

**CENTRE FOR OPEN AND DISTANCE LEARNING**

**TEZPUR UNIVERSITY: NAPAAM: SONITPUR**

**SELF-LEARNING MATERIAL**

**ENVIRONMENTAL LAWS AND  
POLICIES**

**DEM 201**

## **SELF-LEARNING MATERIAL**

Course Code: DEM 201

Course Title: ENVIRONMENTAL LAWS AND POLICIES

### *Course Advisors*

Dr R.R. Haque, Associate professor and Head, Dept. of Environmental Science, Tezpur University

Dr Nimali Gogoi, Associate professor and Head, Dept. of Environmental Science, Tezpur University

Dr Dipak Nath. Assistant Professor, Centre for Disaster Management , Tezpur University

### *Programme Coordinator/s*

Dr Nimali Gogoi, Associate professor and Head, Dept. of Environmental Science, Tezpur University

Dr Dipak Nath. Assistant Professor, Centre for Disaster Management , Tezpur University

### *Course Contributors*

Dr R.R. H aque, Associate professor and Head, Dept. of Environmental Science, Tezpur University

Dr Kh Ashalata Devi, Assistant Prpfessor, Dept of Environment Science , Tezpur University

### *Course authors*

Dr R.R. Haque  
Satya Sundar  
Manish kumar

### *Course Editor/s*

Dr Dipak Nath. Assistant Professor, Centre for Disaster Management , Tezpur University

March 2012

@ CODL, Tezpur University

Published by  
Director, Centre for Open and Distance Learning (CODL),  
on behalf of Tezpur University.

The material provided here can be freely accessed but cannot be reproduced or reprinted for commercial purposes.

# **COURSE INTRODUCTION**

## **PART -1**

### **COURSE 1: ENVIRONMENTAL LAWS AND POLICIES**

- UNIT-1 : CONSTITUTIONAL PROVISIONS ADDRESSING THE ENVIRONMENT
- UNIT-2 : FORESTS & WILDLIFE
- UNIT-3 : INDIAN ENVIRONMENTAL POLICIES AND MAJOR INITIATIVES
- UNIT-4 : LEGAL PERSPECTIVES OF POLLUTION CONTROL
- UNIT-5 : THE ENVIRONMENT (PROTECTION) ACT 1986 (EPA 1986)
- UNIT-6 : ENVIRONMENTAL IMPACT ASSESSMENT
- UNIT-7 : INTERNATIONAL LAWS
- UNIT-8 : ENVIRONMENTAL LAWS AND POLICIES

### **COURSE 2: ENVIRONMENTAL POLLUTION MITIGATION**

- UNIT-1 : INTRODUCTION
- UNIT-2 : AIR POLLUTION
- UNIT-3 : WATER POLLUTION
- UNIT-4 : NOISE POLLUTION
- UNIT-5 : SOIL POLLUTION
- UNIT-6 : WASTE MANAGEMENT
- UNIT-7 : MANAGING THE OCEANS

### **COURSE 3: PLANNING FOR RISK AND CRISIS MITIGATION**

- UNIT-1 : DISASTER MANAGEMENT ACT. AND POLICY OF INDIA
- UNIT-2 : PLANNING STRATEGIES
- UNIT-3 : PLANNING NEEDS AND EMERGENCY ACTION
- UNIT-4 : PREPARATION OF STATE AND DISTRICT LEVEL DM PLANS
- UNIT-5 : ENVIRONMENTAL MANAGEMENT FOR DISASTER RISK REDUCTION
- UNIT-6 : RISK, LOSS AND NEEDS ASSESSMENT
- UNIT-7 : URBAN, VILLAGE AND SCHOOL DM PLAN
- UNIT-8 : COUNTER DISASTER RESOURCES AND THEIR ROLES

## UNIT-1: CONSTITUTIONAL PROVISIONS ADDRESSING THE ENVIRONMENT:

### UNIT STRUCTURE

1. INTRODUCTION
2. DIVISION OF POWER
3. ENVIRONMENTAL PROTECTION AND FUNDAMENTAL RIGHT
  - 3.1 THE RIGHT TO A WHOLESOME ENVIRONMENT
  - 3.2 THE RIGHT TO LIVELIHOOD
  - 3.3 ARTICLE 14 AND RIGHTS
4. JUDICIAL PROCEDURES AND REMEDIES
  - 4.1 THE WRIT JURISDICTION
  - 4.2 ARTICLE 32 AND 226
  - 4.3 JUDICIAL REVIEWS
  - 4.4 PUBLIC INTEREST LITIGATION:
5. SUMMARY

#### Objectives:

This unit deals with the constitutions provisions in India while addressing environmental issues. The idea is to acquaint the readers with the fundamental rights associated with the environmental issues and the judicial role in protecting the rights. The onus of protecting the environment lies with the State and the addition of Article 48A in the Constitution has been emphasised. The judicial procedures like the writs, judicial reviews and PIL are introduced.

### 1. INTRODUCTION

The Indian constitution is one of the few in the world that contains specific provisions on environmental protection. The directive principles of state policy and the fundamental duties explicitly enunciate the national commitment to protect and improve the environment. There provisions are added to the constitution vide the Constitution (42<sup>nd</sup> amendment) Act of 1976. Also, judicial interpretation has strengthened this constitutional mandate.

Article 48A was added to the directive principles of state policy. It declares: 'The State shall endeavour to protect and improve the environment and to safeguard the forest and wildlife of the country'. Article 51A(g) in a new chapter entitled 'Fundamental Duties', imposes a similar responsibility on every Indian citizen 'to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures.'

Although the language in the two articles differs, the differences appear to relate to form rather than to substance. Together, the provisions highlight the natural consensus on the importance of environmental protection and improvement and lay the foundation for the jurisprudence of environmental protection.

The directive principles are policy prescriptions that guide the government. Some of them are in the nature of economic rights that India could not guarantee when the constitution was enacted, however, that were expected to be realised in the succeeding years. Although unenforceable, the directive principles are increasingly being cited by judges as complementary to the fundamental rights. In several environmental cases the court has been guided by the language of Article 48A. Article 48A, actually, puts the onus of protecting the environment to the government. There, government both at the centre and the state need to prioritise environmental concerns.

The 'Fundamental Duties' were not a part of the first adopted constitution because the constitution guarantees rights and freedom and therefore, duties are just implicit. But, the partition we experienced series of communal riots and the aspirations of the constitution were not reflected. So, a chapter Article 51A was added in 1976 by the Constitution (42<sup>nd</sup> Amendment) Act. The Article 51A(g) clearly guides to citizens to protect the natural environment.

## **2. DIVISION OF POWER**

Under India's federal system, the power of governance is shared between the Union or the central government and the state governments. Part XI of the constitution governs the legislative relations between the union and the states.

The parliament has the power to legislate for the whole country, while the State Legislatures are empowered to make laws for their respective states. Article 246 of the constitution divides the subjects of legislation between centre and the states. As The Union list (List I) contains 97 subjects over which the parliament has exclusive powers to legislate. These include defence, foreign affairs, atomic energy, interstate transport, shipping, major ports, air traffic regulation, regulation and development of oil fields, mines and minerals, interstate rivers. The State legislature has exclusive powers over 66 subjects (State List / List II), such as public health and sanitation, agriculture, water supplies, irrigation and drainage and fisheries.

There is a List III, on which both the centre and the states enjoy legislative powers. This list is called the Concurrent List. There are 52 subjects in this list including forest and wildlife.

The parliament has residual power to legislate on the subjects not covered on the 3 lists and whenever central law conflicts with the state laws, the former prevails. Also, the parliament is empowered to legislate on the state subjects in interest of the nation. The Water Act of 1972 was a central act though water is a state list subject.

Forest and wildlife was in the state list till it has been moved to the concurrent list in 1976. In doing so the parliament can enact laws without getting a consent from the states. While enacting the Wild Life (protection) Act of 1972 the centre had to get consent from the states and 11 states passed a resolution in their respective legislature. After 1976, such consent is not required for the to enact laws on forest and wildlife.

## **3. ENVIRONMENTAL PROTECTION AND FUNDAMENTAL RIGHT:**

Environmental rights are fundamental rights and are derived from Article 21 of the Indian constitution.

Encouraged by an atmosphere of freedom and articulation in the aftermath of the emergency, the Supreme Court entered on one of its most creative periods. Specially the court fortified and expanded the fundamental rights enshrined in Part III of the Constitution. In the process, the boundaries of fundamental right to life and personal liberty guaranteed by Article 21 were extended to include environmental protection.

Article 21 and environmental rights

### **3.1 THE RIGHT TO A WHOLESOME ENVIRONMENT**

The Supreme Court strengthened the Article 21 in two ways. First, it required laws affecting personal liberty to also pass the test of Article 14 and Article 19 of the Constitution, thereby ensuring that the procedure depriving a person of his or her personal liberty be reasonable and fair and just. Second, the court recognised several unarticulated liberties that were implied by Article 21. It is by this second method the Supreme Court interpreted that right to life and personal liberty to include the right to a wholesome environment.

The first indication of the right to a wholesome environment may be traced to the *Dehradun Quarrying case*. In July 1983, representatives of the Rural Litigation and Entitlement Kendra, Dehradun wrote to the Supreme Court alleging that illegal limestone in the Mussorie-Dehradun

region was degrading the fragile ecosystem of the area. The court directed its registry to treat the letter as a Writ petition under article 32 of the Constitution with a notice to government of UP. Over the years the litigation grew more and more complex and in 1988, the court heard from both the state and the central govt agencies and mine lessees and appointed several expert committees and also passed interim orders. None of these orders, however, articulate the fundamental right to a healthy environment.

