 urban local bodies (ULBs) of various sizes and structures. Broadly, the ULBs are classified into Four major categories based on its structures and economic conditions as (i) Municipal Corporation for larger urban areas, (ii) Municipalities for smaller urban areas (municipal councils, municipal board, municipal committee), (iii) Nagara Panchayats (town area committee) for the rural-urban transition areas and (vi) Others, which constitute town Panchayats, notified area committees, municipal councils, town area committees, city and town municipal councils, notified area councils, municipal boards, and notified area authorities;
Table 11.3: Distribution of ULBs in India

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal Corporations</td>
<td>96</td>
</tr>
<tr>
<td>Municipalities</td>
<td>1494</td>
</tr>
<tr>
<td>Others</td>
<td>2092</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>3682</strong></td>
</tr>
</tbody>
</table>

Urban infrastructure: an analysis of the basic amenities

In India, rapid urbanization coupled with low rates of investment in urban development, has led to severe deficiencies in the availability of basic urban infrastructure, services and amenities (Expert Group on Commercialisation of Infrastructure 1996). Studies by the various international and national agencies on Indian cities suggests that in almost all the urban centres of the country, basic urban services are greatly strained, with a large section of the urban populations having no access to drinking water, sanitation, public transport and so on (Bhalla, 1982; Dutta, 1999; Kundu, 1994; 1997). The data from the Census of India 2001 shows that while the majority (70 percent) of urban households have access to bathroom facility within the house, less than half of the urban households have water closets (Table 3). According to the Ministry of Urban Development (MUD), at the aggregate 20 percent and 58 percent of the country’s urban households have no access to safe drinking water and safe sanitation respectively, and more than 40 percent of the garbage generated is left uncollected for want of proper waste management in the cities (as quoted in Sridhar, 2006). Similarly the 54th Round of the National Sample Survey Organization (NSSO) states that only 45.8 per cent of urban households have tap water within the premises, 25.5 per cent of households have no access to any latrine, and only 18 per cent of households use garbage collection facility provided by local authorities (12th Fin. Comm, 2006). The urban housing shortage in 2001 was estimated to be 41 million dwelling units (Ministry of Urban Development, 2001). Most of the indicators of basic amenities show positive correlation with the economic development of the states. With the proponents of economic liberalisation and structural reformists arguing that new strategies would accelerate the pace of urbanization there is an imperative need for augmenting the basic urban infrastructure and services in order to sustain its competitive edge.

The central and the state governments invests directly in urban infrastructure by handling the capital investments and the O&M activities through their respective departments such as housing, public works, water supply and drainage, road transport, public health, and engineering. In a few cases, the state governments
undertake capital investments through statutory boards (Chennai Metropolitan Water Supply and Sewerage Board in Tamil Nadu, Bangalore Water Supply and Sewerage Board in Karnataka, Delhi Jal Board in New Delhi, etc.), leaving the O&M to local governments. However the resource scarcity faced at the central and the state levels has led to a reduction in the current and capital expenditures on infrastructure and social sectors in recent years creating serious uncertainty with regard to the provision of basic amenities to the urban population. A study by the National Institute of Public Finance and Policy (NIPFP) on the finances of ULBs shows that cities are experiencing tremendous fiscal stress even to operate and maintain basic urban services to satisfactory levels (let alone augment them) while the majority of them are unable to raise adequate resources on their own to meet the growing demand of urban services. Some of the major reasons for the existing state of affairs include ineffective local governance, inefficient management practices, poor planning process, lack of periodical revision of municipal tax rates, user charges, poor information system and record management.

But demand for municipal services, which already exceeds supply, is increasing exponentially with time as more and more people migrate into the cities. The inability of municipalities to meet demand has led to a wide spread of diseases such as cholera and typhoid and the failure of cities to realize economic development. Based on the review of the existing status of basic urban infrastructure at the macro-level and its implications, a special case can be made for providing special forms of financial assistance to the small and medium towns that are not in a position to allocate the requisite funds for providing basic urban infrastructure or to attract private capital for investments in these sectors.

11.6 Urban Local Bodies: Structure, Functions and Financial Status

In this section we shall discuss the trends in the fiscal and financial situations of the ULBs in the recant years and the emerging policy reforms with the objective of developing pool finance and local bond markets to facilitate borrowings. In this discussion we recognize the importance of the state in facilitating the development of municipal credit markets but confine our discussion to the ULBs. We begin the discussion by describing the structure, functions and the financial status of ULBs followed by a discussion on the financial requirements as estimated by the various committees for upgrading core infrastructure and services for the cities in India.
Functional domains of Urban Local Bodies

Although Local governments are recognized and protected by the Indian constitution, the states have the de facto legislative powers over them. The State list of the Constitution empowers the state governments5 to lay down the functions, powers and responsibilities of municipal governments that are recognised as the third tier of governments following the Constitutional Amendment Act, 1992 (Box 11.1). The Act which focuses on the decentralisation of urban governance advocates the devolution of the responsibilities for delivering local public services to the ULBs and to generate revenues needed to sustain these services by amending their municipal laws. But since the functions delegated to the ULBs are concurrent, state governments also act simultaneously within the framework of municipal functions.

Box 11.1: 74th Amendment of the Constitutional Amendment Act, 1992

The Constitutional Amendment Act, 1992 provides a constitutional recognition of the ULBs to devise a democratic and empowered system of urban governance to enable them to function as an effective democratic institution of local self-government.

The Act introduced some of the fundamental changes in the system of local governance with the objective of transferring the functional and fiscal responsibilities to the ULBs. The Act also envisages assigning more revenue sources to local governments, and to promote local accountability. In summary the Act provides for: (i) holding of regular elections, under the supervision of the state election commissions, (ii) protection against arbitrary dissolution of local elected bodies by higher levels of government; (iii) constitution of ward committees in cities with a population of three lakhs or above; (iv) gradual transfer of powers and authority of state legislatures to ULBs; (v) clear demarcation of ULBs’ responsibilities as assigned under the twelfth schedule of the Constitution; (vi) formation of state finance commissions (SFCs), once every five years, to identify avenues for improving the health of the municipal finance and recommend their legislatures of the criteria to devolve resources from state to local bodies and finally (vii) the act requires the state to constitute Metropolitan Planning Committees (MPC) and District Planning Committees (DPC), for the preparation and consolidation of development plans.

Besides its traditional core functions, municipalities are also expected to play a crucial role in the preparation and implementation of local development plans and social justice programmes.

Source: 74th Amendment, 1992
The primary functions of the ULBs relate to the public health (water supply, sewerage and sanitation, eradication of communicable diseases etc), welfare (education, recreation, etc), regulatory (registration of births and deaths, enforcing building byelaws, encroachments on public land, etc), public safety (fire protection, street lighting etc), public works (construction and maintenance of city roads etc) and development activities (related to town planning and development of commercial markets). Besides the mandatory functions several state departments assign unilaterally and on agency basis, various other functions including family planning, nutrition and slum improvement, disease and epidemic control and so on apart from executing various central and state government program and policies (resulting in duplication of the functions performed by the government agencies). The democratic decentralization of the ULBs as envisaged by the Decentralisation Act, 1992 has broadened the range of functions and responsibilities of these urban bodies. In broad terms the Act led to a periodic shift in the functional domain of municipalities by requiring them to take crucial roles in the delivery of development functions like planning for economic growth and social justice, urban poverty alleviation programmes and promotion of cultural, educational and aesthetic aspects, environmental protection in addition to its core functions. Under the twelfth schedule of the 74th Amendment (Article 243) an illustrative list of eighteen functions that are entrusted to the municipalities are provided in Box 11.2.

The 12th schedule of the Constitution also directs the state governments to determine the revenue base of the municipalities by giving it a discretionary power based on the recommendations of the State Finance Commissions (SFCs). But in most cases the inter-state disparities in municipal functions, powers and responsibilities (as also the nature of state-municipal fiscal relationships, discussed later) among the jurisdictions are large and diverse.

**Box 11.2: Functions to be undertaken by the Urban Local Bodies**

1) Urban planning including town planning  
2) Regulation of land use and construction of buildings  
3) Slum improvement and up-gradation  
4) Planning for social and economic development  
5) Urban poverty alleviation  
6) Public health, sanitation, solid waste management and conservancy  
7) Water supply for domestic, commercial and industrial purposes
8) Public amenities including street lighting, parking lots, bus stops and public conveniences
9) Vital statistics including registration of births and deaths
10) Safeguarding the interests of weaker sections of the society (including the handicapped and mentally retarded)
11) Urban forestry, protection of the environment and promotion of ecological aspects
12) Provision of urban amenities and facilities such as parks, gardens, playgrounds
13) Promotion of cultural, education and aesthetic aspects
14) Burials and burial grounds, cremation grounds and electric crematoriums
15) Cattle pounds, prevention of cruelty against animals
16) Regulation of slaughter houses and tanneries
17) Fire services
18) Roads and bridges

But the transferring of socio-economic responsibilities to ULBs without examining their economic base and resource-raising capacity or making provision of adequate transfer of funds has had serious consequences on the city’s infrastructure. Critiques argue that civic bodies that depend on their ‘own resources’; will result in further increasing the disparity in the level of services and economic infrastructure across size class of urban centres. Administratively, among the various classes of the ULBs, the municipal corporations enjoy a greater deal of fiscal autonomy, although specific fiscal and functional powers vary across the states. In general the local governments with larger populations have a more diversified economic base and deal with the state governments directly, while the municipalities have lesser autonomy, smaller jurisdictions and deal with the state governments through the Directorate of Municipalities or through the collector of the district.

**Fiscal domain of the Urban Local Bodies**

While the Indian constitution specifies the division of taxes between the Union and the State governments (Art. 268 and 274), it does not lay down the revenue base for municipalities, leaving it to the respective state governments to determine their revenue base. But in general the resource base of the ULBs consists of own
tax, shared taxes, non-tax revenues, grants-in-aid, loans from the central
governments and their own market borrowings. Within this framework the state
governments specify certain taxes which the municipalities can levy and collect,
such as taxes on land and buildings (property), taxes on the entry of goods into a
local area- the octroi (in some states), advertisements tax, sales tax, taxes on animals
and boats, tolls, taxes on professions, trades, entertainment tax and motor vehicles.
The non-tax base source of revenue include interest receipts, cost recovery charges
for various services provided by the local government, profits and dividends from
state-owned enterprises, charges, fees and fines.

Table 11.4: Major Sources of Income for Municipal Bodies in India

<table>
<thead>
<tr>
<th>Sources</th>
<th>Major Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERNAL</td>
<td></td>
</tr>
<tr>
<td>Tax Revenue</td>
<td>Property taxes; Octroi (in some states), entertainment tax; tax on advertisements, tourism tax, etc.</td>
</tr>
<tr>
<td>Non-Tax Revenue</td>
<td>Building licence fees; Water and Sewerage; Rents from municipal assets; Income from Municipal Undertakings; User charges; Fines; Vehicles and Animal; etc.</td>
</tr>
<tr>
<td>EXTERNAL</td>
<td></td>
</tr>
<tr>
<td>Grants-in-aid</td>
<td>State and Central; General purpose; specific purpose; grants in lieu of taxes</td>
</tr>
<tr>
<td>Shared Taxes</td>
<td>Entertainment tax; electricity tax; tax on transfer of immovable property; motor vehicle tax; stamp duties; profession tax; etc.</td>
</tr>
</tbody>
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Municipal Finances: present status and future prospects

Urbanization has a major impact on the realisation of the composition of revenue
base and resource allocations. The internal resource mobilization abilities of the
municipalities is the principal criterion for measuring its performance, as it
measures the capacity of the ULBs to be able to effectively put to use the combined
effect of the fiscal powers and the sector’s capacity utilisation. In this section we
shall analyse the performance of the municipalities by examining its internal
resource generation (per capita own revenues and annual average growth rates),
municipal revenue receipts (own revenue component and transfers from the higher
tiers of government), and revenue expenditure (both discretionary and non-
discretionary components) - as a proxy for evaluating the level of services and
revenue-expenditure gap.
In fiscal terms, the municipal sector’s contribution in India is tiny. Based on the aggregate revenue incomes of the ULBs, the revenue receipts of the municipalities ranged from 11250 crores in 1997-98 to 17750 crores in 2001-02 registering an annual growth rate of 11.40 % between 1998-02. Within this the own source revenues (tax and non-tax) of the municipalities, showed a marginal increase from 8,345 crores in 1997-98 (0.61% of India’s GDP) to 12,748 crores (0.63 per cent of India’s GDP) in 2001-02. The tax revenue receipts of the municipalities for the country grew at an annual rate of 9.2% between 1998-01 and the proportion of non-tax revenue receipts grew from 20.9 % in 1997-98 to 25% in 2001-02 during the same period. Overall the municipal’s share in the publicly raised resources has changed, notionally by about 0.23 percentage points over the last five years (although the inter-state differences in the performance of municipalities are extraordinarily large). Its share in the total revenues generated by all the three tiers of government rose from 2.84 per cent in 1997-98 to 3.07 per cent in 2001-02 (12th CFC, 2004). Among the ULBs studies show a significant disparity in their incomes, across different size classes of urban centres (NIPPF, 2004; Mathur, 2001).

Correlations between the own revenues of municipalities, levels of urbanization and the gross domestic state products (GDSP) suggest a strong relation over the fiscal and financial health of municipalities. When we analyse the composition of municipal revenues it shows that in a majority of the states there is a greater reliance on tax sources, mainly, property taxes and Octroi (in a few states) which are also among the stable source of income for the majority of municipalities. In per capita terms the receipts of municipalities for the country as a whole increased from Rs. 501 in 1998 to Rs. 707 in 2001 at an average of 8.6%. In 2001, the per capita revenue receipts of municipalities ranged from a low of Rs. 40 in Bihar to an high of Rs. 1494 in Maharashtra. Such low per capita receipts of municipalities can be explained by low user charges and inefficient tax collection. Further at the macro-level the resources are weakened due to the mismatch between the sources of revenue and the residual functions, abolition of octroi (in most states), loss of elasticity and buoyancy in property taxes, poor cost recovery and defective pricing system of services. In assessing the service levels of the ULBs we shall use the revenue expenditure of the municipalities as a proxy. Although there exists no detailed breakdown of the aggregate expenditure of local government in India, the revenue base of the local economy can be considered as endogenous, where the ULBs revenue bases determine their expenditure, but not vice-versa (Per Comm, 2007). Much of the funding for the
urban infrastructure and civic services are financed by pooling multiple sources including revenues from the local governments, state from the central ministries and external agencies (bilateral, multilateral agencies) and institutional investors. The fiscal transfers from the state comprising of shared taxes, compensatory grants and grants-in-aid have a special role in the finances of municipalities. These transfers bridges the gap in fund requirements of the ULBs through the general and specific grants, have over the years led to accumulated transfers, resulting in the deterioration of the state finances resulting in large revenue deficits, rising debt service burden, slow growth in non-tax revenue, rising share of non-development expenditures and increasing financial losses. High shares of transfers are a significant feature of cities that have no-octroi.

Data for FY2001 show that the average share in the revenues of municipalities is about 3 per cent while the central and the state government transfers accounted for as much 97 percent of the total local government revenues (Fig 6). As a share of the state’s internally generated resources the transfers to the municipalities varied from 3.31% in 1997 to 3.85% in 2002 with the highest of 4.18% recorded in 2000-01. The state transfer to municipalities as a percent of municipal revenue receipts varied from 29.1% in 1998, 32.45% (1999), 34.8 (2000), 32.2 (2001) and 31.72 (2002). In per capita terms, state transfers to municipalities ranged from Rs. 146 in 1998 to Rs. 224 in 2001 at an average annual growth rate of 10.75% between 1998-2001. Such investments are characterized by the long payback period and have led to suboptimal levels of urban infrastructure investment. On the expenditure side, Mathur (2000), states that on a broad indication roughly about two-third of the municipalities expenditure is spent on core services (water supply, sanitation, street lighting, roads, burials and burial grounds) and the balance on the non-core services and general administration. Although municipal revenue expenditures have risen at an average of 10 per cent annually, with respect to the aggregate expenditure levels, as a proportion of the combined Gross Domestic Product of States (GSDP), municipal expenditures have risen marginally from 0.74 per cent in 1997-98, to 0.75% in 2000-01. But based on the expenditure pattern we see that while some states posted a relatively high per capita expenditures and higher expenditure ratios to the GSDP (Maharastra, Gujarat, Punjab and Goa) others showed medium to low levels of expenditures. States where the municipal receipts were very low, showed the municipal expenditures to be low. According to the 12th Finance Commission, independent of the norms, the average per capita daily expenditures ranged from Rs. 0.20 and Rs. 2.25, (average of Rs. 577 per person in 2001-02). The actual spending on public services is determined by other factors, including the
size of the local economy, the desired levels of services and the cost of providing the service. The abysmally low expenditures of the ULBs explain such low levels of services and the deplorable living conditions in cities and towns and the impact it has on the city in terms of its growth. Thus there exists a large gap between the current levels of available financial resources and the required resources for providing and enhancing the service levels. The increase in current expenditure, in the share of total expenditure, investments in infrastructure development (capital creation) or long-term economic facilitates have received low priority. It can be argued that although the urban centres contribute nearly 60 per cent of the country’s GDP, it is evident that the municipal bodies have not benefited enough from the economic activities that take place within their jurisdictions.

**Changing System of Infrastructure Financing**

State governments guarantee the borrowings of their local bodies and corporations. The outstanding guarantees extended by all state governments stood at 8% of the GDP by the end of March 2001, or nearly twice the level of guarantees made by the central Government. State Housing Boards, Urban Development Authorities, Municipal Corporations, State Electricity Boards and the State Road Transport Corporations that mobilize borrowings and bond issues through government guarantees, and other forms of credit enhancements such as escrow accounts and pledging grants of higher levels of government. In response to the deteriorating financial status of the ULBs the various State Finance Commissions (I and II) have recommendations, which are summarised in 12th Finance Comm. (2004). In the next section we shall seek explanations for the differential performance of municipalities. The user charges statistics for the municipalities in India show that municipalities in India recover far less than the cost of providing the services from user charges than would seem necessary and desirable. Suresh (1998) points out that the ratio between the water charges collected and expenditure incurred on operation and maintenance in some Indian states varies between 30 and 46 percent. In terms of pricies, the average urban water charges is about Rs 1.5 per kilolitre (US $0.03), whereas the average cost is about Rs 15 per kilo (US $0.33). Clearly the charges levied bear no relationship with the costs incurred on the provision of services, leading to an impediment in the effective delivery of services and deprivation of capital expenditure in the long run. As a result of this the resource requirements for investments in India’s urban sector are massive, as various estimates present from time to time. While the accurate estimates of financial resource requirements for urban infrastructure are difficult to arrive at, efforts
have been made to evolve various norms and standards by converting the physical norms into financial norms to compute the financial needs of urban infrastructure. However the costs of the desired service levels depend on a number of factors including population size, topology of the urban area, technology used, economic profiles of the city, investments in the past in particular service, area covered and so on.

Urban management will be directly related to urban finance. With the country’s fast paced development, government will be further implicated in all things urban, particularly infrastructure. The India Infrastructure Report (1996) estimated an investment needs for urban water supply, sanitation and roads at Rs 1.25 trillion for the period 2000-05. Mathur (1999), states that the municipal bodies in India would require an additional investment to the existing expenditure of about 74,000 crores if the deficiencies in the existing levels of basic urban services are to be eliminated and all sections of urban population are to be provided with an access to a modicum of services by 2020 and an additional investment of 18,000 crores a year towards Operation and Maintenance of these services. Zerah (2006) summarizes the requirements of incremental investment in sewerage as being between Rs. 91.2 billion corresponding to a low urban population projection and Rs. 165 billion for a high urban population projection scenario for 2001-11. The study assumes that for large cities, full coverage by sewage treatment, and for medium towns, public sewers with partial coverage by septic tanks and for small towns, low cost sanitation methods. The National Institute of Urban Affairs (2000), by using the urban population projection of 404.17 million for 2011, states a per capita requirement of nearly Rs. 200 (Rs. 450 per capita for the high urban population projection) for the urban population’s sewerage needs during the entire period 2001-2011. The Central Public Health and Environmental Engineering Organisation has estimated a requirement of Rs. 37 billion for a 100% coverage of the urban population under safe water supply and sanitation service during the tenth five year plan. On the per capita basis the study by the PricewaterhouseCoopers (2001) updating the expenditure norms of the Zakaria committee report estimates the per capita norm for street lights in towns with greater than two million population to be Rs. 59.26 per annum (at 2000-01 prices). Similarly for the sanitation/sewerage, ORG (1989) calculates the cost of providing sanitation/sewerage at Rs. 587 per capita in metro centres (those with population of greater than a million) and in cities with population between 100,000-million the study estimates this cost to be Rs. 604.
However neither the municipal bodies nor the para-statal institutions that depend on the public sector funds are in a position to finance the scale and size of investments through the budgetary resources. Therefore the massive need for investments in urban infrastructure development needs to come from multiple sources of financing. An appropriate mix of public and private funding could help in augmenting and financing the growing demand for basic urban infrastructure.
It is suggested that a major chunk of resources would have to come from financial markets and external sources (World Bank, 2004). The financial liberalisation of the Government of India has provided the much needed access to private capital markets and an impetus to the ULBs to raise resources by issuing general and project specific bonds to augment funds available from plan allocation for development works (discussed later). Given the volume of investments required to create urban infrastructure it is imperative to develop local credit markets so that the ULBs can access private savings to augment municipal finances to invest in infrastructure. In order to facilitate the process, a series of reforms were undertaken to encourage investments in infrastructure through fiscal incentives in the form of tax exemption for private funds investing in urban infrastructure projects and municipal bonds by amending the Income Tax Act, 196113. The National Budget, 2002 also proposed the creation of ‘Pooled Finance Development Scheme’ to help the small ULBs access capital markets by issuing bonds with credit enhancement facilities, which bundles grants and loans together. The fund also provides technical assistance to build ULBs capacity in project preparation and financial management. In addressing this the Government of India, along with the state government have initiated some of the major urban infrastructure schemes and services including the Integrated Development of Small and Medium-Sized Towns (IDSMT), where the central and state governments share the costs at 60:40, Mega City Scheme (MCS) for funding water supply, drainage, sewerage, sanitation, city transport network, land development, and slum development projects. Accelerated Urban Water Supply Program (AUWSP) aims to provide water to towns of less than 20,000 people as per the 1991 census, covering 2,151 towns. But the fiscal constraints in India, along with other policy rigidities at the city level have resulted in sub-optimal levels of urban infrastructure investment over the last 20-30 years of urbanization (EGCIP 1997).