Eight years after the Dehradun Quarrying case, the Supreme Court revealed the basis of its jurisdiction to entertain environmental cases. In *subhash Kumar V State of Bihar* the Court held that the right to life includes the right to enjoy unpolluted air and water. If anything endangers or impairs the quality of life in derogation of law, a citizen has a right to move the Supreme Court under article 32 of the Constitution. Expanding upon this theme in a town planning case, *Virender Gaur v State of Haryana*, the court observed:

Article 21 protects the right to life as a fundamental right. Enjoyment of life ...including [the right to live] with human dignity encompasses within its ambit, the protection and preservation of the environment, ecological balance free from pollution of air and water, sanitation, without which life cannot be enjoyed. .... Environmental Ecological, air, water pollution etc should be regarded as amounting to violation of article 21. Therefore, hygienic environment is an integral facet of right to life and it would be impossible to live with human dignity without a human and healthy environment.....

Healthy surrounding is an essential part of healthy living. Therefore, a clean environment becomes as fundamental as the right to life.

### **3.2 THE RIGHT TO LIVELIHOOD**

Another aspect of the right to life – the right to livelihood – can potentially check govt action with an environmental impact that threaten to dislocate poor people and disrupt lifestyles. Conservative estimates place the figure of India's project displaced people over the past four decades at 16 million and no more than a quarter of whom were satisfactorily rehabilitated. The Supreme Court recognised the right to livelihood in the case of *Olga Tellis V Bombay Municipal Corporation*. The petitioners, a journalist and two pavement dwellers challenged the govt scheme to deport the pavement dwellers from Bombay to their place of origin. The main plank of the petitioners' argument was the right to life included the right to livelihood, and since the pavement dwellers would be deprived of their livelihood if they were evicted from their slum and pavement dwellings, their eviction would be tantamount to deprivation of their life, and was hence unconstitutional. Accepting the petitioners' argument, the court held:

Deprive a person of his right to livelihood and you shall have deprived him of his life.....the state may not by affirmative action, be compellable to provide adequate means of livelihood or work to the citizens. But, any person who is deprived of his right to livelihood except according to just and fair procedure established by law, can challenge the deprivation as offending the right to life conferred by Article 21.

The court directed the municipal corporation to provide alternative sites or accommodation to the slum and pavement dwellers within a reasonable distance of their original sites; to earnestly pursue a proposed housing scheme for the poor; and to provide basic amenities to the slum dwellers.

It, therefore, explains that for a decent living a decent earning is required to lead a dignified life. In the large projects large number of people are displaced. Many of the displaced have a particular form of livelihood. Once there people are displaced they tend to lose that livelihood. Therefore, big projects often tend to pose threat to the right of livelihood of many.

### THINK!

Can the right to livelihood be asserted to prevent environmentally disruptive projects that threaten to uproot villages and consequently, deprive them of their livelihood? Consider a case where the govt sanctions the construction of a large dam without adequate environmental impact assessment and without public scrutiny. Is the government acting reasonably? Does the procedure leading the govt decision – a decision which jeopardize the livelihood of thousands of villages – meet the *Olga Tellis* standard of being a just and fair procedure established by law?

### 3.3 ARTICLE 14 AND RIGHTS

The right to equality guaranteed in Article 14 of the Constitution may also be infringed by govt decisions that have an impact on the environment. Article 14, among other things, strikes at arbitrariness because an action that is arbitrary must necessarily involve a negation of equality. Thus, environmental interest groups often resort to Article 14 to quash ‘arbitrary’ actions of govt agencies. Besides, Article 14 may also be invoked to challenge govt sanctions for mining and other activities with high environmental impacts, where the permissions are arbitrarily granted without adequate consideration of environmental impacts. In *State of HP v Ganesh Wood products*, the Supreme Court held that a decision making authority must give due weight and regard to ecological factors such as the environmental policy of govt and the sustainable use of natural resources. A govt decision that fails to take into account relevant considerations affecting the environment is invalid.

### THINK!

Is it possible to derive a right to intergenerational equity from Article 21 and 14? The central tenet of the theory of intergenerational equity is the right of each generation of human beings to benefit from the cultural and natural inheritance from the past generations as well as the obligation to preserve such heritage for future generations. Intergenerational equity requires conserving the diversity and quality of biological resources and renewable resources such as forests, water and soils. Can this right be invoked to preserve archaeological monuments to genetic resources threatened with destruction?

## 4. JUDICIAL PROCEDURES AND REMEDIES

### 4.1 THE WRIT JURISDICTION:

Article 32 and 226 of the Constitution of India empowers the Supreme Court and the 3 High Courts, respectively to issue directions or orders or writs, including writs of *habeas corpus*, *mandamus*, *prohibition*, *quo warranto* and *certiorari*. Writs of *mandamus*, *certiorari* and *prohibition* are generally resorted to in environmental matters.

The power to issue writs has been borrowed in India from England, where the prerogative writs have been issued for centuries. Prior to the Constitution’s adoption the three High Courts at Calcutta, Madras and Bombay, had a power to issue these writs under the Charter Act of 1861. Other High Courts did not possess this power. The Constituent Assembly, saw these writs as an effective means of enforcing fundamental rights, and consequently conferred on the Supreme Court and all High Courts the power to issue these writs.

The Supreme Court has interpreted Article 21, which guarantees the fundamental right to life and personal liberty, to include the right to wholesome environment. Accordingly, a litigant may assert his or her right to a healthful environment against the state, by writ petition to either the Supreme Court or a High Court.

### 4.2 ARTICLE 32 AND 226

The Supreme Court’s jurisdiction under Article 32 is more limited than jurisdiction of the High Courts under Article 226. Article 32 guarantees the right to seek the Supreme Court’s

enforcement of fundamental rights. Moreover, Article 32 is itself a fundamental right and , therefore, cannot be abridged by legislation. An indispensable condition for invoking the Supreme Court's jurisdiction under Art 32 is the violation of fundamental right conferred in Part III of the Constitution. Thus an illegal govt action that does not infringe a fundamental right cannot be challenged in writ proceedings under article 32.

In contrast, the writ jurisdictions of the High Courts under article 226 may be invoked not only against fundamental right violation but also against 'any other violation' as well. Ordinary legal rights may also be asserted through a writ petition in the High Court.

Invoking the High Court writ jurisdiction is the most popular method to obtain judicial review of administrative action. Article 226 cannot be curtailed by legislation, since it is a constitutional provision.

Thus the Supreme Court and the High Court has concurrent jurisdictions for the enforcement of fundamental rights. Hence, a person complaining of an infringement of fundamental rights may seek redress in either forum.

#### **4.3 JUDICIAL REVIEWS:**

The power of Judiciary to review and determine validity of a law or an order may be described as the power of Judicial Review.

It means that the constitution is the Supreme law of the land and any law in consistent there with is void. The term refers to "the power of a court to inquire whether a law executive order or other official action conflicts with the written constitution and if the court concludes that it does, to declare it unconstitutional and void."

Judicial Review has two prime functions:

(1) Legitimizing government action; and (2) to protect the constitution against any undue encroachment by the government.

The Constitution of India has basic features in respect of the power of judicial review by the Supreme Court. Under Part III of the Constitution, which guarantees fundamental rights to the people and under Part IV, the State is under obligation to implement the Directive Principles. Article 39-A of the Constitution provides "Right of Access to Courts" to the citizens. In exercise of its powers of judicial review, the Court enforces the constitutional and legal rights of the underprivileged by transforming the right to life under Article 21 of the Constitution and by interpreting the Articles 48-A and 51 A (g) of the Constitution. The Hon'ble Supreme Court of India has given a new dimension to the environmental jurisprudence in India with a view to meeting the problems in the environmental field.

The scope of judicial reviews in environmental cases was explained by the Supreme Court in the *Calcutta Taj Hotel Case*, where a group of citizens challenged the location of a hotel on the ground that the construction would interfere with the flight path of migratory birds. After referring to the constitutional provisions relating to the environment , the court outlined the scope of judicial review thus:

The least the court may do is to examine whether considerations are borne in mind and irrelevancies excluded. In appropriate cases the court may go further but how much further must depend on the circumstances of the case. The court may always give necessary directions.

However, the court will not attempt to nicely balance relevant considerations. When the question involved the nice balancing of relevant considerations, the court may feel justified in resigning itself to acceptance of the decision of the concerned authorities.

#### **4.4 PUBLIC INTEREST LITIGATION:**

Protection of the environment throws up a host of problems for a developing nation like India. Administrative and legislative strategies of harmonization of environmental values with developmental values are a must and are to be formulated in the crucible of prevalent socio-economic conditions in the country. In determining the scope of the powers and functions of



administrative agencies and in striking a balance between the environment and development, the courts have a crucial role to play. Principle 10 of the Rio Declaration of 1992 specifically provides for effective access to judicial and administrative proceedings, including redress and remedy. The judiciaries' anxiety for combating environmental assaults has already been well elucidated. Its concern for the maintenance and preservation of forests, one of our depleting natural resources has also been highlighted. Through the entire struggle was born the concept of "Public Interest Litigation (PIL)".

The Public Interest Litigations (PIL) in India initiated by the Hon'ble Supreme Court emerged through human rights jurisprudence and environmental jurisprudence. PIL in Indian Law has been introduced by the Hon'ble judges. The traditional concept of *Locus Standii* is no longer a bar for the community oriented Public Interest Litigations. Though not an aggrieved party, an environmentally conscious individuals, groups or NGOs now have access to the Supreme Court/High Courts through PIL. The Hon'ble Supreme Court while taking cognizance on the petitions has further relaxed the requirement of a formal writ to seek redressal before the Court. Any citizen can invoke the jurisdiction of the Court, especially in human rights and environmental matters even by writing a simple postcard.

In a public interest case, the subject matter of litigation is typically a grievance against the violation of basic human rights of the poor and the helpless or about the content or conduct of govt policy. The petitioner seeks to champion public cause for the benefit of all society. Again, the focus dictates the principle features of the litigation. First, since the litigation is not strictly adversarial, the scope of the controversy is flexible. Parties and official agencies may be joined as the litigation unfolds; and new expected issues may emerge to dominate the case. Second, the orientation of the case is prospective. The petitioner seeks to prevent an egregious state of affairs or an illegitimate policy for continuing into the future. Third, because the relief sought is corrective rather than compensatory, it does not derive logically from the right asserted. Instead it is fashioned for the special purpose of the case, sometimes by a quasi-negotiating process between the court and the responsible agencies. Fourth, it is difficult to delimit the duration and effect of this new kind of litigation. Prospective judicial relief implies continuing judicial involvement. Finally, because the relief is sometimes directed against govt policies, it may have impacts that extend far beyond the parties in the case. In view of these features, judges play a large role in organising and shaping the litigation and in supervising the implementation of relief. This activist role of the PIL judge contrasts with the passive umpireship traditionally associated with judicial functions.