Financing the Urban Local Bodies

In theory, local government debts are incurred to finance long-term projects, such as local infrastructure, on the premise that the debts will be retired through local governments’ future tax revenue. In practice, however, when local governments initiate public projects such as roads, housing, environmental facilities, or other local economic developments, the central Government helps them after evaluating the merits of such projects and support them with specific grants. But when the central Government's revenue set aside for intergovernmental grants is insufficient for the projects, the central Government allows state/local governments to assume debts to finance the project.
In the Indian context the state government’s power to borrow is subject to Article 293(3)14 of the Indian constitution, which is subjected to the Central government approval. The government’s borrowings are considered as borrowings made against the security of the consolidated funds of India or the respective states. Similarly the state government guaranteed borrowings by the state level enterprises and statutory boards, becomes state’s liability. However the fiscal constraints of the central Government and its diminishing opportunities to borrow from multilateral lending agencies at concessional terms and conditions compel the local governments to explore alternative arrangements to finance resulting in a series of fiscal reforms that were initiated at the centre by reducing subsidies, grants-in-aid, loans and other forms of transfers from the government15. This has put considerable pressures on the states to raise resources for long-term projects from the markets leading to unplanned cuts in the current expenditure and deferral of expenditures required for maintaining physical infrastructure. On the supply side, poor revenue base of the municipalities, inefficient collection and restricted functions due to inadequate local laws, municipalities are unable to demonstrate the financial and operational efficiency necessary to attract investments from the private sector. But increasing urbanization continues to put severe demands on the local governments to provide infrastructure and civic amenities, bringing in significant pressure on the local governments to close the fiscal gap and to finance the city’s infrastructure demands. The Government of India in its efforts to push forward the ‘decentralisation16’ agenda further encouraged the state governments to design and implement the municipal financing program through special-purpose funds meant to catalyze institutional, fiscal, and financial reform of cities to make them creditworthy and improve their service delivery. For instance, the Eighth Five Plan (1992-97) envisaged building cost recovery into the municipal finance system which was further reinforced during the Ninth Plan period (1997-2002) advocating for substantial reduction in the budgetary allocations for infrastructure development. The plan states, ‘Financing of urban infrastructure is bound to pose new challenges to the different constituents of the financing system. Innovative mechanisms and practices will have to be encouraged and supported to stimulate the flow of finances such as the municipal bond system, municipal financial reforms, fiscal and monetary incentives for the creation of friendly environment, participation of cooperatives, community groups and NGOs etc’. in general the benefits of accessing capital markets by the local governments enable ULBs to leverage internal resources to access long-term capital for urban infrastructure investments through bond issuance; help in shifting focus from distorted financial resource allocation to market based credit discipline on city governments in allocating funds; promote fair disclosure and accounting and better management practices and thereby help the
state and city governments in exploring alternative means of revenue-raising. In continuing its efforts to bolster fiscal and urban sector reforms, the Government of India in its 2002-03 budget initiated several reforms including, Infrastructure Equity Fund (IEF), Urban Reform Initiative Fund (URIF), the City Challenge Fund (CCF) and the Pooled Finance Development Facility (PFDF) with the aim of assisting municipalities to undertake fiscal, financial and institutional reforms. The idea behind the creation of such funds stems from the need to make urban areas more efficient and growth-oriented by incentivizing the cities to undertake systems and structural reforms to create efficient and equitable urban centres. In addition to this the ULBs in their effort to generate their own resources are seeking additional sources of funds for long term investments (other than budgetary support) by exploring the capital and debt markets.

11.7 Conclusion

Urban laws and Indian constitution can be called as two sides of the same coin, so if the coin loses any of its side than the coin is useless. The framers of the constitution while making it were well aware of the circumstances and the need of law as it was the mere transfer of the laws from white hall to south hall many of the laws need to be looked upon minutely and there was urgent need of their enactment. As after the mid 90's the concern of the legislative as well as executive is to bring a change in the society and to promote urbanization for which directive principals have been laid down and constitutional 74th amendment enacted several other laws have been enacted which we elaborate in detail, constitution of India gives a concrete structure to the urban laws and policies, constitution of India is there to maintain the equilibrium in implementing as well as strengthening the urban laws.

Presently the contribution of financial markets to infrastructure creation has been impressive and the recent trends show great potential due to the increasing number of ULBs becoming credit rated. With a few policy changes and a broad array of reforms initiated at different levels of governance the financial sector can become an important provider of capital to the urban sector. Further a policy framework supported by an enabling regulatory and institutional framework along with multilateral assistance, could make pool financing an attractive option for investment and development of urban infrastructure.

Institutional framework

Establish an independent special-purpose vehicle or asset management company to ensure the viability of projects financed through bond issues. The institution must be empowered to collect revenues from the projects to repay the bonds at
maturity to make the process transparent, accountable and free of political interference. External aid agencies in collaboration with rating agencies, merchant bankers, regulatory agencies and stock exchanges, can act as facilitators and expedite the development of projects to issue municipal bonds. It might be prudent to create the funds in collaboration with an international counterpart and Indian financial institutions, along with the state government as equity participant, to attract private capital flows into urban infrastructure projects. Municipalities, statutory boards and state-level public sector undertakings could be the eligible borrowers.

Project costs and means of finance
The initial funding for the implementation of the projects can be given in the form of capital grant along with the ULBs contribution and bridge loan from the constituted state urban development fund. Further, the private sector participation in local government financing will enhance the confidence of the domestic investors, foreign investors and multilateral development banks.

Funds to be raised by each ULB
Establish an intermediate institution to develop the local government to rely on a special kind of guarantee for their bond financing, such as a trust fund at the initial stage. A ceiling should be imposed on the maximum amount of tax-free municipal bonds that can be raised by the ULBs (a certain percentage of the total project costs) and the debt-equity ratio for the project should not be allowed to exceed a certain ratio (viz., 3:1). The issuers will need to contribute at least 20% of the project costs from internal resources, other grants, or a mix.

User charges
User charges need to be rationalized to cover both the fixed cost (to meet capital costs) and tariff (user charges) to cover both the debt service and the Operation & Maintenance (O & M) costs. Differential pricing (both fixed and tariffs) needs to be worked out for commercial, industrial and residential. Tariffs need to be revised, on a regular basis, in accordance with the elasticity of revenue with the growth of GDP to ensure that revenues increase to accommodate inflationary changes.

Escrow Account
The ULBs need to maintain an escrow account to which all or a streamlined revenues from the project needs to be deposited and only the debt service and O&M can be carried out using the amount in the escrow account.
Macro reforms

At the macro-level the central, state and the local governments must reform some of their regulatory, institutional mechanism, legal and administrative frameworks (discussed later) to provide an enabling environment for the issuers and create a vibrant market for the municipal securities and for enhancing the credibility of the ULBs. In this section we shall discuss some of the measures that need to be addressed in order to make pool finance a credit worthy investment and discuss some of the macro reforms that need to be undertaken to enhance market for municipal bonds under the broad headings of State and ULBs, Regulators,

Administrative and the Markets

Framework for reforms

State and ULBs

1) Support decentralisation by actually devolving the financial responsibilities to the ULBs including taxes, user charges, shared revenues and other intergovernmental transfers to strengthen fiscal federalism and by creating appropriate infrastructure, as envisaged in the 74th Amendment and endorsed by the Central Finance Commission (CFCs)

2) The state governments need to manage their debt levels, by gradually phasing out credit guarantee and other forms of structured payment obligations that result in significant fiscal risks in a rational and time-bound manner.

3) The state should allow the ULBs to issue bonds directly, particularly for the commercially viable projects.

4) The state need to develop institutional reforms and design regulatory frameworks that defines the municipal borrowing power.

5) Guidelines needs to ensure that funds borrowed from the pool funds are only for capital investments in urban infrastructure, setting up new projects and expansion, augmentation or improvement of existing system on a priority basis.

6) The states need to create an environment for greater revenue generation and resource mobilisation. At the macro-level, measures should focus on- public expenditure management, tax policy and administration, public enterprise reforms and private sector participation, financial management and accountability of the ULBs.

7) Establish a clear Environmental and Social framework guidelines for all projects to be executed under the PFDF.
8) The expenditure function of the ULBs has to be linked to revenue-generating capacity a measure which requires central government intervention, to make state governments surrender their expenditure responsibilities to local bodies.

9) Human resources are woefully inadequate to undertake the new responsibilities envisaged under the 74th Amendment. Therefore a separate municipal cadre assigning development responsibilities need to be developed.

10) Presently no performance measurement tools are available to measure the comparative ULB performance, this lack of information hinders raising capital through capital markets. Therefore local government can use city-level indicators to set performance targets and make rational financial and planning decisions.

11) States should recognise the concept of ‘divisible pool’ of taxes shared among the central, states and local governments and standardise it in order to bring uniformity across states. It should also establish tax collection responsibility.

Administrative

1) Institutional framework establishing the roles of different actors in the pool, mode of payment, contractual obligations, operation and maintenance, quality standards and monitoring should be clearly established.

2) Management must be improved to strengthen local governments’ revenue performance through sectoral reforms, dealing with land use, rent control, user charges and efficiency.

3) Local governments should aim for more efficient and effective collection and utilization of revenue resources and put in place a set of performance standards against which to measure actual performance.

4) Urban managers of the medium and smaller ULBs need skills and expertise in project development such as technical sanctions, costing for various works, development of contractual documents, bidding procedures, commercial assessment and so on. Local authorities must reorient and train their staff and administrators.

5) Presently less than 75% of the target income is collected by the ULBs, in order to improve their revenue administrative mechanism, strict law enforcement and new incentive schemes to motivate the local staff and collect the targeted revenue should be put in place.
Regulators

1) Local authority loans and securities carry additional risks weighting over loans and securities issued by the central and state governments. The RBI guidelines require banks to assign a risk weighting 20% to state government guaranteed securities. A similar ‘risk weight’ need to be assigned to the securities issued by the ULBs to calculate the risk attached to it.

2) State laws should provide for the preparation and adoption of municipal budgets in a transparent manner and ensure it is put in the public domain. The information helps credit rating agencies and investors to access and evaluate the information.

3) Presently securities issued by local bodies are governed by a multiple laws as Local Authority Act, Public Debt Act and regulated by multiple agencies, Department of Economic Affairs, Department of Company Affairs, RBI and SEBI resulting in lack of clarity, this should be integrated into single law and dealt by a single agency.

4) A regulatory mechanism that ensures the protection of principal and interest payments needs to be created.

5) Listing and disclosure rules must be standardised and enforced for municipal securities by a regulating agency (similar to SEBI) that includes particulars of the issue, project cost, sources of financing, listing proposed, auditors, lead managers, trustee, credit rating, and other matters such as local government borrowing powers and clearances from the ministries in the prospectus.
12 Municipal Solid Waste and E-Waste Management

Chapter Contents

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12.3 Regulation of Municipal Solid Waste in India
12.4 E-Waste
12.5 Regulation of E-waste in India
12.6 International Scenario on Waste Management
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12.1 Introduction

The volume of Municipal Solid Waste as well electronic waste in India has been growing due to rise in population and pace of economic development leading to a change in lifestyles. The waste management responses have however not kept pace with the increased pace of waste generation.

A study conducted by The Energy and Resources Institute (TERI) projects the annual per capita municipal waste generation to increase at 1 to 1.33 percent, which would result in generation of over 260 million tones of waste by 2047 (a five-fold increase over 1997 levels). This is projected that an additional 1400 km$^3$ of land will be required to dispose this waste. Municipal Solid waste disposal in landfills is also associated with generation of methane gas and it is projected that by 2047, methane emissions from landfills will reach 39 million tones.