As said earlier, PIL in India was initiated and fostered by a few judges of the Supreme Court. The method they used to redress public grievance was, to relax the traditional rules governing standing (*locus standi*). Standing is required to have a court hear one's case. Since a court will not hear a party unless he or she has a sufficient stake in the controversy, judicial perception of who has sufficient interest (i.e. 'the person aggrieved') is critical. The Supreme court has lowered the standing barriers by widening the concept of 'the person aggrieved'.

Therefore, several environmental litigations in India are of PIL based. For a country like India where the citizens are duty-bound for the cause of environmental protection, as per the constitutional duties, every citizen has a sufficient standing in the environmental cases.

## **5. SUMMARY:**

The constitution of India is one of the few in the world that provide clear directive to the State for environmental protection. In 1976, Article 48A was added to the directive principle of state policy (part IV) of the Constitution. This leaves the responsibility of protecting the environment from degradation with the State. Another important addition brought about in the same year, Article 51A(g) which says that it is the duty of every Indian citizen to protect the natural environment. In the 1980s the Indian judiciary went through a phase of interpretation of the

Constitution and in the process many associated rights that are part of fundamental rights evolved. The interpretation of the Article 21 of the constitution gave rise the right to a clean environment and the right to livelihood. A right to a intergenerational equity has also been derived by the judiciary for the Article 14. During this phase the judiciary became very active and ensured judicial review and Public Interest Litigation (PIL) regime in India. The PIL regime actually revolutionised the environmental litigation in the country. All the famous environmental litigations in India are based on PIL.

Self assessment questions:

I. Assert whether true or false

The onus of protecting the environment lies with the government.

Right to a clean environment is a component of Article 21 of the Constitution of India.

The Honourable High Courts does not issue writs.

II. Answer in short

Can the parliament make law on forest and wildlife? Explain.

Water is a state list subject. Can the centre make a law on water for the whole country?

Right to livelihood is a fundamental right. Explain.

III. Explain in detail.

Explain the environmental rights guaranteed the Constitution of India.

IV. Activity

Please see a local newspaper regularly and take note of the environmental news. Try to analyse if there is any judicial action on any development actions. See the constitutional basis of such action(s).

Reference:

Divan and Rosencranz, *Environmental law and policy in India*, Oxford University Press, 2001

# **DEM 201-ENVIRONMENTAL LAWS & POLICIES**

## **UNIT-2: FORESTS & WILDLIFE**

### **UNIT STRUCTURE**

2.0 OBJECTIVES:

2.1 INTRODUCTION:

2.2 INDIAN FOREST ACT, 1927

2.3 FOREST CONSERVATION ACT, 1980

2.4 NATIONAL FOREST POLICY, 1988

2.5 WILDLIFE PROTECTION ACT, 1972

2.5.1. PROTECTED AREAS:

2.6 PEOPLE Vs PARK

2.7 BIOSPHERE RESERVES

2.8 BIOLOGICAL DIVERSITY ACT 2002: SOME SALIENT FEATURES

2.9. A. BIODIVERSITY CONSERVATION

2.9. B. BIOPIRACY

2.10 SUGGESTED READINGS

2.11 PROBABLE QUESTIONS

### **2.0 OBJECTIVES:**

Forest laws and rules are integral part of legal activities related to the environment. Hence the objective of this course is as follows:

- To provide important aspects of various laws on forest and wildlife protection in a comprehensive manner
- To generate awareness about all those legal nitty-gritty related to forest conservation
- To provide an understanding about the policy driven approaches towards conservation of forest and all types of biological resources of our nation.

### **2.1 INTRODUCTION:**

Forest and forest resources play a vital role in maintaining environmental balance. Man inhabits two worlds, one is the natural world of plant, animals and other terrestrial resources and the other is the world of social institutions, his science and his desires to fashion the environment obedient to human purpose and directions. Under these perspectives forest and forest resources play a devotal role by absorbing varied kinds of imbalances developed due to anthropogenic causes. However, through this unit an effort has been made to highlight some salient features of forest and wildlife related laws and rules which are considered as effective tools for ensuring environmental sustainability.

### **2.2 INDIAN FOREST ACT, 1927**

India forest act 1927 was written during the British period. The act came in vogue on 21<sup>st</sup> September 1927. The act deals with law relating forest, transit of forest produce and the duty leviable on timber and other forest produce. As the act was made during the colonial period, forest is basically treated as a property that belongs to the government emphasizing mainly on sustaining desirable production of timer and other forest produce. There are 13 chapters and 86 sections including several clauses and sub sections in the act. The chapter 1 deals with different

definitions which are being discussed in detail hereinafter. Chapter 2 deals with different procedures and formalities to declare a forest as “reserve forest” is being laid. Few important sections are being discussed as below. As a whole the concept of reserve forest is to prohibit all kind of interference inside the demarcated area, i.e. in short “everything is prohibited unless permitted”. In section 3 power has been entrusted to the state government to designate a forest as reserve forest, whereas from section 4 to section 20 the process of declaration has been elaborated. The process involves notification by state government (sec 4), proclamation of forest settlement officer (sec 6), enquiry and power of forest settlement officer (sec 7 and 8), claims for shifting cultivation (sec 10), exercise to admit, commutation and appeal for claim and rights (sec 16-18) have also been laid in detail in this chapter. However the final notification of declaring a forest as a reserve forest is provided in section 20. The following chapters like chapter 6 and 7 provide power to the state government to impose duty on timber and other forest produce (US 39) and provide power to impose duty on timber and other forest produce including control on transit of forest produce respectively (US 41). However chapter 8 provides the authority to the state government to collect all forest produce found on drift stranded or sunk (US 45). The other procedures regarding claim of such timber are also laid including disposal of unclaimed drift timber as per Sec 46, 47 and 48 of the act. The chapter 9 is the most important which provides power to forest personnel in order to protect forest produce including land. Hence some important few important sections are discussed as below.

Chapter 10 deals with cattle trespass. Chapter 11 defines the meaning and role of forest officers in pursuing their duty. The important sections are sec 72. Apart from all these powers and exercises state has additional powers to make rules in order to strengthen the protection measures (US 76 Chapter 12). Furthermore, some miscellaneous matters regarding management of forest land and produces are being incorporated in chapter 13. Some important sections are given as below.

#### **Chapter 1: Preliminary (Section 1-2)**

This Chapter deals with the different definitions that have been used for discussing different aspects throughout all other chapters of the act.

The chapter deals a short title & extent. It also includes an interpretation clause. In this Act, unless there is anything repugnant in the subject or context—

- (1) “Cattle” includes elephants, camels, buffaloes, horses, mares, geldings, ponies colts, fillies, mules, asses, pigs, rams, ewes, sheep, lambs, goats and kids;
- (2) “Forest-officer” means, any person whom the State Government or any office empowered by the State Government in this behalf, may appoint to carry out all any of the purposes of this Act or to do anything required by this Act or any rule m there under to be done by a Forest-officer;
- (3) “forest-offence” means an offence punishable under this Actor under any rule made there under;
- (4) “forest-produce” includes—
  - (a) The following whether found in, or brought from, a forest or not, that is to say timber, charcoal, catechu, wood-oil, resin, natural varnish, bark, lac, mahua flowers, mahua seeds, and myrabolams, and
  - (b) The following when found in, or brought from a forest, that is to say
    - (i) Trees and leaves, flowers and fruits, and all other parts or produce not herein before mentioned, of trees,
    - (ii) Plants not being trees (including grass, creepers, reeds and moss), and all parts or produce of such plants,
    - (iii) Wild animals and skins, tusks, horns, bones, silk, cocoons, honey and wax, and all other parts or produce of animals, and
    - (iv) Peat, surface soil, rock and minerals (including lime-stone, laterite, mineral oils, and all products of mines or quarries);
- (5) “River” includes any stream, canal, creek or other channels, natural or artificial;

(6) "Timber" includes trees, when they have fallen or have been felled, and all wood whether cut up or fashioned or hollowed out for any purpose or not; and

(7) "Tree" includes palms, bamboos, skumps, brush-wood and canes.

**Chapter 2: Of reserved forests (Section 3-27)**

20. Notification declaring forest reserved.—(1) When the following events have occurred, namely:—

(a) The period fixed under section 6 for preferring claims have elapsed and all claims (if any) made under that section or section 9 have been disposed of by the Forest Settlement-officer;

(b) If any such claims have been made, the period limited by section 17 for appealing from the orders passed on such claims has elapsed, and all appeals (if any) presented within such period have been disposed of by the appellate officer or Court; and

(c) All lands (if any) to be included in the proposed forest, which the Forest Settlement-officer has, under section 11, elected to acquire under the Land Acquisition Act, 1894 (1 of 1894), have become vested in the Government under section 16 of that Act, the State Government shall publish a notification in the Official Gazette, specifying definitely, according to boundary-marks erected or otherwise, the limits of the forest which is to be reserved, and declaring the same to be reserved from a date fixed by the notification.

(2) From the date so fixed such forest shall be deemed to be a reserved forest.