It was only after the issuance of Municipal Solid Waste (Management and Handling) rules 2000 that the urban governance institutions started giving importance to solid waste management. The collection efficiency of Municipal Solid Waste in India is
still well below 75% leaving a large chunk of waste unattended. The municipalities in India thus are faced with the challenge of developing, reinforcing and upgrading the infrastructure for an efficient MSW management and its scientific disposal.

Devices such as PCs, faxes, mobile phones, music players and a host of others open up exciting possibilities for individuals and businesses alike. Yet there is a downside to this digital era - the growing mountain of electronic waste (e-waste). How we tackle this dilemma, will have major implications for sustainability. India generates about 1.5 lakh tones of e-waste annually and almost all of it finds its way into the informal sector as there is no organized alternative available at present.

12.2 What is Municipal Solid Waste (MSW)

Any material that is thrown away or discarded as useless and unwanted is considered solid waste. While the problem of solid waste disposal seems to be simple it is a far cry from being simple by any measure. Solid waste can be classified into different types depending on their source:

a) Household waste is generally classified as municipal waste,

b) Industrial waste is classified as hazardous waste, and

c) Biomedical waste or hospital waste is classified as infectious waste.

Efficient delivery of public services and infrastructure are pressing issues for municipalities in most developing countries; and in many countries, solid waste has become a top priority. Solid waste management is costly and complex for local governments, but it is so essential to the health, environment, and quality of life of the people—in particular, the poor—that municipalities cannot afford to get it wrong. Bad waste collection practices and improper solid waste disposal contribute to local episodes of disease, regional water resource pollution, and global greenhouse gases.

Municipal solid waste consists of household waste, construction and demolition debris, sanitation residue, and waste from streets. This garbage is generated mainly from residential and commercial complexes. With rising urbanization and change in lifestyle and food habits, the amount of municipal solid waste has been increasing rapidly and its composition changing. In 1947 cities and towns in India generated an estimated 6 million tonnes of solid waste; in 1997 it was about 48 million tonnes. More than 25% of the municipal solid waste is not collected at all; 70% of the Indian cities lack adequate capacity to transport it and there are no sanitary landfills to dispose of the waste. The existing landfills are neither well equipped nor well
managed and are not lined properly to protect against contamination of soil and groundwater. MSW more commonly known as trash or garbage consists of everyday items we use and then throw away. Municipal Solid Waste (Management and Handling) Rules 2000 define “Municipal Solid Waste” as “commercial and residential wastes generated in a municipal or notified area in either solid or semi-solid form excluding industrial hazardous wastes but including treated bio-medical wastes”.

A country such as India, with its high economic growth and rapid urbanization, requires immediate solutions to the problems related to mismanagement of urban waste. City managers are actively trying to understand the problem and are seeking effective ways of intervening. They realize that such interventions are essential to improving the quality of their cities and to reducing adverse health and environmental impacts. For cities to be sustainable and to continue their economic development, they must be clean and healthy. They need to improve their Municipal Solid Waste (MSW) management systems by adopting good collection coverage, appropriate transfer methods, and healthy disposal practices.

With rising urbanization and change in lifestyle and food habits, the amount of municipal solid waste has been increasing rapidly and its composition changing. In 1947 cities and towns in India generated an estimated 6 million tones of solid waste; in 1997 it was about 48 million tones. More than 25% of the municipal solid waste is not collected at all; 70% of the Indian cities lack adequate capacity to transport it and there are no sanitary landfills to dispose of the waste. The existing landfills are neither well equipped nor well managed and are not lined properly to protect against contamination of soil and groundwater.

Over the last few years, the consumer market has grown rapidly leading to products being packed in cans, aluminum foils, plastics, and other such non-biodegradable items that cause incalculable harm to the environment. In India, some municipal areas have banned the use of plastics and they seem to have achieved success. For example, today one will not see a single piece of plastic in the entire district of Ladakh where the local authorities imposed a ban on plastics in 1998. Other states should follow the example of this region and ban the use of items that cause harm to the environment. One positive note is that in many large cities, shops have begun packing items in reusable or biodegradable bags. Certain biodegradable items can also be composted and reused. In fact proper handling of the biodegradable waste will considerably lessen the burden of solid waste that each city has to tackle.
There are different categories of waste generated, each take their own time to degenerate\(^1\) (as illustrated in the table below).

<table>
<thead>
<tr>
<th>The type of litter we generate and the approximate time it takes to degenerate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of litter</strong></td>
</tr>
<tr>
<td>Organic waste such as vegetable and fruit peels, leftover foodstuff, etc.</td>
</tr>
<tr>
<td>Paper</td>
</tr>
<tr>
<td>Cotton cloth</td>
</tr>
<tr>
<td>Wood</td>
</tr>
<tr>
<td>Woolen items</td>
</tr>
<tr>
<td>Tin, aluminum, and other metal items such as cans</td>
</tr>
<tr>
<td>Plastic bags</td>
</tr>
<tr>
<td>Glass bottles</td>
</tr>
</tbody>
</table>

Waste is a continually growing problem at global and regional as well as at local levels. Solid wastes arise from human and animal activities that are normally discarded as useless or unwanted. In other words, solid wastes may be defined as the organic and inorganic waste materials produced by various activities of the society and which have lost their value to the first user. As the result of rapid increase in production and consumption, urban society rejects and generates solid material regularly which leads to considerable increase in the volume of waste generated from several sources such as, domestic wastes, commercial wastes, institutional wastes and industrial wastes of most diverse categories. In its scope, solid waste management includes all administrative, financial, legal, planning, and engineering functions involved in the whole spectrum of solutions to problems of solid wastes thrust upon the community by its inhabitants.

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\(^1\) http://edugreen.teri.res.in/explore/solwaste/types.htm
should follow the example of this region and ban the use of items that cause harm to the environment. One positive note is that in many large cities, shops have begun packing items in reusable or biodegradable bags. Certain biodegradable items can also be composted and reused. In fact proper handling of the biodegradable waste will considerably lessen the burden of solid waste that each city has to tackle.

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<table>
<thead>
<tr>
<th>Type of litter we generate</th>
<th>Approximate time it takes to degenerate the litter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic waste such as vegetable and fruit peels, leftover foodstuff, etc.</td>
<td>Few days to 2 weeks.</td>
</tr>
<tr>
<td>Paper</td>
<td>10–30 days</td>
</tr>
<tr>
<td>Cotton cloth</td>
<td>2–5 months</td>
</tr>
<tr>
<td>Wood</td>
<td>10–15 years</td>
</tr>
<tr>
<td>Woolen items</td>
<td>1 year</td>
</tr>
<tr>
<td>Tin, aluminium, and other metal items such as cans</td>
<td>100–500 years</td>
</tr>
<tr>
<td>Plastic bags</td>
<td>A million years?</td>
</tr>
</tbody>
</table>

12.3 Regulation of Municipal Solid Waste in India

Municipal Solid Waste Management is a part of public health and sanitation, and is entrusted to the municipal authority for execution. Presently, the systems are assuming larger importance due to population explosion in municipal areas, legal intervention, emergence of newer technologies and rising public awareness towards cleanliness.

There are four key elements of integrated solid waste management:

a) Reduce the generation of solid waste
b) Recycle (include composting) for productive reuse as much as practicable.
c) Combust to recover energy for productive use, wherever feasible.
d) Landfill the remainder in a secured landfill.
Government of India enacted the “Municipal Solid Wastes (Management and Handling) Rules, 2000”. These rules lay emphasis on seeking participation of citizens in waste segregation, prohibiting littering of garbage, proper storage of waste and efficient transportation of waste for its processing and final disposal. Specifications need to be followed for land filling to protect environmental pollution and adoption of appropriate waste processing technologies has been emphasized. These Rules are applicable to each and every town irrespective of its population. These rules put responsibilities for implementation of the rules to the municipal authority, state government/Union Territory Administrations and Central as well as State Pollution Control Boards as given below:

Responsibility of the Municipal Authority
♦ Implementation of Schedule I and other provisions of the Rules
♦ Infrastructure development for collection, storage, segregation, transportation and disposal of MSW as per Schedule II
♦ Obtaining authorization for setting up waste processing and disposal facilities from SPCBs/ PCCs
♦ Furnishing annual report and accident reporting to Secretary (UD)/ District Magistrate

Responsibility of the State/UT Authority
♦ Overall enforcement in metro-cities in the State/ UT – Secretary-in-charge, Dept. of Urban Development
♦ Overall enforcement in other large cities and towns – District Magistrate/ Deputy Commissioner of the concerned districts

Responsibility of SPCBs/ PCCs
♦ Monitoring compliance of standards regarding groundwater, ambient air, incineration, leachate and compost quality (Schedule II, III and IV)
♦ Grant of authorization to municipal authorities for setting up waste processing/disposal facilities (within 45 days of application)
♦ Furnishing annual report on status of implementation to CPCB
SOME FACTS ABOUT MUNICIPAL SOLID WASTE

♦ About 0.1 million tonnes of municipal solid waste is generated in India every day. That is approximately 36.5 million tonnes annually.
♦ Per capita waste generation in major Indian cities ranges from 0.2 Kg to 0.6 Kg.
♦ Difference in per capita waste generation between lower and higher income groups range between 180 to 800 gm per day.
♦ The urban local bodies spend approximately Rs.500 to Rs.1500 per tonne on solid waste for collection, transportation, treatment and disposal. About 60-70% of this amount is spent on collection, 20-30% on transportation and less than 5% on final disposal.
♦ Calorific value of Indian solid waste is between 600 and 800 Kcal/Kg and the density of waste is between 330 and 560 Kg/m3.
♦ Waste collection efficiency in Indian cities ranges from 50% to 90%.
♦ Out of the total municipal waste collected, on an average 94% is dumped on land and 5% is composted.

Role of NGO’s:

NGOs can play a very important role in solid waste management by:

♦ Creating mass awareness, ensuring public participation in segregation of recyclable material and storage of waste at source;
♦ Ensuring public participation in community based primary collection system;
♦ Organizing rag-pickers for collection of recyclable materials at the community level;
♦ Providing health education to the rag-pickers and suggesting tools for safety;
♦ Providing employment through organizing door to door collection of waste; and
♦ Encouraging minimization of waste through in house backyard composting, Vermiculture and biogas generation etc.
♦ Providing a Model for waste minimization, reuse, recycling, treatment and disposal.
♦ Bridging between Government & Society,
♦ Acting as a buffer between the community and the municipal authorities.
Following are points that need to be taken care of:

- Keep away from political activity;
- Consider carefully what can be done with available resources;
- Try to evolve a system of self help rather than depending completely on the municipal corporation;
- Aim at cooperation rather than confrontation with the municipalities;
- Keep in contact with other NGOs in the area to avoid duplication of work;
- Encourage the target groups to focus more on their duties and less on their eights;
- Do not raise too many expectations otherwise failure to fulfill them all may lead to disappointment and withdrawal.