26. Acts prohibited in such forests.—(1) Any person who—

(a) Makes any fresh clearing prohibited by section 5, or

(b) Sets fire to a reserved forest, or, in contravention of any rules made by the State Government in this behalf, kindles any fire, or leaves any fire burning, in such manner as to endanger such a forest; or who, in a reserved forest—

(c) Kindles, keeps or carries any fire except at such seasons as the Forest-officer may notify in this behalf,

(d) Trespasses or pastures cattle, or permits cattle to trespass;

(e) Causes any damage by negligence in felling any tree or cutting or dragging any timber;

(f) Fells, girdles, lops, or bums any tree or strips off the bark or leaves from, or otherwise damages, the same;

(g) Quarries stone, bums lime or charcoal, or collects, subjects to any manufacturing process, or removes, any forest-produce;

(h) Clears or breaks up any land for cultivation or any other purpose;

(i) In contravention of any rules made in this behalf by the State Government hunts, shoots, fishes, poisons water or sets traps or snares; or

((j) In any area in which the Elephants' Preservation Act, 1879 (6 of 1879), is not in force, kills or catches elephants in contravention of any rules so made, shall be punishable with imprisonment for a term which may extend to six months, or with fine which may extend to five hundred rupees, or with both, in addition to such compensation for damage done to the forest as the convicting Court may direct to be paid.

(2) Nothing in this section shall be deemed to prohibit

(a) Any act done by permission in writing of the Forest-officer, or under any rule made by the State Government; or

(b) The exercise of any right continued under clause (c) of sub-section (2) of section 15, or created by grant or contract in writing made by or on behalf of the Government under section 23.

(3) Whenever fire is caused willfully or by gross negligence in a reserved forest, the State Government may (notwithstanding that any penalty has been inflicted under this section) direct that in such forest or any portion thereof the exercise of all rights of pasture or to forest produce shall be suspended for such period as it thinks fit.

27. Power to declare forest no longer reserved.—(1) The State Government may, by notification in the Official Gazette, direct that, from a date fixed by such notification, any forest or any portion thereof reserved under the Act shall cease to be a reserved forest.

(2) From the date so fixed, such forest or portion shall cease to be reserved; but the rights (if any) which have been extinguished therein shall not revive in consequence of such cessation.

### **Chapter 3: Of village forests (Section 28)**

This chapter deals with the formation of village forests.

### **Chapter 4: Of protected forests (Section 29-34)**

29. Protected forests.--(1) The State Government may, by notification in the Official Gazette, declare the provisions of this Chapter applicable to any forest-land or waste-land which,, is not included in a reserved forest but which is the property of Government, or over which the Government has proprietary rights, or to the whole or any part of the forest produce of which the Government is entitled.

(2) The forest-land and waste-lands comprised in any such notification shall be called a "protected forest".

(3) No such notification shall be made unless the nature and extent of the rights of Government and of private person persons in or over the forest-land or waste-land comprised therein have been inquired into and recorded at a survey or settlement, or in such other manner as the State Government thinks sufficient. Every such record shall be presumed to be correct until the contrary is proved: Provided that, if, in the case of any forest-land or waste land, the State Government thinks that such inquiry and record are necessary, but that they will occupy such length of time as in the meantime to endanger the rights of Government, the State Government may, pending such inquiry and record, declare such land to be a protected forest, but so as not to abridge or affect any existing rights of individuals or communities.

32. Power to make rules for protected forests.--The State Government may make rules to regulate the following matters, namely:

(a) The cutting, sawing, conversion and removal of trees and timber, and the collection, manufacture and removal of forest-produce, from protected forests;

(b) The granting of licences to the inhabitants of towns and villages in the vicinity of protected forests to take trees, timber or other forest-produce for their own use, and the production and return of such licences by such persons;

(c) The granting of licences to persons felling or removing trees or timber or other forest-produce from such forests for the purposes of trade, and the production

d) The payments, if any, to be made by the persons mentioned in clauses (b) and (c) for permission to cut such trees, or to collect and remove such timber or other forest-produce;

(e) The other payments, if any, to be made by them in respect of such trees, timber and produce, and the places where such payment shall be made;

(f) The examination of forest-produce passing out of such forests;

(g) The clearing and breaking up of land for cultivation or other purposes in such forests;

(h) The protection from fire of timber lying in such forests and of trees reserved under section 30;

(i) The cutting of grass and pasturing of cattle in such forests;

(j) Hunting, shooting, fishing, poisoning water and setting traps or snares in such forests and the killing or catching of elephants in such forests in areas in which the Elephants' Preservation Act, 1879 (6 of 1879), is not in force;

(k) The protection and management of any portion of a forest closed under section 30; and

(l) The exercise of rights referred to in section 29.

33. Penalties for acts in contravention of notification under section 30 or of rules under section 32.--(1) Any person who commits any of the following offences, namely:--

(a) fells, girdles, lops, taps or bums any tree reserved under section 30, or strips off the bark or leaves from, or otherwise damages, any such tree;

(b) Contrary to any prohibition under section 30, quarries any stone, or bums any lime or charcoal or collects, subjects to any manufacturing process, or removes any forest-produce;

(c) Contrary to any prohibition under section 30, breaks up or clears for cultivation or any other purpose any land in any protected forest;

- (d) Sets fire to such forest, or kindles a fire without taking all reasonable precautions to prevent its spreading to any tree reserved under section 30, whether standing fallen or felled, or to say closed portion of such forest;
- (e) Leaves burning any fire kindled by him in the vicinity of any such tree or closed portion;
- (f) Fells any tree or drags any timber so as to damage any tree reserved as aforesaid;
- (g) permits cattle to damage any such tree;
- (h) infringes any rule made under section 32, shall be punishable with imprisonment for a term which may extend to six months, or with fine which may extend to five hundred rupees, or with both.

(2) Whenever fire is caused willfully or by gross negligence in a protected forest, the State Government may, notwithstanding that any penalty has been inflicted under this section, direct that in such forest or any portion thereof the exercise of any right of pasture or to forest-produce shall be suspended for such period as it thinks fit.

#### **Chapter 5: Of the control over forest and lands not being the property government (Section 35-38)**

State has been entrusted of total control over forest and land considering them as the property of the government through chapter 5 of the Indian forest act 1927. Few important sections are given in detail as below:

35. Protection of forests for special purposes.—(1) The State Government may, by notification in the Official Gazette, regulate or prohibit in any forest or waste-land

- (a) The breaking up or clearing of land for cultivation;
- (b) The pasturing of cattle; or
- (c) The firing or clearing of the vegetation; when such regulation or prohibition appears necessary for any of the following purposes:—
  - (i) For protection against storms, winds, rolling stones, floods and avalanches;
  - (ii) For the preservation of the soil on the ridges and slopes and in the valleys of hilly tracts, the prevention of land slips or of the formation of ravines, and torrents, or the protection of land against erosion, or the deposit thereon of sand, stones or gravel;
  - (iii) For the maintenance of a water-supply in springs, rivers and tanks;
  - (iv) For the protection of roads, bridges, railways and other lines of communication;
  - (v) For the preservation of the public health.

(2) The State Government may, for any such purpose, construct at its own expense, in or upon any forest or waste-land, such work as it thinks fit.

(3) No notification shall be made under sub-section (1) nor shall any work be begun under sub-section (2), until after the issue of a notice to the owner of such forest or land calling on him to show cause, within a reasonable period to be specified in such notice, why such notification should not be made or work constructed, as the case may be, and until his objections, if any, and any evidence he may produce in support of the same, have been heard by an officer duly appointed in that behalf and have been considered by the State Government.

36. Power to assume management of forests.—(1) In case of neglect of, or willful disobedience to, any regulation or prohibition under section 35, or if the purposes of any work to be-constructed under that section so require, the State Government may, after notice in writing to the owner of such forest or land and after considering his objections, if any, place the same under the control of a Forest-officer, and may declare that all or any of the provisions of this Act relating to reserved forests shall apply to such forest or land.

(2) The net profits, if any, arising from the management of such forest or land shall be paid to the said owner.

#### **Chapter 6: Of the duty of timber and other forest produce (39-40)**

39. Power to impose duty on timber and other forest-produce.—(1) The [Central Government] may levy a duty in such manner, at such places and at such rates as it may declare by notification in the

Official Gazette on all timber or other forest-produce

(a) Which is produced in §[the territories to which this Act extends], and in respect of which the Government has any right;

(b) Which is brought from any place outside §[the territories to which this Act extends].

**Chapter 7: Of the control of timber and other forest produce in transit (Section 41-44)**

**Chapter 8: Of the collection of drift and other standard timber (Section 45-51)**

**Chapter 9: Penalties and procedures (Section 52-69)**

**52. Seizure of property liable to confiscation.**-(1) When there is reason to believe that a forest-offence has been committed in respect of any forest-produce, such produce together with all tools, boats, carts or cattle used in committing any such offence, may be seized by any Forest-officer or Police-officer.

(2) Every officer seizing any property under this section shall place on such property a mark indicating that the same has been so seized, and shall, as soon as may be, make a - report of such seizure to the Magistrate having jurisdiction to try the offence on account which the seizure has been made: Provided that, when the forest-produce with respect to which such offence is believed to have been committed is the property of Government, and the offender is unknown, it shall be sufficient if the officer makes, as soon as may be, a report of the circumstances to his official superior.

**53. Power to release property seized under section 52.**-Any Forest-officer of a rank not inferior to that of a Ranger who, or whose subordinate, has seized any tools, boats, carts or cattle under section 52, may release the same on the execution by the owner thereof a bond for the production of the property so released, if and when so required, before the Magistrate having jurisdiction to try the offence on account of which the seizure has been made.

**54. Procedure thereupon.**-Upon the receipt of any such report, the Magistrate shall, with all convenient dispatch, take such measures as may be necessary for the arrest and trial of the offender and the disposal of the property according to law.

**55. Forest-produce, tools, etc., when liable to confiscation--** (1) All timber or forest produce which is not the property of Government and in respect of which a forest-offence has been committed, and all tools, boats, carts and cattle used in committing any forest offence, shall be liable to confiscation.

(2) Such confiscation may be in addition to any other punishment prescribed for such offence.

**57. Procedure when offender not known or cannot be found**-When the offender is not known or cannot be found, the Magistrate may, if he finds that an offence has been committed, order the property in respect of which the offence has been committed to be confiscated and taken charge of by the Forest-officer, or to be made over to the person whom the Magistrate deems to be entitled to the same: Provided that no such order shall be made until the expiration of one month from d date of seizing such property, or without hearing the person, if any, claiming any rig thereto, and the evidence, if any, which he may produce in support of his claim.

**58. Procedure as to perishable property seized under section 52**-The Magistrate may, notwithstanding anything hereinbefore contained, direct the sale of any property seized under section 52 and subject to speedy and natural decay, and may deal with the proceeds as he would have dealt with such property if it had not been sold.

**60. Property when to vest in Government.**-When an order for the confiscation any property has been passed under section 55 or section 57, as the case may be, and the period limited by section 59 for an appeal from such order has elapsed, and no such an appeal has been preferred, or when, on such an appeal being preferred, the Appellate C4 confirms such order in respect of the whole or a portion of such property, such property or such portion thereof, as the case may be, shall vest in the Government free from all incumbrances. Event any officer empowered in this behalf by the State Government, from directing at any time the immediate release of any property seized under section 52.



**62. Punishment for wrongful seizure.**-Any Forest-officer or Police-officer who vexatiously and unnecessarily seizes any property on pretence of seizing property liable confiscation under this Act shall be punishable with imprisonment for a term which extend to six months, or with fine which may extend to five hundred rupees, or with both.

**63. Penalty for counterfeiting or defacing marks on trees and timber and for altering boundary marks.**-Whoever, with intent to cause damage or injury to the public or to any person, or to cause wrongful gain as defined in the Indian Penal Code—

(a) Knowingly counterfeits upon any timber or standing tree a mark used by Forest-officers to indicate that such timber or tree is the property of Government or of some person, or that it may lawfully be cut or removed some person; or

(b) Alters, defaces or obliterates any such mark placed on a tree or on timber by under the authority of a Forest-officer; or

(c) Alters, moves, destroys or defaces any boundary-mark of any forest or waste land to which the provisions of this Act are applied, shall be punishable with imprisonment for a term which may extend to two years, or fine, or with both.

**64. Power to arrest without warrant.**—(1) Any Forest-officer or Police-officer without orders from a Magistrate and without a warrant, arrest any person against whom a reasonable suspicion exists of his having been concerned in any forest-offence punishable with imprisonment for one month or upwards.

(2) Every officer making an arrest under this section shall, without unnecessary delay and subject to the provisions of this Act as to release on bond, take or send the person arrested before the Magistrate having jurisdiction in the case, or to the officer in charge of the nearest police station.

(3) Nothing in this section shall be deemed to authorise such arrest for any act which is an offence under Chapter IV unless such act has been prohibited under clause (c) of section 30.

**65. Power to release on a bond a person arrested.**-Any Forest-officer of a rank not inferior to that of a Ranger, who, or whose subordinate, has arrested any person under the provisions of section 64, may release such person on his executing a bond to appear, if and when so required, before the Magistrate having jurisdiction in the case, or before the officer in charge of the nearest police station.

**66. Power to prevent commission of offence.**-Every Forest-officer and Police officer shall prevent, and may interfere for the purpose of preventing, the commission of any forest-offence.

**67. Power to try offences summarily.**-The District Magistrate or any Magistrate of the first class specially empowered in this behalf by the State Government may try summarily, under the Code of Criminal Procedure, 1898, any forest-offence punishable with imprisonment for a term not exceeding six months, or fine not exceeding five hundred rupees, or both.

**68. Power to compound offences.**-(1) The State Government may, by notification in the Official Gazette, empower a Forest officer—

(a) To accept from any person against whom a reasonable suspicion exists that he has committed any forest-offence, other than an offence specified in section 62 or section 63, a sum of money by way of compensation for the offence which such person is suspected to have committed, and

(b) When any property has been seized as liable to confiscation, to release the same on payment of the value thereof as estimated by such officer.

(2) On the payment of such sum of money, or such value, or both, as the case may be, to such officer, the suspected person, if in custody, shall be discharged, the property, if any seized shall be released, and no further proceedings shall be taken against such person or property.

(3) A Forest-officer shall not be empowered under this section unless he is a Forest officer of a rank not inferior to that of a Ranger and is in receipt of a monthly salary amounting to at least one hundred rupees, and the sum of money accepted as compensation under clause (a) of sub-section

(1) shall in no case exceed the sum of fifty rupees.

**Chapter 10: Cattle trespass (Section 70-71)**

70. Cattle-trespass Act, 1871, to apply.-Cattle trespassing in a reserved forest any portion of a protected forest which has been lawfully closed to grazing shall be deemed to be cattle doing damages to a public plantation within the meaning of section II of Cattle-trespass Act, 1871 (1 of 1871), and may be seized and impounded as such by Forest-officer or Police-officer.

**Chapter 11: Of forest officers (Section 72-75)**

72. State Government may invest Forest-officers with certain powers.-(1) The State Government may invest any Forest-officer with all or of the following powers, that is to say:-

- (a) Power to enter upon any land and to survey, demarcate and make a map of the same;
- (b) The powers of a Civil Court to compel the attendance of witnesses and production of documents and material objects;
- (c) Power to issue a search-warrant under the Code of Criminal Procedure, 1898 (5 of 1898); and
- (d) Power to hold an inquiry into forest-offences, and, in the course of such inquiry, to receive and record evidence.

(2) Any evidence recorded under clause (d) of sub-section (1) shall be admissible in subsequent trial before a Magistrate, provided that it has been taken in the presence of accused person.

**Chapter 12: Subsidiary rules (Section 76-78)**

**Chapter 13: Miscellaneous (Section 79-86)**

79. Persons bound to assist Forest-officers and Police-officers.-(1) Every person who exercises any right in a reserved or protected forest, or who is permitted to take any forest-produce from, or to cut and remove timber or to pasture cattle in, such forest, and every person who is employed by any such person in such forest, and every person in any village contiguous to such forest who is employed by the Government or who receives emoluments from the Government for services to be performed to the community, shall be bound to furnish without unnecessary delay to the nearest Forest-officer or Police officer any information he may possess respecting the commission of, or intention to commit, any forest-offence, and shall forthwith take steps, whether so required by any Forest-officer or Police officer or not,-

- (a) To extinguish any forest fire in such forest of which he has knowledge or information;
- (b) To prevent by any lawful means in his power any fire in the vicinity of such forest of which he has knowledge or information from spreading to such forest, and shall assist any Forest-officer or Police-officer demanding his aid-
- (c) In preventing the commission in such forest of any forest-offence; and
- (d) When there is reason to believe that any such offence has been committed such forest in discovering and arresting the offender.

(2) Any person who, being bound so to do, without lawful excuse (the burden of proof which shall lie upon such person) fails-

- (a) To furnish without unnecessary delay to the nearest Forest-officer or Police officer any information required by sub-section (1);
- (b) To take steps, as required by sub-section (1), to extinguish any forest fire in reserved or protected forest;
- (c) To prevent, as required by sub-section (1), any fire in the vicinity of such forest from spreading to such forest or
- (d) To assist any Forest-officer or Police officer demanding his aid in preventing the commission in such forest of any forest-offence, or, when there is reason to believe that any such offence has been committed in such forest, in discovering and arresting the offender, shall be punishable with imprisonment for a term which extends to one month, or with fine which may extend to two hundred rupees, or with both.

80. Management of forests the joint property of Government and other persons.-(1) If the Government and any person be jointly interested in any forest or waste-land, or in the whole or any part of the produce thereof, the State Government may either-

- (a) Undertake the management of such forest, waste-land or produce, accounting to such person for his interest in the same; or

(b) Issue such regulations for the management of the forest, waste-land or produce by the person so jointly interested as it deems necessary for the management thereof and the interests of all parties therein.

(2) When the State Government undertakes under clause (a) of sub-section (1) the management of any forest, waste-land or produce, it may, by notification in the Official Gazette, declare that any of the provisions contained in Chapters 11 and IV shall apply to such forest, waste-land or produce, and thereupon such provisions shall apply accordingly.

82. Recovery of money due to Government.—All money payable to the Government under this Act, or under any rule made under this Act, or on account of the price of any forest produce, or of expenses incurred in the execution of this Act in respect of such produce, may, if not paid when due, be recovered under the law for the time being in force as if it were an arrear of land-revenue.

(Source: **Handbook of Environment, Forest and Wildlife Protection Laws in India** by Justice K.Singh, Natraj Publications)

### **2.3 FOREST CONSERVATION ACT, 1980**

Indiscriminate felling of trees and massive diversion of forest land for non-forestry purposes since independence has led to the enactment of the Forest conservation Act in the year 1980. This Act was enacted for providing a higher level of protection to the forests and to regulate diversion of forest lands for non forestry purposes.

#### **Chapter 1: Application of Forest Conservation Act, 1980 (Section 1-3)**

This chapter focuses on the introductory aspects like definitions, scope and application of the act. It also gives certain preliminary information regarding the so-called “non forestry” activities on forested lands.

Definitions: In these rules, unless the context otherwise requires-

- a. “Act” means the Forest (Conservation) Act, 1980 (69 of 1980)
- b. “Committee” means the Committee constituted under section 3
- c. “Chairman” means the Chairman of the Committee
- d. “Member” means the member of a committee
- e. “Section” means a section of the Act.

#### **Chapter 2: Submission of proposals**

This chapter prescribes the procedure for submission of proposals for seeking prior approval of the Central Government under Section 2 of the Act.

#### **Chapter 3: Compensatory afforestation (Section 3A-3B)**

Compensatory afforestation is a condition stipulated by the central government while approving proposals for de-reservation or diversion of forest land for non-forest uses. With all proposals that are submitted to the central government for clearance, a comprehensive scheme for compensatory afforestation must be formulated and submitted. While compensatory afforestation is usually raised over non-forest land, under certain conditions and for certain type of activities, such compensatory afforestation may be raised over degraded forest land.