LEGISLATIVE FRAMEWORK

The legislative framework for Municipal Solid Wastes (Management and Handling) Rules, 2000 is as follow:
Solid wastes have the potential to pollute all the vital components of living environment (i.e., air, land and water) at local and at global levels. The problem is compounded by trends in consumption and production patterns and by continuing urbanization of the world.\textsuperscript{2}

Potential hazards of solid wastes are numerous to the living community when it is improperly managed. The group at risk from the unscientific disposal of solid waste include – the population in areas where there is no proper waste disposal method, especially the pre-school children; waste workers; and workers in facilities producing toxic and infectious material. Other high-risk group include population living close to a waste dump and those, whose water supply has become contaminated either due to waste dumping or leakage from landfill sites. Uncollected solid waste also increases risk of injury, and infection. Some of the hazards caused by solid wastes are listed below:

- Uncollected wastes often end up in drains, causing blockages that result in flooding and unsanitary conditions.
- Open and overflowing bins attract stray dogs, which has been a major cause of the spread of rabies.
- Open waste bins also attract stray and domestic cattle. Cattle in the city causes nuisance by blocking the traffic on the roads. Cattle that graze on the waste from bins end up eating the plastic along with the vegetable matter, which proves to be fatal for them. The milk obtained from the cattle that feed on waste can be contaminated and can prove to be unsafe for human health.
- Flies breed in some constituents of solid wastes, and flies are very effective vectors that spread disease.
- Mosquitoes breed in blocked drains and in rainwater that is retained in discarded cans, tire and other objects. Mosquitoes spread disease, including malaria and dengue.
- Rats find shelter and food in waste dumps. Rats consume and spoil food, spread disease, damage electrical cables and other materials and inflict unpleasant bites.
- The open burning of waste causes air pollution; the products of combustion include dioxins that are particularly hazardous.

\textsuperscript{2} Environmental Audit of Municipal Solid Waste Management by T. V. Ramachandra and Shruthi Bachamanda; Energy and Wetlands Research Group, Centre for Ecological Sciences, Indian Institute of Science, Bangalore

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♦ Aerosols and dusts can spread fungi and pathogens from uncollected and decomposing wastes.

♦ Uncollected waste degrades the urban environment, discouraging efforts to keep streets and open spaces in a clean and hygienic condition. Plastic bags are in particular an aesthetic nuisance.

♦ Waste collection workers face particular occupational hazards, including strains from lifting, injuries from sharp objects and contact with pathogens when manually handling the waste.

♦ Dangerous items (such as broken glass, razor blades, hypodermic needles and other healthcare wastes, aerosol cans and potentially explosive containers and chemicals from industries) may pose risks of injury or poisoning, particularly to children and people who sort through the waste.

♦ Heavy refuse collection trucks can cause significant damage to the surfaces of roads that were not designed for such weights.

♦ Waste items that are reused without being cleaned effectively or sterilized can transmit infection to later users. (Examples are bottles and medical supplies.)

♦ Polluted water (leachate) flowing from waste dumps and disposal sites can cause serious pollution of water supplies, ponds and lakes. Chemical wastes (especially persistent organics) may be fatal or have serious effects if ingested, inhaled or touched and can cause widespread pollution of water supplies.

♦ Waste that is treated or disposed of in unsatisfactory ways can cause a severe aesthetic nuisance in terms of smell and appearance.

♦ Liquids and fumes, escaping from deposits of wastes (perhaps formed as a result of chemical reactions between components in the wastes), can have fatal or other serious effects.

♦ Methane (one of the main components of landfill gas) is much more effective than carbon dioxide as a greenhouse gas, leading to climate change.

♦ Fires on disposal sites can cause major air pollution, causing illness and reducing visibility, making disposal sites dangerously unstable, causing explosions of cans, and possibly spreading to adjacent property.

♦ Former disposal sites provide very poor foundation support for large buildings, so buildings constructed on former sites are prone to collapse.

♦ Rag pickers working on landfill are prone to many diseases like respiratory infections such as lung impairment. In a study carried out by Chittaranjan national Cancer Institute, Kolkata compared the health of Delhi’s rag pickers with that of the control subjects from east Delhi slums. Nearly 75.5 rag pickers
from the sample group of 98 had higher frequency of upper respiratory symptoms (sinusitis, running or stuffy nose, sore throat, common cold, fever) and 81.6 per cent showed lower respiratory symptoms (dry cough, cough with phlegm, wheezing, and chest discomfort) and breathing problem.

Management of solid waste is associated with the control of generation, storage, collection, transfer and transport, processing, and disposal of solid wastes in a manner that is in accord with the best principles of public health, economics, engineering, conservation, aesthetics, and other environmental considerations.

Solid waste can be defined as non-liquid material that no longer has any value to the person who is responsible for it. In urban areas, solid waste is generated by domestic households, commercial and industrial enterprises, and health care and institutional activities, as well as on the streets. Street refuse contains a mixture of refuse from many sources, because streets are used as dumping grounds by all generators of waste. Where sanitation facilities are lacking and a large animal population roams the streets, street refuse contains a lot of human fecal matter and manure. Streets are also often used for extensive dumping of construction and demolition debris—attracting further dumping of solid waste. Although solid waste from industrial processes is generally not considered municipal waste, it nevertheless needs to be taken into account when dealing with solid waste because it often ends up in the MSW stream3.

A typical waste management system in a low- or middle-income country includes the following elements:

- Waste generation and storage
- Segregation, reuse, and recycling at the household level
- Primary waste collection and transport to a transfer station or community bin
- Street sweeping and cleansing of public places
- Management of the transfer station or community bin
- Secondary collection and transport to the waste disposal site
- Waste disposal in landfills

Collection, transport, and treatment of recyclables at all points on the solid waste pathway (collection, storage, transport, and disposal) in the past, these important elements of waste management were often regarded only from an engineering and technical viewpoint. It is essential to realize that these elements are embedded

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in the local institutional, socio-cultural, and economic context, which is further influenced by national politics, policies, and legislation as well as national and global and economic factors. Physical handling of solid waste and recyclables (storage, collection, transport, treatment, and so on) is just one SWM activity; it alone cannot fulfill the requirement for sustainable and integrated solutions. Other activities are equally important:

- Making policy, as well as setting and enforcing standards and regulations
- Evaluating data on waste generation and characterization for the purposes of planning and adapting system elements
- Ensuring that workers and planners get training and capacity development
- Carrying out public information and awareness and education programs
- Identifying and implementing financial mechanisms, economic instruments, and cost-recovery systems
- Incorporating formal and informal elements of the private sector as well as community-based activities and nongovernmental organizations (NGOs)

Solid waste can be categorized based on source as shown in table 1.

<table>
<thead>
<tr>
<th>Source</th>
<th>Typical facilities, activities, or locations where wastes are generated</th>
<th>Types of Solid waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>Field and row crops, orchards, vineyards, diaries, feedlots, farms, etc.</td>
<td>Spoiled food wastes, agricultural wastes, rubbish, and hazardous wastes</td>
</tr>
<tr>
<td>Industrial</td>
<td>Construction, fabrication, light and heavy manufacturing, refineries, chemical plants, power plants, demolition, etc.</td>
<td>Industrial process wastes, scrap materials, etc.; nonindustrial waste including food waste, rubbish, ashes, demolition and construction wastes, special wastes, and hazardous waste.</td>
</tr>
<tr>
<td>Commercial and Institutional</td>
<td>Stores, restaurants, markets, office buildings, hotels, auto repair shops,</td>
<td>Paper, cardboard, plastics, wood, food wastes, glass, metal wastes, ashes, special wastes, etc.</td>
</tr>
<tr>
<td>Municipal solid waste</td>
<td>Includes residential, commercial and institutions</td>
<td>Special waste, rubbish, general waste, paper, plastics, metals, food waste, etc.</td>
</tr>
</tbody>
</table>

1. Hester, R. E and Harrison, R. M., 2002
Municipal Solid waste management involves the application of principle of Integrated Solid Waste Management (ISWM) to municipal waste. ISWM is the application of suitable techniques, technologies and management programs covering all types of solid wastes from all sources to achieve the twin objectives of (a) waste reduction and (b) effective management of waste still produced after waste reduction.

In the Municipal Solid Waste Management the major issues to be considered are:

♦ Increasing waste quantities
♦ Wastes not reported in the national MSW totals
♦ Lack of clear definition for solid waste management terms and functions
♦ Lack of quality data
♦ Need for clear roles in state and local government
♦ Need for even and predictable enforcement regulations and standards

Numerous technologies / options are available in SWM, among developed countries. Replicating the same in low-income countries is inappropriate / incompatible. The success of waste disposal practices depends largely on overcoming the following constraints,

♦ Municipal capacity: The scale of task is enormous and regulatory authorities are able to collect only 60-70% of total waste generated, so treatment and disposal inevitably receives less attention. Attempts are being made in a few instances to overcome this lack of capacity by privatizing this operation.

♦ Political commitments: Solid waste management is much more than a technical issues; it has implications for local taxation, employment, and regulation of public and managing authorities. Any change needs political support to be effective. However, it is rarely a priority for political concerns unless there is strong and active public interest. This is viewed as a cost to the “public” without apparent returns.

♦ Finance, cost recovery and resource constraints: Deployment of a proper management system represents a major investment and it may be difficult to give it priority over other resource demands. Most of the waste management authorities are severely constrained by the lack of resource to finance their services. Since the collection and transport itself usually dominate SWM costs in developing countries, safe disposal invariably receives less attention where as in all other developed countries concentrate on all aspects of management.
Technical guidelines: Standards of planning and implementation in high-income countries may not be appropriate in low-income countries due to difference in climate, resource, institutions, attitude priorities, etc. However, relatively little appropriate guidance is available for low-income countries. Arising from this uncertainty, officials find themselves ill equipped to plan management strategies, which are both achievable and avoid unacceptable environmental hazards.

Institutional responsibilities: Though managing wastes effectively is the responsibility of the municipality, there is no clearly stated vision of management (i.e. sufficient priority is not given to SWM). Existing vision is accompanied by a typical apathy to solid waste is an “out of sight is out of mind” attitude by the municipalities and public because of strict rule and regulations are not implemented just like as in prevention of emission of water and air pollutants. Waste management necessitates the co-ordination of all authorities concerned and may involve departments that are accustomed to acting independently but the lack of accountability in all levels of management. Among the authorities, the roles and responsibilities of different departments need to be clearly defined and accepted by all concerned. Some smaller towns may not have staff with specific responsibility for providing a solid waste management service.

Waste Generation

Waste generation encompasses activities in which materials are identified as no longer being value (in their present form) and are either thrown away or gathered together for disposal. Waste generation at present is not very controllable. However, reduction of waste at source is included in system evaluations as a method of limiting the quantity of waste generated. The compositional terms that are used can vary a lot, from relatively simple descriptions in terms of organic to more complicated schemes, using many or all of the constituents, such as paper, plastic, glass, metal etc. The composition of the waste is a description of the contents of the waste. In addition to providing important information about the way to handle the waste, the composition tells us about the people who generated the waste. Waste handling and sorting involves activities associated with management of wastes until they are placed in storage containers for collection. Handling also encompasses the movement of loaded containers to the point of collection.