The compensatory afforestation scheme, submitted along with a proposal by the user agency shall include:

- i) Details of non-forest/degraded forest land identified for compensatory afforestation (see below)
- ii) Map of the area to be taken up for compensatory afforestation
- iii) Year-wise phased forestry operations
- iv) Details of species to be planted
- v) A suitability certificate from the afforestation/management point of view along with the cost

structure of various operations

vi) Agency responsible for afforestation

vii) Details of work schedule proposed for compensatory afforestation

ix) Details of monitoring mechanism

x) Cost structure of plantation, provision of funds and the mechanism to ensure that the funds will be utilized for raising afforestation.

The compensatory afforestation schemes have to be site-specific and per hectare rate will vary according to species, type of forest and site. While sometimes such schemes have been submitted at a cost structure which is at variance with the cost norms for the same area, in the guidelines issued by the Ministry of Environment and Forests in this regard, it has been decided that compensatory afforestation schemes which are submitted must have technical and administrative approvals from the competent authority and should be in conformity with cost norms based on species, type of forest and site.

### **Transfer of land to Forest Department**

The land identified for compensatory afforestation is to be transferred to the ownership of the state Forest Department, and declared as reserved/protected forests (under the provisions of the Indian (Forest) Act of 1927) so that the plantation raised can be maintained permanently. The transfer must take place prior to the commencement of the project. The compensatory afforestation should clearly be an additional plantation activity and not a diversion of part of the annual plantation program.

### **Projects for which compensatory afforestation may be raised over degraded forest land:**

As an exception to the condition under which all compensatory afforestation must be raised over non-forest land, compensatory afforestation may be raised over degraded forest land *twice in extent* of the forest area being diverted/de-reserved in respect of the following type of proposals:

- Extraction of minor minerals from the river beds. If the area being diverted is above 500 Ha, compensatory afforestation shall be carried out over the equivalent area of degraded forest land, subject to a minimum of 1000 Ha (instead of twice the extent of such area)
- Construction of link roads, small water works, minor irrigation works, school buildings, dispensaries, hospitals, small rural industrial sheds of the government or any other work (excluding mining and encroachment cases) which directly benefit the people of the area, in hill districts and districts having forest area exceeding 50% of the total geographical area. The diversion of forest land in such cases should not exceed 20Ha.
- Laying of transmission lines up to 220 KV
- Mulberry plantation undertaken for silkworm rearing without any felling of existing trees
- Diversion of linear or 'strip' plantations declared as protected forest along road/rail/canal sides for widening or expansion of road/rail/canal.
- Laying of telephone or optical fiber lines
- Central government undertakings

### **Projects exempted from compensatory afforestation**

No compensatory afforestation shall be insisted upon in respect of the following:

- Clearing of naturally grown trees in forest land (or a portion of such land) for the purpose of using it for reforestation
- Proposals involving diversion of forest land up to 1 Ha. However, in such cases, plantation of ten times the number of trees likely to be felled will have to be carried out by way of compensatory afforestation or any number of trees specified in the order
- Underground mining in forest land below 3 meters. However, in respect of forest area required for carrying out activities for which surface rights have been acquired, compensatory afforestation shall be required as per relevant provisions
- Cases of renewal of mining lease for the forest area already broken/used for mining, dumping or overburden, construction of roads, ropeways, buildings, etc. For the balance area, compensatory afforestation shall be required to be done as stipulated, provided that no compensatory afforestation had been stipulated and done in respect of this area at the time of grant/renewal of the lease earlier

### **Special provisions for central government undertakings**

Under the guidelines issued by the Ministry of Environment and Forest for compensatory afforestation, special provisions have been laid out for the central government and central government undertakings:

- Compensatory afforestation may be raised on degraded forest land twice in extent of the forest area being diverted. The certificate issued by the Chief Secretary regarding the non-availability of non-forest land for compensatory afforestation will not be insisted upon.
- The user agency will deposit the amount for compensatory afforestation with the concerned state government on receiving the demand and the actual transfer/use of forest land will be effected only after the receipt of the demanded amount
- The state governments will identify blank forest or degraded forest land for compensatory afforestation. The state governments of Madhya Pradesh and Rajasthan will identify such degraded forest land in their states for compensatory afforestation of central projects in their respective states
- The pool of degraded forest land in Madhya Pradesh and Rajasthan will also be available for the central government projects of other states if the concerned state governments fail to identify the requisite land, as mentioned above, for compensatory afforestation in its own territory within one month of the submission of the proposal to the state government
- While identifying the pool of degraded forest land, blank forest lands in reserved forests in compact/sizeable blocks should be identified on first priority as “plantation bank”. An appropriate treatment plan with choice of species should be prepared by the beneficiary states. Only when such areas are not available, the choice of compensatory afforestation shall fall on protected, unprotected and unclassified forest in declining order of priority
- The Nodal Officer (Forest Conservation), state Forest Department, will identify the pool of such degraded forest lands in consultation with concerned Chief Conservator of Forests of the Regional Office of the Ministry of Environment and Forest.

The provisions of the above guidelines would be applicable only to central Sector projects and not on state Sector projects which are being undertaken by central PSUs on turnkey basis. In such cases, compensatory afforestation on equivalent *non-forest land* and a certificate of the Chief Secretary regarding the non-availability of equivalent non-forest land anywhere in the state shall be insisted upon.

### **Collection of Net Present Value (NPV)**

The Supreme Court issued orders dated 30.10.2002 and 10.07.2003 regarding the collection of Net Present Value from user agencies. The Ministry of Environment and Forest issued guidelines in this regard to state/UT governments for the recovery/collection of Net Present Value of the forest land being diverted for non-forestry purposes under this Act:

- The NPV per hectare depends upon the quantity and density of land in question. The state/UT governments are directed to charge NPV within the rates indicated by the order of the Supreme Court (between Rs 5.80 lakhs to Rs 9.20 lakhs per hectare). This will depend on the quality of forest, density and type of species in the area
- The state/UT governments transfer these funds to the Compensatory Afforestation Management and Planning Authority (CAMPA)
- The state/UT governments should complete the collection process of NPV for the cases approved under this Act after 30.10.2002 within a period of two months and submit a compliance report through their respective Regional Offices of the Ministry of Environment and Forest. The Regional Offices should submit the compliance report to the Ministry of Environment and Forest after due verification.

### **CAMPA – Compensatory Afforestation Fund Management and Planning Authority**

The Central Empowered Committee was constituted by the central government under the Act for examining issues related to compensatory afforestation, net present value of diverted forest land, and other funds (monies) recoverable, received and utilized in this regard. On the recommendations of the CEC, the Supreme Court (in its order dated 30.10.2002 in Interlocutory Application No. 566 in Writ Petition (C) No. 202 of 1995) directed the central government to constitute a body for the management of compensatory afforestation funds, Net Present Value, etc.

In April 2004, the central government, under the orders of the Supreme Court, constituted the **Compensatory Afforestation Fund Management and Planning Authority (CAMPA)** for the management of money towards compensatory afforestation, NPV and other money recoverable, in compliance of the conditions stipulated by the central government and in accordance with the Forest (Conservation) Act, 1980.

#### **Chapter 4: Some clarifications (Section 4)**

This chapter deals with the delegation of power of the various officials regarding the conservation of forest resources.

#### **Chapter 5: Conditions stipulated in forestry clearances (Section 5-6)**

Whenever clearances are accorded for diversion/de-reservation of forest land under the provisions of the Forest (Conservation) Act, 1980, certain conditions to minimize impact on forest land are imposed by the Ministry. These conditions comprise of general conditions, which are stipulated in almost all the proposals; standard conditions, which are stipulated on types/category of projects and specific conditions, which are stipulated keeping in view the impact of the project on forests.

(Source:

- <http://www.envlaws.org/FCA/spg2.html>
- Environmental law by Dharmendra S. Sengar, Google Books )

## **2.4 NATIONAL FOREST POLICY, 1988**

The National Forest policy was first enacted in the year 1894 focusing mainly on the environmental stability and meeting the basic needs of the fringe people. This policy was revised in the year 1952 when main emphasis was laid on the extension of the traditional forest areas. Finally in the year 1988 the third policy was formed considering the sustainable utilization of the resources and development of the people.

### **Chapter 1: Preamble**

In Resolution No. 13/52/F, dated the 12<sup>th</sup> May, 1952, the Government of India in the erstwhile Ministry of Food and Agriculture enunciated a Forest Policy to be followed in the management of state forests in the country.

### **Chapter 2: Basic Objectives**

The basic objectives that should govern the National Forest Policy are the following:

- Maintenance of environmental stability through preservation and restoration of ecological balance
- Conservation of the bio-diversity of the nation's forests
- Checking erosion and denudation
- Checking the extension of deserts
- Increasing the green cover of the nation
- Meeting the requirement of fuel and fodder
- Increasing the productivity of the forests
- Encouraging the efficient utilization of the forest produce
- Educating people regarding the importance of forests to achieve these objectives

### **Chapter 3: Essentials of Forest Management**

- Existing forests and forest lands should be fully protected and their productivity increased.
- Diversion of productive agricultural lands to forestry should be discouraged.
- Strengthening and extension of the Protected Area Network should be done.
- Provision of sufficient fodder, fuel and pasture, especially in areas adjoining forest should be looked after.
- Minor Forest produce provides sustenance to tribal population and to other communities residing in and around the forests.

### **Chapter 4: Strategy**

#### **Area under Forests**

The National goal should be to have a minimum of one-third of the total land area of the country under forest.

#### **Afforestation, Social forestry & Farm Forestry**

A massive need based and time bound program of afforestation with emphasis on fuel wood and fodder development on all degraded lands in the country is a national imperative. It is necessary to encourage the planting of trees alongside of roads, railway lines, rivers and canals, and on the other unutilized lands under state/corporate, institutional or private ownership. Village and community lands, including those on foreshores and environs of tanks, not required for other productive uses, should be taken up for the development of tree crops and fodder resources.

Land laws should be so modified whenever necessary so as to facilitate and motivate individuals and institutions to undertake tree farming and grow fodder plants, grasses and legumes on their own land. Whenever possible, degraded lands should be made available for this purpose either on lease or on the basis of a tree-patta scheme.

## **Management of State Forest**

Schemes and projects which interfere with forests that clothe steep slopes, catchments of streams, geologically unstable terrain and such other ecologically sensitive areas should be severely restricted.