Sorting is an important component of waste management and best-done onsite. However, there are various stages of sorting. These can be identified as the following:
Municipal Solid Waste and E-Waste Management

- At the source or household level
- At the community bin (municipal bin)
- At transfer station or centralised sorting facility
- At waste processing site (pre-sorting and post sorting)
- At the landfill site

♦ Sorting Operations can be carried out in three ways:
  - Manual sorting
  - Semi-mechanised sorting
  - Fully mechanized sorting

♦ Onsite storage is of primary importance because of public health concerns. Open ground storage, make shift containers should always be avoided and only closed containers should be used. Processing at the source involves backyard composting. Storage of wastes can be done at three levels:
  - At source
  - At community level
  - At transfer stations

♦ Collection

This includes gathering the solid wastes and recyclable materials and transport of these materials to either the processing facility, transfer facility or the disposal site. Types of Collection are;

i) Community bins - they are placed in convenient locations, where the community members carry the waste and throw it in. This method is comparatively cheaper to other methods. This is the most widely adopted method in western countries. For this method to be adopted it is important that the bins are covered, they are aesthetic, they are attended to regularly, kept clean, easy to handle and separate bins are provided for recyclable, mixed, paper and biodegradable waste.

ii) Door-to-Door collection – The waste is placed at the doorstep at a set time when the waste collector arrives. In this method, it is the collector of the waste has the responsibility to collect the waste separately. This method is very convenient for the householder, however requires homeowner cooperation and scheduled service for homeowner cooperation.
iii) **Block collection** - The collection vehicles arrive at a particular place or a set day and time to collect waste from the households. Households bring their waste containers and empty directly into the vehicle. This method requires a higher homeowner cooperation and scheduled service for homeowner cooperation.

iv) **Curbside collection** – The homeowner is responsible for placing the containers to be emptied at the curb on the collection day and for returning the empty containers to their storage location until the next collection.

v) **Street cleansing** is another type of collection method mainly for collection of street litter.

♦ **Sorting, processing and transformation of Solid Waste**

This functional unit encompasses the recovery of the sorted materials, processing of solid waste and transformation of solid waste that occurs primarily in locations away from the source of waste generation. Sorting of the mixed waste usually occurs at a material recovery facility, transfer stations, combustion facilities and disposal sites. Sorting includes separation of bulky items, separation of waste components by size using screens, manual separation of waste components, and separation of ferrous and non-ferrous metals. Waste processing and transformation solid waste processing reduces the amount of material requiring disposal and, in some cases produces a useful product. Examples of solid waste processing technologies include material recovery facilities, where recyclable materials are removed and/or sorted; composting facilities where organics in solid waste undergo controlled decomposition; and waste-to-energy facilities where waste becomes energy for electricity. Land filling continues to be required even if solid waste processing technologies are employed because all of these technologies produce some sort of residue or handle only a portion of the waste stream. For example, land filling is still required for ash and bypass Waste (waste that can’t be burned) from waste-to-energy facilities. Thus, solid waste processing technologies do not replace land filling rather they are a part of an integrated system that reduces the amount of material that requires landfill disposal. The different types of processing techniques are given below

**Recycling and reuse** - The process, by which materials otherwise destined for disposal are collected, reprocessed or remanufactured and are reused. The recycling and reuse (the use of a product more than once in its same form for the same or other purpose) sector of waste management in cities of Asian developing countries is potentially high. Its economic assessment is a difficult task since it is practiced in an informal way.
Composting is a biological process of decomposition carried out under controlled conditions of ventilation, temperature, moisture and organisms in the waste themselves that convert waste into humus-like material by acting on the organic portion of the solid waste. It produces a sludge, which is high in nutrients and can be used as a fertilizer. This is one element of an integrated solid waste management strategy that can be applied to mixed municipal solid waste (MSW) or to separately collected leaves, yard waste or food waste. There are various methods of composting, which are:

**Bangalore method** - This is an anaerobic method conventionally carried out in pits. The waste and the soil is alternatively laid out in layers and then is covered with a solid layer to prevent flies, odour and water seepage. This material is allowed to decompose for 4 to 6 months after which the stabilised material is taken out and used as compost.

**Indore method** - This method is similar to Bangalore method, however to ensure aerobic condition the material is turned at specific intervals. First turn is given manually after 4-7 days. 2nd turn is given after 5-10 days and further turning is normally not required and the compost is ready in 2 to 4 weeks.

**Windrow composting**: Is a common method of composting, it involves the stabilization of organic solid waste through aerobic degradation. The waste is piled in heaps with approximately a height of 3 m, width of 1.5 m and varying lengths. The waste is left for 60 days for decomposition with weekly turnings to aerate the heaps. After which, it can be sieved and the compost is obtained.

**Vermicomposting**: is a comparatively new method in composting, it involves the stabilization of organic solid waste through earthworm consumption that converts the material into earthworm castings. Vermin-composting is the result of combined activity of microorganisms and earthworms. Smaller size aids in faster decomposition of the waste. Waste of high density reflects a high proportion of biodegradable organic matter and moisture. Low-density wastes, on the other hand, indicate a high proportion of paper, plastic and other combustibles. High moisture content causes biodegradable waste fraction to decompose more rapidly than in dry conditions. It also makes the waste rather unsuitable for thermo-chemical conversion (incineration, gasification) for energy recovery, as heat must first be supplied to remove moisture.

**Bio-gasification** also called bio-methanisation is the process of decomposing biomass with anaerobic bacteria to produce biogas. This process produces Biogas containing approximately 60:40 mixtures of methane (CH₄), and carbon dioxide.
(CO\textsubscript{2}) and simultaneously generating an enriched sludge fertilizer- with an energy content of 22.5 MJ/m\textsuperscript{3}. In Anaerobic digestion (AD) the organic fraction of municipal solid waste offers the advantage of both a net energy gain by producing methane as well as the production of a fertilizer from the residuals.

**Landfill gas recovery**: The waste deposited in a landfill gets subjected, over a period of time to anaerobic conditions and its organic fraction gets slowly volatilized and decomposed. This leads to production of landfill gas containing about 45-55% methane, which can be recovered through a network of gas collection pipes and utilized as a source of energy.

**Thermo chemical conversion**: Incineration is one of the most effective means of dealing with many wastes, which reduces their harmful potential, and often to convert them to energy form. Incineration is the controlled burning of waste in a purpose built facility. It involves the process of direct burning of wastes in the presence of excess air at the temperatures of about 800°C and above (The Expert Committee, 2000). The process sterilizes and stabilizes the waste. For most wastes, it will reduce its volume to less than a quarter of the original. Most of the combustible material is converted into ash and carbon dioxide. In practice, about 65-80 % of the energy content of the organic matter can be recovered as heat energy, which can be utilized either for direct thermal applications, or for producing power.

**Gasification**: Involves thermal decomposition of organic matter at high temperatures in presence of limited amounts of air/oxygen, producing mainly a mixture of combustible and non-combustible gas (carbon monoxide, hydrogen and carbon dioxide).

**Functional Elements of Municipal Solid Waste Management**

To implement proper waste management, various aspects have to be considered such as waste generation (source reduction), waste handling and sorting, storage and processing at the source (onsite storage), collection, sorting, processing and transformation, transfer and transport, and Disposal. Transfer of waste from smaller collection vehicle to a larger transport vehicle and, the subsequent transport of the wastes usually over long distances to a processing or disposal site. The transfer usually takes place at a transfer station.

**Non-engineered disposal**: This is the most common method of disposal in low-income countries, which have no control, or with only slight or moderate controls. They tend to remain for longer time and environmental degradation could be high, include mosquito, rodent and water pollution, and degradation of the land.
Sanitary Landfill is a fully engineered disposal option, which avoids harmful effects of uncontrolled dumping by spreading, compacting and covering the wasteland that has been carefully engineered before use. The four minimum requirements for setting up a sanitary landfill are full or partial hydrological isolation, formal engineering preparation, and permanent control and planned waste placement and covering. Land filling relies on containment rather than treatment (for control) of wastes. Appropriate liners for protection of the groundwater, leachate collection and treatment, monitoring wells and appropriate final cover design are integral components of an environmentally sound sanitary landfill.

Municipal Solid Waste Management systems in India

♦ The Ministry of Environment and Forests: The Ministry of Environment and Forests is responsible for general aspects related to waste management, and draws up, coordinates the environmental policy and oversees the implementation of the federal legislation regarding waste management.

♦ Central Pollution Control Board: Coordinate the activities of the State Pollution Control Boards and provide technical assistance and training to the personnel. Disseminate information sponsor research relating to waste management. To perform functions prescribed by the Government.

♦ State Pollution Control Board: Plans a comprehensive program for the prevention, control or abatement of air pollution and water pollution. To inspect, at all reasonable times, any control equipment or process. Prior to installation of a landfill or incinerator, permission from SPCB must be obtained.

♦ City Corporation: City Corporation issues permits and creates policy for waste management. Provides waste management services or operates disposal, recycling, or composting facilities. Often contracts out services to the private sector.

♦ Private Formal Sector: Private Formal Sector- participates in performing the functions of collection and transportation of the waste and may operate disposal, transfer, and recycling facilities

♦ Private Informal Sector: Private Informal Sector – collection of the recyclable waste, transfer to the recycling facility and recycling of waste

♦ Donor Agency: Donor Agency helps in sponsoring of innovative projects and projects in low-income areas.

♦ Service Users - The people who use the service of municipal waste management
Recycling

The recycling sector in India has been in operation since the 1960's and while only a fraction of the total plastic waste is being recycled in most western countries around 75% of the plastic wastes are recycled in India rag pickers mainly carry out the recycling process in India and they play a vital role in the economy of solid waste recycling process. They feed the need of the intermediary buyers, who, in turn, meet the demand of factories using recyclable solid waste as raw materials. However, the rag pickers do not have sufficient protection and are exposed to waste and sometimes even the hazardous waste present in MSW. A study carried out in 2003 has shown that 75 percent rag pickers have upper and lower respiratory symptoms. Even the quality of the successively recycled products in the informal sector in terms of their (i) physical appearance (ii) polymeric properties (iii) health hazards (for the recyclers and users of such products involved) are in serious question

Another aspect to be noted is that plastic carry bags and PET do not figure in the list of priorities for rag pickers, because collecting them is not profitable. This is primarily because the rewards do not match the efforts required for collection, and this leads to plastic bags and PET continuing to pose a major threat to the environment.

♦ Composting

Composting urban waste in India has a long history. Sir Albert Howard developed the Indore process nearly 75 years ago by systemizing the traditional process that was carried out in India. Government intervention to promote this practice can be traced to the 1940s and the early 1970s, when the national government initiated a scheme to revive urban composting. However, centralized large-scale composting plants in urban areas promoted in the 1970s proved to be uneconomical. Only a few installations are currently still operational due to high operating and transport costs and the poorly developed market for compost, the expected profits could not be realized as planned. Composting of mixed waste also had a negative effect on compost quality and, thus, on its acceptance by farmers.

From 1990's decentralized composting schemes have been implemented by NGO's with the help of international funding. The decentralized composting schemes became very popular and widespread in a short span of time. Various types of composting have been adopted by these schemes e.g. Bin-composting, Shallow

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5 Bani Bhattacharya (March 15th 2005) Yet, life's in tatters, Down to Earth, pp. 4
windrow, Pit composting and vermin-composting. However, the maintenance of such schemes proved to be difficult because the household involvement was sporadic, as many people believe that it is the municipal corporation’s responsibility to collect waste and do not want to make additional payments. This study states that though decentralized composting has more advantages than centralized composting, the market for MSW compost is limited and is rarely financially competitive to heavily subsidize chemical fertilizers and traditional cow dung or poultry manure.

However, in Class II, Class III and Class IV cities an urban agricultural set up exists and functions, where there is optimal use of municipal solid waste. The farmers buy the organic waste from the municipality at very low costs and use it as manure. There are also companies that have taken over the responsibility segregating, decontaminating and composting MSW. This high quality compost is then sold to the farmers at a very high cost compared to the raw MSW. It has been observed that the farmers prefer the raw MSW to the processed high quality compost, because the latter is too expensive.

Currently, there are few large-scale composting plants around India that are running successfully. For e.g. composting plant in Hyderabad run by AP technology development and promotion center (intake of 200MT/day), composting plant in Vijaywada by Exel Industries (intake of 125 MT/day), composting plant in Bangalore by Karnataka Compost Development Authority (KCDC)(intake of 300MT/day) and composting plant in Bangalore by Terra Firma Bio-technologies (100MT capacity)\(^6\).

\[♦\] Anaerobic Digesters

Biogas is a successful renewable energy technology developed and disseminated in India, second only to improved wood stoves in its spread. Biogas was first introduced to India as an alternative to piped natural gas in 1897 for providing gas-based illumination. The superiority of biogas slurry both as manure as well as compost starter and the cleanliness of the process has been emphasized in several publications of the Indian Agricultural Research Institute (IARI) and other agricultural institutions in the country\(^7\). However, biogas production has been restricted mostly to rural areas (with cattle dung) and in urban areas (with sewage). The anaerobic digesters used in the rural areas are simple in design and to maintain,

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but they require constant monitoring and are less efficient. The complex digesters on the other hand, are designed to automatically adjust when environmental conditions change, such as would occur with the feedstock. These are used in developed nations to treat unpredictable waste flows and such digesters would be suitable for processing of MSW. Many studies have been conducted on the use of MSW for production of Biogas. One of the studies suggests that by having decentralized anaerobic digesters in the localities, the odors problem caused by MSW from bins and during long transportation distances can be minimized. In India, not many large-scale bio-methanization plants using MSW have been set up. One of the few bio-methanation plants set up was in Lucknow that consumed 300 MT/day of MSW to generate 75 MT/day of organic manure and 5.1 MW of electricity. This plant was recently shut down, and the main cause for failure was the intake of un-segregated waste.

Policy/Rule

The Johannesburg World Summit on Sustainable Development\(^8\) in 2002 focused on initiatives to accelerate the shift to sustainable consumption and production, and the reduction of resource degradation, pollution, and waste. The priority was given to waste minimization, recycle, and reuse followed by the safe disposal of waste to minimize pollution. The government of India started encouraging proper management of solid waste as early as 1960's by giving loans for setting composting plants for MSW. The government of India over the years has taken many initiatives and implemented new technologies and methods. With the rapid urbanization, the problem of the MSWM problem has compounded and India is awakening to the magnitude of the problem. Due to increased public awareness of MSWM, a public litigation was filed and resulted in the Municipal Solid Waste (Management and Handling) Rules, 2000. Government for the first time now has included private organizations in providing this public service. New methods of storage, collection, transportation, processing and disposal are being implemented. It is necessary to evaluate the current process at this stage to understand if the methods being implemented are suitable for the Indian scenario and to identify the lacuna in the methods being adopted.

Legislation concerning waste is usually differentiated according to the type of waste. International conventions often cover nuclear and hazardous waste, whereas non-hazardous waste, often called solid waste is usually more regulated at the

national level. From an environmental angle the following environmental rules, regulations and acts would be the most relevant for MSWM:


♦ The Water (Prevention and Control of Pollution) Act, 1974. Two aspects have to be kept in mind of this law in regard to MSWM. Firstly, consent from the state pollution control board for establishment of a sanitary landfill site and compost plant is essential and secondly, no water pollution should be caused by the leachate that is emitted by the sanitary landfill site or a compost plant.

♦ The Water (Prevention and Control of Pollution) Cess Act, 1977 and amendments thereon. The only aspect that should be considered in this law in regard to MSWM is provision for levying and collection of cess on water consumed for the sanitary landfilling, composting and anaerobic digesters.

♦ The Air (Prevention and Control of Pollution) Act, 1981 and amendments thereon. The aspects to be considered in this law with respect to MSWM is the need for obtaining consent from the State Pollution Control Board for establishment of the processing plants and disposal site and from an environmental aspect would be the pollution caused by incineration plants, compost plants and landfill sites.

♦ The Environmental (Protection) Act, 1986 and its subsequent notifications. The aspect in regard to MSWM would be the EIA notification, 1944, which states that for any project to be authorized an EIA report should be submitted first.

Although municipalities should take the lead in improving their MSW management systems, the problem also has global significance. Climate change and the effects of greenhouse gas emissions have made such problems one of the most pressing environmental challenges globally as well as locally. It is well understood that inappropriate MSW management systems practices, such as improper incineration and uncontrolled disposal of waste, are major contributors to greenhouse gas emissions; the anaerobic degradation of waste in landfills produces methane, a gas that is 21 times more potent than carbon dioxide.

Due to various factors like these, in urban areas, especially in the rapidly urbanizing cities of the developing world, problems and issues of MSW management are of
immediate importance. Most governments have acknowledged the importance of MSW management; however, rapid population growth overwhelms the capacity of most municipal authorities to provide even the most basic services.

The implementation of MSW management practices benefits both public health and environmental quality directly and substantially.

The organic, biodegradable component of MSW is important, not only because it constitutes a sizable fraction of the solid waste stream in a developing country but also because of its potentially adverse impact on public health and environmental quality. Impact on environmental quality takes the form of foul odors and unsightliness. These impacts are not confined merely to the disposal site; they pervade the surrounding area and anywhere that wastes are generated, spread, or accumulated. Unless organic waste is managed appropriately, its adverse impact continues until it has fully decomposed or otherwise stabilized. Poor, inaccessible, and marginal urban areas suffer most from deficiencies in service and infrastructure, thus worsening poverty, ill health, and social marginalization. Many factors that vary from place to place must be considered in the design of a Solid Waste Management (SWM) system.

Public awareness of and attitudes toward waste can affect the entire SWM system. All steps in SWM—from household waste storage to waste segregation, recycling, collection frequency, amount of littering, willingness to pay for services, and opposition to the siting of treatment and disposal facilities—depend on public awareness and participation. Thus, awareness and attitudes are crucial to the success or failure of a SWM system.

Institutional issues include current and anticipated legislation and the extent to which laws are enforced. Standards and restrictions may limit the technological options that can be considered. Government policy on the role of the private sector (formal and informal) should also be taken into account. The strength and concerns of trade unions can also have an important influence on what can be done.

MSW collection schemes of cities in the developing world generally serve only a limited part of the urban population. Operational inefficiencies, inappropriate technologies, or deficient management capacity of the institutions involved also give rise to inadequate service levels. With regard to the technical system, often the conventional collection approach developed and used in industrial countries is applied.

Recycling of inorganic materials from MSW is often well developed through the activities of the informal sector. Some key factors that affect the potential for resource
recovery are the cost of separating recyclable material and the separated material, its purity, its quantity, and its location. The costs of storage and transport are major factors that determine the economic potential for resource recovery. Recycling is often well established in the informal sector because it is done in a very labor-intensive way and provides very low incomes.

Waste disposal sites are, therefore, also subject to growing opposition, and it is becoming increasingly difficult to find new sites that meet public approval and are located a reasonable distance from the collection area. Sitting landfills at greater distances from the central collection areas implies higher transfer costs, as well as additional investments in road infrastructure, hence intensifying the financial problems of the responsible authorities. Any increase in service coverage will aggravate the disposal problem, if the amount of waste cannot be reduced by waste recovery.

The safe alternative is a sanitary landfill, where solid wastes are disposed of at a carefully selected location that is constructed and maintained using engineering techniques that minimize pollution of air, water, and soil and other risks to people and animals.

A more systematic way of thinking and looking at waste management is provided by an approach called sustainable and integrated solid waste management. Sustainable and integrated SWM puts into a focal matrix the urgent planning aspects including the environmental, socio-cultural, institutional, political, and legal aspects as well as the important role of stakeholders (rag pickers, the informal recycling sector, small-scale enterprises, women heads of household) and the other elements of the waste management system, such as prevention, reuse and recycling, collection, street sweeping, and disposal.

Sustainable and integrated SWM is an integral part of good local governance because it is one of the most visible urban services influencing local perceptions of governance. It is conducted in a transparent and accountable manner to minimize opportunities for corruption and unwarranted political interference.

Sustainable and integrated SWM recognizes that willingness to pay is affected by perceptions of the service quality received and by the involvement of stakeholders in decision making; it therefore places a high priority on keeping stakeholders informed about and involved in issues and proposals. Furthermore, it looks for ways to enable communities to be responsible and for individuals to take action in ways that build public cooperation with the service. Sustainable and integrated SWM provides workers with uniforms and safe working conditions and defines
clear collection routes and verifiable performance tasks and outputs. To do so, it establishes management information systems that enable cost-effective accounting and overall cost-related performance monitoring. Sustainable and integrated SWM provides economical service delivery and establishes cost-recovery mechanisms for long-term sustainability. A modern SWM program can be implemented for a reasonable cost.

Sustainable and integrated SWM involves environmental impact assessment and public involvement for all new transfer, treatment, and disposal facilities, and it ensures that those facilities are designed to meet environmentally cost-effective discharge and impact standards. It monitors the emissions and environmental changes related to all waste storage, handling, and disposal activities and uses systems to track and document hazardous waste. Those systems ensure that significant quantities are not mixed with other waste but are instead taken to secure facilities for treatment and disposal. Sustainable and integrated SWM embraces public participation: planning and operations are participatory and enable continuous feedback from those involved in receiving and in providing service. It sensitizes the public to environmental issues, occupational health and safety issues, waste minimization opportunities, and the values of recycling and resource recovery. Adequate local authority and autonomy is provided to enable good municipal governance of the solid waste sector and self-sustainable financing and cost recovery. Sustainable and integrated SWM also allows local governments to enter multiyear private sector arrangements that match periods of depreciation for investments and that strengthen local capacity in planning, operation, and rationalization of operations.

### 12.4 Electronic Waste or E-Waste

Solid waste management, which is already a mammoth task in India, is becoming more complicated by the invasion of e-waste, particularly computer waste. E-waste from developed countries find an easy way into developing countries in the name of free trade is further complicating the problems associated with waste management. *Electronic Waste* or *Waste Electrical and Electronic Equipment* (WEEE) are terms used to describe end of life or discarded appliances using electricity. It includes computers, consumer electronics, mobile phones, air conditioners, digital diaries *etc*. Some electronic scrap components, such as CRTs contain contaminants such as lead, cadmium, beryllium, mercury, and brominated
Municipal Solid Waste and E-Waste Management

flame retardants. In developed countries recycling and disposal of e-waste may involve significant risk to workers and communities and adequate care must be taken to avoid unsafe exposure in recycling operations and leaching of material such as heavy metals from landfills. The communities that are affected by the toxics in e-waste need not necessarily be those that are creating the waste.

The electronic industry is the world’s largest and fastest growing manufacturing industry incinerator ashes. During the last decade, it has assumed the role of providing a forceful leverage to the socio-economic and technological growth of a developing society. The consequence of its consumer oriented growth combined with rapid product obsolescence and technological advances are a new environmental challenge - the growing menace of “Electronics Waste” or “e waste” that consists of obsolete electronic devices. It is an emerging problem as well as a business opportunity of increasing significance, given the volumes of e-waste being generated and the content of both toxic and valuable materials in them.

12.5 Regulation of Electronic Waste in India

As there is no separate collection of e-waste in India, there is no clear data on the quantity generated and disposed of each year and the resulting extent of environmental risk. The preferred practice to get rid of obsolete electronic items in India is to get them in exchange from retailers when purchasing a new item. The business sector is estimated to account for 78% of all installed computers in India. Obsolete computers from the business sector are sold by auctions. Sometimes educational institutes or charitable institutions receive old computers for reuse. It is estimated that the total number of obsolete personal computers emanating each year from business and individual households in India will be around 1.38 million. According to a report of Confederation of Indian Industries, the total waste generated by obsolete or broken down electronic and electrical equipment in India has been estimated to be 1,46,000 tons per year (CII, 2006).