- No forest should be permitted to be worked without Government having approved the management plan, which should be in the prescribed format and in keeping with the National Forest Policy.
- In order to meet the growing needs for essential goods and services which the forests provide, it is necessary to enhance forest cover and productivity of forest through application of scientific and technical inputs. Production forestry programs, while aiming at enhancing forest cover in the country, and meeting national needs, should be oriented to narrowing, by the turn of the century, the increasing gap between demand and supply of fuel wood.

## **Rights & Concessions**

- The rights and concessions, including grazing, should always remain related to the carrying capacity of forests.
- The holders of customary rights & concessions in forest areas should be motivated to identify themselves with the protection & development of forests.
- The life of tribal & other poor living within forests should be fully protected regarding rights.
- Similar considerations should be given to scheduled castes and other poor living near forests.
- The long term supply of wood along with minimizing the pressure on forests for demand of wood products must be taken into account.

## **Diversion of Forest lands for non-forest purposes**

Forest land should not be treated merely as a resource readily available to be utilized for various projects. Diversion of forest land for any non-forest purpose should be subject to the most careful examinations by specialists from the standpoint of social and environmental costs and benefits. No mining lease should be granted to any party without a proper mine management plan appraised from the environmental angle and enforced by adequate machinery.

## **Wildlife Conservation**

It is especially essential to provide “corridors” linking the protected areas in order to maintain genetic continuity between artificially separated sub-sections of migrant wildlife.

## **Tribal people & Forests**

Having regard to the symbiotic relationship between the tribal people and forests, a primary task of all agencies responsible for forest management, including the forest development corporations should be to associate the tribal people closely in the protection, regeneration and development of forest as well as to provide gainful employment to people living in and around the forest.

- In order to put an end to illegal removal of forest resource, contractors should be replaced by institutions such as tribal co-operatives, labor co-operatives, government corporations, etc as early as possible.
- Protection, regeneration and optimum collection of minor forest produce along with institutional arrangements for the marketing of such produce.
- Development of forest villagers on par with revenue villages.
- Family oriented schemes for improving the status of the tribal beneficiaries.
- Undertaking integrated area development programs to meet the needs of the tribal economy in and around the forest areas.

## **Shifting Cultivation**

Shifting cultivation is affecting the environment and productivity of land adversely, alternative avenues of income, suitably harmonized with the right land-use practice, should be



devised to discourage shifting cultivation. Efforts should be made to contain such cultivation within the area already affected by propagating improved agricultural practices.

### **Damage to forests from encroachment, fires and grazing**

Encroachment on forest lands has been on the increase. There should be no regularization of existing encroachments. The incidence of forest fires in country is high. Special precautions should be taken during the fire season. Improved and modern management practices should be adopted to deal with forest fires. Grazing in forest areas should be regulated with involvement of the community.

### **Forest-based industries**

- As far as possible, a forest-based industry should industry should raise the raw material needed for meeting its own requirement, preferably by establishment of a direct relationship between the factory and the individuals with inputs including credit, constant technical advice and finally harvesting and transport services.
- No forest-based enterprise except that at the village or cottage level should be permitted in the future unless it has been first cleared
- Forest based industries must not only provide employment to local people on priority but also involve them fully in raising trees and raw material.
- Natural forests serve as a gene pool resource and help to maintain ecological balance. Such forests will not therefore be made available to industries for undertaking plantation and for any other activities.

### **Forest extension**

Forest conservation program cannot succeed without the willing support and co-operation of the people. It is essential. Therefore to inculcate in the people a direct interest in forest their development and conservation and to make them conscious of the value of trees wildlife and nature in general.

### **Forestry education**

Forestry should be recognized both as a scientific discipline as well as a profession. Agriculture universities and institutions dedicated to the development of forestry education should formulate curricula and courses for imparting academic education and promoting post graduate research and professional excellence keeping in view the manpower needs of the country.

### **Forestry research**

- Increasing the productivity of wood and other forest products per unit of area per unit time by the application of modern scientific methods.
- Revegetation of barren lands.
- Effective conservation & management of existing forest resource.
- Research related to social forestry for rural development.
- Development of substitutes to replace wood and wood products.
- Research related to wildlife and management of protected areas.

### **Personnel Management**

Government policies in personnel management for professional foresters and forest scientists should aim at enhancing their professional competence and status and attracting and retaining qualified and motivated personnel.

### **Forest survey and data base**

Priority needs to be accorded to completing the survey of survey of forest resources in the country on scientific lines and to updating information.

### **Legal support and infrastructure development**

Appropriate legislation should be undertaken, supported by adequate infrastructure at the centre and state levels in order to implement the policy effectively.

### **Financial support for forestry**

Investment of financial and other resources in forestry sector is justified considering the contribution of forest to ecology & economy of the nation.

(Source:

- Community Forest Management: A casebook from India by Joe Human and Manoj Pattnaik, Google Books
- Handbook of Environment, Forest and Wildlife Protection Laws in India by Justice K.Singh, Natraj Publications)

## **2.5 WILDLIFE PROTECTION ACT, 1972**

### **SCOPE AND IMPLEMENTATION:**

The year 1986 and 1991 amendments of the Wildlife (Protection) Act, 1972 strengthened this law substantially and removed many of the loopholes by which trade and commerce in wildlife and its products was being carried out. Both these amendments were challenged by wildlife traders in the Hon. High Court of Delhi, and initially they were successful in obtaining orders staying the operation of the provisions which sought to end the wildlife trade. The judgment in these cases was delivered by the Hon. High Court of Delhi on 20<sup>th</sup> March, 1997. The two landmark judgments ran into over 100 pages and uphold the 1986 and 1991 amendments. These are speaking judgments which uphold the right of the legislature to abolish trade in obnoxious and socially undesirable goods. The 1986 and 1991 amendments have been upheld and therefore, barring a limited export trade in shed antlers and peacock feathers, the trade in wild fauna and its products has been abolished.

In 1995 a study conducted by the Wildlife Protection Society of India on the impact of this law showed that in the last 5 years or so, no more than 2 to 3 persons in India had actually received jail sentences for crimes against even major species such as tiger, elephant and rhino. And with one exception, these persons were low level poachers. In Assam, there are at least 2 or 3 seizures and arrests of rhino horn poachers every year. Many wildlife traders and poachers are believed to be continuing their illegal activities, despite several cases pending against them. So far the act has not proved to be much of a deterrent to offenders. Very few forest officers who are empowered to file wildlife court cases are trained and have resources to conduct sustained investigation and interrogation, take evidence, frame charges and pursue court cases. Ways to expedite justice in wildlife cases were suggested in the Subramanian Committee report submitted to Ministry of Environment and Forest in August 1994, but so far tangible implementation has not taken place.

One possible solution is to amend the Act to provide for more stringent penalties for offenses against schedule I, part II of schedule II for second and subsequent offenses and unauthorized taxidermy. The purpose is to bring these offenses in the first classification of section 511 of the code of criminal procedure which will make the offense cognizable, non-bailable and triable by a sessions court. Thus, endangered penalties for second and subsequent offenses and taxidermy will prove to be an effective deterrent to professional traders and poachers.

Preservation of wildlife cannot be achieved by the government machinery alone. Active co-operation of the public is an essential ingredient. This includes a large number of committed non-governmental individuals and organization; but they will have to empower under law to be effective. Mere chest-thumping from outside will not achieve what an institutional mechanism can. The law as it stands today does empower individual and NGOs to institute wildlife court cases. Section 55C of the Act allows cognizance of offenses by a court on a plaint from "Any person who has given notice of not less than 60 days, in the manner prescribed, of the alleged offense and of his intention to make a complaint, to the Central government, or State government or the officer authorized as aforesaid." The procedure is given in the Wildlife (Protection) Act 1972.

A loophole in the Act is the provision which allows wildlife trophies covered by ownership certificates to be gifted, sold and transported inter-state. Some states have added to the problem

by continuing to issue ownership certificates as recently as 1995 though the process should have been completed by 1973 or 1974. This is particularly alarming considering the evidence that ownership certificates have been used by traders to launch to launder recently acquired tiger and leopard skins. The situation could become even more complicated if the courts decide to return stocks-which are presently sealed-to former legal wildlife traders and allow them to be kept under personal ownership certificates. The entire subject of ownership certificates needs to be tightened up by amending the Act so that these certificates do not become an instrument of illegal trade.

Currently the Act does not cover foreign endangered wildlife species. If detected Indian wildlife authorities are powerless except to ask customs authorities to intervene which is not practical. There is therefore a need to cover endangered species from other countries so that India can better discharge its obligations under CITES.

However, this narration may give the impression that the Wildlife Protection Act of 1972 has too many shortcomings. From 1972, the Wildlife Protection Act has been the main defender of the integrity of national parks against populist pressures. Judicial activism by NGOs has been proven to be vital force in this direction. Of the other laws which are relevant to species conservation is the Environment Protection Act 1986. The guidelines of the EP Act requires impact assessment of such structures situated within 25 kms of ecologically sensitive areas which includes national parks and sanctuaries.

In a positive step forward Ministry of Environment and Forest (MoEF) has stated in an affidavit filed in May 1996 in a wildlife court case before the Hon. High Court of Delhi that they are opposed to any individual activity within 5 kms from the boundary of a national park and would scrutinize such proposals up to a distance of 25 kms.

Other important instruments for the conservation of wildlife in India are the Indian Forest Act, 1927 and the Forest Conservation Act 1981. It has been calculated that Indian forests supply timber, firewood, bamboo, medicinal plants and other goods to the tune of Rs. 40,000 crores a year. The value does not include the value of ecological services provided by forests including the protection of vital water catchment areas of our country and harboring wild species of fauna. Natural forests deserve to be respected and treasured.

The extension of care to other species has two facets. The first is not in fact driven by compassion. We need to conserve species so that we can continue to “use” them. The other facet is driven by the conviction that all the species were created equal and have an intrinsic right to survival. Thus, man cannot arrogate the right to cause their extinction; if they are to go extinct, let that be an act of nature. This realization is a significant evolutionary step for mankind. No wonder therefore that the Indian constitution enjoins upon every citizen of India to protect the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures.