To combat the ever growing e-waste problem, there is a need for strong rules and regulations in place. Despite a wide range of environmental legislation in India there are no specific laws or guidelines for electronic waste or computer waste. As per the Hazardous Waste Rules (1989), e-waste is not treated as hazardous unless proved to have higher concentration of certain substances. Though PCBs and CRTs would always exceed these parameters, there are several grey areas that need to be addressed. Basel Convention has Waste electronic assemblies in A1180 and mirror entry in B1110, mainly on concerns of mercury, lead and cadmium. Electronic waste is included under List-A and List-B of Schedule-3 of the Hazardous Wastes
Draft rules on e-waste have been framed which are proposed to be called the E-
waste (Management and Handling) Rules, 2010. They shall come into force on the
date of their publication in the Official Gazette. These rules shall apply to every
producer(s), dealer(s), collection centre(s), refurbisher(s), dismantler(s), recycler(s),
auctioneer(s) consumer(s) or bulk consumer(s) involved in the manufacture,
processing, sale, purchase of electrical and electronic equipment or components as
specified in schedule-I and shall not apply to the following:-

a) Waste water and exhaust gases as covered under the provisions of the Water
(Prevention and Control of Pollution) Act, 1974 (6 of 1974) and the Air
(Prevention and Control of Pollution) Act, 1981 (14 of 1981) respectively and
rules made there under;

b) waste arising out of the normal operations from ships beyond five kilometers
of the relevant baseline as covered under the provisions of the Merchant
Shipping Act, 1958 (44 of 1958) and the rules made there under;

c) radio-active wastes as covered under the provisions of the Atomic Energy
Act, 1962 (33 of 1962) and rules made there under,

d) ozone depleting substances (ODS) as covered under the Ozone Depleting
Substances (Regulation and Control) Rules 2000 made under the Act; and

e) batteries as covered under the Batteries (Management and Handling) Rules,
2001 made under the Act.

As the collection and re-cycling of electronic wastes is being done by the informal
sector in the country at present, the Government has taken the following action/
steps to enhance awareness about environmentally sound management of electronic
waste:

♦ Several Workshops on Electronic Waste Management Action by CPCB for rapid
assessment of the E-Waste generated in major cities of the country.

♦ A National Working Group has been constituted for formulating a strategy
for E-Waste management.

♦ A comprehensive technical guide on “Environmental Management for
Information Technology Industry in India” has been published and circulated
widely by the Department of Information Technology (DIT), Ministry of
Communication and Information Technology.
Demonstration projects have also been set up by the DIT at the Indian Telephone Industries for recovery of copper from Printed Circuit Boards.

Figure 12.1: Elements for E-waste Management for India

IMPACT OF ELECTRONIC WASTE

Electronic wastes can cause widespread environmental damage due to the use of toxic materials in the manufacture of electronic goods. Hazardous materials such as lead, mercury and hexavalent chromium in one form or the other are present in such wastes primarily consisting of Cathode ray tubes (CRTs), Printed board assemblies, Capacitors, Mercury switches and relays, Batteries, Liquid crystal displays (LCDs), Cartridges from photocopying machines, Selenium drums (photocopier) and Electrolytes. Although it is hardly known, e-waste contains toxic substances such as Lead and Cadmium in circuit boards; lead oxide and Cadmium in monitor Cathode Ray Tubes (CRTs); Mercury in switches and flat screen monitors; Cadmium in computer batteries; polychlorinated biphenyls (PCBs) in older capacitors and transformers; and brominated flame retardants on printed circuit boards, plastic casings, cables and polyvinyl chloride (PVC) cable insulation that releases highly toxic dioxins and furans when burned to retrieve Copper from the wires. All electronic equipments contain printed circuit boards which are hazardous because of their content of lead (in solder), brominated flame...
retardants (typically 5-10% by weight) and antimony oxide, which is also present as a flame retardant (typically 1-2% by weight). Landfilling of e-wastes can lead to the leaching of lead into the ground water. If the CRT is crushed and burned, it emits toxic fumes into the air. These products contain several rechargeable battery types, all of which contain toxic substances that can contaminate the environment when burned in incinerators or disposed of in landfills. The cadmium from one mobile phone battery is enough to pollute 600 m³ of water (Trick, 2002). The quantity of cadmium in landfill sites is significant, and considerable toxic contamination is caused by the inevitable medium and long-term effects of cadmium leaking into the surrounding soil (Envocare, 2001). Because plastics are highly flammable, the printed wiring board and housings of electronic products contain brominated flame retardants, a number of which are clearly damaging to human health and the environment.

The accrued electronic and electric waste in India is dismantled and sorted manually to fractions such as printed wiring boards, cathode ray tubes (CRT), cables, plastics, metals, condensers and other, nowadays invaluable materials like batteries. It is a livelihood for unorganized recyclers and due to lack of awareness; they are risking their health and the environment as well. The valuable fractions are processed to directly reusable components and to secondary raw materials in a variety of refining and conditioning processes. No sophisticated machinery or personal protective equipment is used for the extraction of different materials. All the work is done by bare hands and only with the help of hammers and screwdrivers. Children and women are routinely involved in the operations. Waste components which do not have any resale or reuse value are openly burnt or disposed off in open dumps. Pollution problems associated with such backyard smelting using crude processes are resulting in fugitive emissions and slag containing heavy metals of health concern. CRT breaking operations result in injuries from cuts and acids used for removal of heavy metals and respiratory problems due to shredding, burning etc. They use strong acids to retrieve precious metals such as gold. Working in poorly ventilated enclosed areas without masks and technical expertise results in exposure to dangerous and slow poisoning chemicals. Polychlorinated biphenyls (PCBs) in older capacitors and transformers; and brominated flame retardants on printed circuit boards, plastic casings, cables and polyvinyl chloride (PVC) cable insulation can release highly toxic dioxins and furans when burned to retrieve copper from the wires.
Extended producer responsibility (EPR) is an environmental policy approach in which a producer’s responsibility for a product is extended to the post consumer stage of the product’s life cycle, including its final disposal. In principle, all the actors along the product chain share responsibility for the lifecycle environmental impacts of the whole product system. The greater the ability of the actor to influence the environmental impacts of the product system, the greater the share of responsibility for addressing those impacts should be. These actors are the consumers, the suppliers, and the product manufacturers. Consumers can affect the environmental impacts of products in a number of ways: via purchase choices (choosing environmentally friendly products), via maintenance and the environmentally conscious operation of products, and via careful disposal (e.g., separated disposal of appliances for recycling). Suppliers may have a significant influence by providing manufacturers with environmentally friendly materials and components. Manufacturers can reduce the life-cycle environmental impacts of their products through their influence on product design, material choices, manufacturing processes, product delivery, and product system support. The system design needs to be such that there are checks and balances, especially to prevent free riders. The goals of the product designer could include reducing toxicity, reducing energy use, streamlining product weight and materials, identifying opportunities for easier reuse, and more. Manufacturers have to improve the design by: (i) the substitution of hazardous substances such as lead, mercury, cadmium, hexavalent chromium and certain brominated flame retardants; (ii) measures to facilitate identification and re-use of components and materials, particularly plastics; and (iii) measures to promote the use of recycled plastics in new products.

Manufacturers should give incentives to their customers for product return through a “buy back approach” whereby old electronic goods are collected and a discount could be given on new products purchased by the consumer. All vendors of electronic devices shall provide take-back and management services for their products at the end of life of those products. The old electronic product should then be sent back to be carefully dismantled for its parts to be either recycled or reused, either in a separate recycling division at the manufacturing unit or in a common facility. Collection systems are to be established so that e-waste is collected from the right places ensuring that this directly comes to the recycling unit. Collection can be accomplished through collection centres. Each electronic equipment manufacturer shall work cooperatively with collection centres to ensure implementation of a practical and feasible financing system. Collection Centres may only ship wastes to dismantlers and recyclers that are having authorization.
for handling, processing, refurbishment, and recycling meeting environmentally sound management guidelines.

12.6 International Scenario on Waste Management

The Basel Convention defines waste by its disposal destination or recovery processes. These various processes are listed in Annexure IV of the Convention. For example, virtually any material that will be recycled or processed in order to reclaim a metal, or to reclaim an organic or inorganic substance for further use, is deemed a waste. Electronic components that are used without further processing are not likely to be defined as a waste. The Convention has provided for two lists. List A, found in Annexure VII, is presumed to be hazardous and thus covered by the Basel Convention; and List B, found in Annexure IX, is presumed to be non-hazardous and thus not subject to the Basel Convention. The waste listed in List A is waste that poses serious threats to environment and human health. As a result of their adverse effects these substances require special handling and disposal processes. The Annexure VIII hazardous waste list has the following entries applicable to e-waste:

A1180: Waste electrical and electronic assemblies or scrap containing components such as accumulators and other batteries included in List A, mercury-switches, glass from cathode-ray tubes and other activated glass, and PCB-capacitors, or contaminated with Annex I constituents (for example, cadmium, mercury, lead, polychlorinated biphenyl) to an extent that they possess any of the characteristics contained in Annexure III. From the above we can gather that at the very least, circuit boards, CRTs, and other electronic boards or components and assemblies containing lead based solders and copper beryllium alloys (which include most computer circuit boards and much other electronic equipment), are indeed hazardous wastes according to the Basel Convention. Likewise, whole, used, discarded computers, printers, and monitors that contain such circuit boards or CRTs that are not to be re-used directly are to be considered as hazardous waste and subject to the Basel Convention. To date, the United States is the only developed country in the world that has not ratified the Basel Convention. In fact, US officials have actively worked to defeat and weaken the Basel waste export ban. The US government policies appear to be designed to promote sweeping the e-waste problem out the Asian back door. Not only has the US refused to ratify the Basel Convention and Ban, but in fact, the United States government has intentionally exempted e-waste materials, within the Resource Conservation and Recovery Act, from the minimal laws that do exist (requiring prior notification of hazardous waste
shipments) to protect importing countries. The 160-State Basel Convention is the world’s most comprehensive environmental agreement on hazardous and other wastes. Governments are expected to minimize the generation of hazardous wastes, treat and dispose of wastes as close as possible to their place of generation and reduce the quantities transported. The proper implementation of the Basel Convention ensures that hazardous e-waste be managed in an environmentally sound manner as it provides the tools for the transparency and traceability of e-wastes destined for recycling or recovery. The development of international resource recycling systems would have to be combined with a mechanism capable of monitoring such systems to ensure their accountability. That could not be achieved, however, without intensified international efforts to help developing countries strengthen their capacity to implement the Convention. A programme of action in the Asia-Pacific region to dispose of electrical and electronic waste in an environmentally sound way and stop its illegal trafficking was also launched with the support of the United Nations Environmental Programme’s (UNEP) Basel Convention Regional Centres in China, Indonesia and Samoa. Due to rapid industrialization, several developing countries in the Asia-Pacific region need to access large quantities of secondary raw materials. As a result, large amounts of used and end-of-life electronic wastes are being sent to them for recycling, recovery and refurbishment of non-ferrous and precious metals at facilities which do not always meet high environmental standards.

12.7 Conclusion

The current practices of e-waste management in India suffer from a number of drawbacks like the difficulty in inventorisation, unhealthy conditions of informal recycling, inadequate legislation, poor awareness and reluctance on part of the corporate to address the critical issues. The consequences are that (i) toxic materials enter the waste stream with no special precautions to avoid the known adverse effects on the environment and human health and (ii) resources are wasted when economically valuable materials are dumped or unhealthy conditions are developed during the informal recycling.