### **Important definitions:**

The chapter 1 in its section 1 and 2 deal with some basic definitions related to wildlife, its administration, management and other such aspects. Some of the definitions can be read as under

- “Animal” includes amphibians, birds, mammals, and reptiles, and their young, and also includes, in the cases of birds and reptiles, their eggs,
- “Captive animal” means any animal, specified in Schedule I, Schedule II, Schedule III or Schedule IV, which is captured or kept or bred in captivity;
- “Closed area” means the area which is declared under sub-section (1) of Sec.37 to be closed to hunting;
- “Habitat” includes land, water, or vegetation which is the natural home of any wild animal;
- “Hunting”, with its grammatical variations and cognate expressions, includes,
- “Permit” means a permit granted under this Act or any rule made there under;
- “Person” includes a firm;

- “Trophy” means the whole or any part of any captive animal or wild animal, other than vermin, which has been kept or preserved by any means, whether artificial or natural, and includes,
- “Wild animal” means any animal found wild in nature and includes any animal specified in Schedule I, Schedule II, Schedule, IV or Schedule V, wherever found;
- “Wildlife” includes any animal, bees butterflies, crustacean, fish and moths; and aquatic or land vegetation which forms part of any habitat;

### **2.5.1. PROTECTED AREAS:**

#### **Chapter 4: Sanctuaries, National Parks and closed areas (Section 18-38 including 26A and 33A)**

This chapter deals with the provisions related to the formation of protected areas like sanctuaries, national parks and other closed areas for the protection of the local biodiversity in an *in-situ* manner.

#### **Wildlife Sanctuaries (Section 18):**

A wildlife sanctuary is declared by the state government. A wildlife sanctuary enforces relatively less stringent laws on aspects of hunting, capturing or collection of flora and fauna. The boundaries are also not clearly demarcated in such protected areas.

**Declaration of Sanctuary under section 18** – [(1) The State Government may, by notification, declare its intention to constitute any area other than area comprised with any reserve forest or the territorial waters as a sanctuary if it considers that such area is of adequate ecological, faunal, floral, geo-morphological, natural. or zoological significance, for the purpose of protecting, propagating or developing wildlife or its environment.]

(2) The notification referred to in sub-section (1) shall specify, as nearly as possible, the situation and limits of such area.

Explanation. - For the purposes of the this section, it shall be sufficient to describe the area by roads, rivers, ridges, or other well-known or readily intelligible boundaries

Restriction on entry in sanctuary. –

(1) No person other than,

(a) A public servant on duty;

(b) A person who has been permitted by the Chief Wildlife Warden or the authorized officer to reside within the limits of the sanctuary;

(c) A person who has any right over immovable property within the limits of the sanctuary;

(d) A person passing through the sanctuary along a public highway,

(e) The dependents of the person referred to in Cl. (a), (b) or (c).

Under Wildlife (Protection) Amendment 2002 section 18A and 18B have been incorporated. Under section 18A subsection1 the state government can declare area other than reserve forest or territorial waters, as a sanctuary and the provisions under 27-33A are also applicable in such areas. Under 18B state government shall appoint an officer to act as collector within 30 days of the issue of notification under section 18. Under the provision of this amendment the state government have been entrusted to declare any area as conservation reserve and also as community reserves.

#### **National Parks (Section 26A):**

The term “National Park” denotes an area which is set aside for the protection and conservation of outstanding natural fauna, flora, geological formations, etc.

**Declaration of National Parks under section 26A** – (1) Whenever it appears to the State Government that an area, whether within a sanctuary or not, is, by reason of its ecological, faunal, floral, geo-morphological, or zoological association or importance, needed to be constituted as a National Park for the purpose of protecting & propagating or developing wildlife therein or its environment, it may, by notification, declare its intention to constitute such area as a National Park. [11(1) Provided that where any part of the territorial waters is proposed to be included in such National Park, the provisions of Sec.26A shall, as far as may be, apply in relation to the declaration of a National Park as they apply in relation to the declaration of a sanctuary.]

(2) The notification referred to in sub-section (1) shall define the limits of the area which is intended to be declared as a National Park.

(3) Where any area is intended to be declared as a National Park, the provisions of Sec. [1219 to 26-A (both inclusive except clause (c) of sub-section (2) of section 24)] shall, as far as may be, apply to the investigation and determination of claims and extinguishment of rights, in relation to any land in such area as they apply to the said matters in relation to any land in a sanctuary.

(4) When the following events have occurred, namely (a) the period for preferring claims has elapsed, and all claims, if any, made in relation to any land in an area intended to be declared as a National Park, have been disposed of by the State Government, and

(b) All rights in respect of lands proposed to be included in the National Park have become vested in the State Government the State Government shall publish a notification specifying the limits of the area which shall be comprised within the National Park and declare that the said area shall be a National Park on and from such date as may be specified in the notification.

(5) No alteration of the boundaries of a National Park shall be made except on a (6) No person shall, destroy, exploit, or remove any wildlife from a National Park or destroy or damage the habitat or any wild animal or deprive any wild animal or its habitat within such National Park except under and in accordance with a permit granted by the Chief Wildlife Warden and no such permit shall be granted unless the State Government, being satisfied that such destruction, exploitation, or removal of wildlife from the National Park is necessary for the improvement and better management of wildlife therein, authorizes the issue of such permit.

(7) No grazing of any [livestock<sup>13</sup>] shall be permitted in a National Park and no livestock shall be allowed to enter except where such [livestock] is used as a vehicle by a person authorized to enter such National Park.

(8) The provisions of secs. 27 and 28, secs.30 to 32 (both inclusive), and CIS, (a), (b) and (c) of [Sec.33, 33A<sup>14</sup>] and sec.34 shall, as far as may be, apply in relation to a National Park as they apply in relation to a sanctuary.

**Community reserve and conservation reserve (Section 36A to 36D):**

"36A. (1) The State Government may, after having consultations with the local communities, declare any area owned by the Government, particularly the areas adjacent to National Parks and sanctuaries and those areas which link one protected area with another, as a conservation reserve for protecting landscapes, seascapes, flora and fauna and their habitat:

Provided that where the conservation reserve includes any land owned by the Central Government, its prior concurrence shall be obtained before making such declaration.

(2) The provisions of sub-section (2) of section 18, sub-sections (2), (3) and (4) of section 27, sections 30, 32 and clauses (b) and (c) of section 33 shall, as far as may be, apply in relation to a conservation reserve as they apply in relation to a sanctuary

36B. (1) The State Government shall constitute a conservation reserve management committee to advise the Chief Wild Life Warden to conserve, manage and maintain the conservation reserve.

(2) The committee shall consist of a representative of the forest or Wild Life Department, who shall be the Member-Secretary of the Committee, one representative of each Village Panchayat in whose jurisdiction the reserve is located, three representatives of non-governmental organizations working in the field of wild life conservation and one representative each from the Department of Agriculture and Animal Husbandry.

(3) The Committee shall regulate its own procedure including the quorum.

36C. (1) The State Government may, where the community or an individual has volunteered to conserve wild life and its habitat, declare any private or community land not comprised within a National Park, sanctuary or a conservation reserve, as a community reserve, for protecting fauna, flora and traditional or cultural conservation values and practices.

(2) The provisions of sub-section (2) of section 18, sub-sections (2), (3) and (4) of section 27, sections 30, 32 and clauses (b) and (c) of section 33 shall, as far as may be, apply in relation to a community reserve as they apply in relation to a sanctuary.

(3) After the issue of notification under sub-section (1), no change in the land use pattern shall be made within the community reserve, except in accordance with a resolution passed by the management, committee and approval of the same by the State Government.

These protected area categories were first introduced in the [Wildlife \(Protection\) Amendment Act of 2002](#) - the amendment to the [Wildlife Protection Act of 1972](#). These categories were added because of reduced protection in and around existing or proposed protected areas due to private ownership of land, and land use.

**.Chapter 5:** Trade or Commerce in wild animals, animal articles and trophies (Section 39-49)

This chapter deals with the legal actions that can be taken for trading wild animals or animal parts without any proper license.

**Chapter 5A:** Prohibition of trade or commerce in trophies, animal articles, etc from certain animals (Section 49A-49C)

This chapter mainly focuses on the issue or grant of license for authorizing certain persons regarding the trade of animals or animal articles. This way illegal trade will be nullified or at least managed in a better way. The license holder is answerable to the forest officials in cases of dispute or discrepancy.

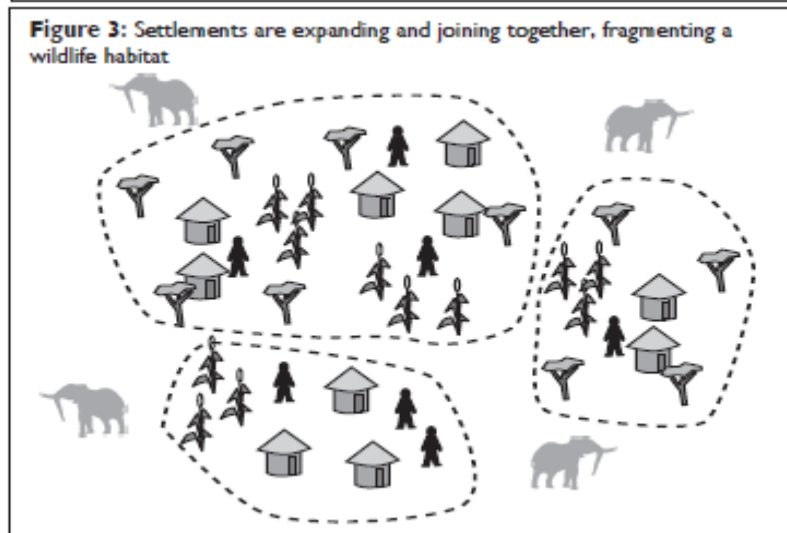
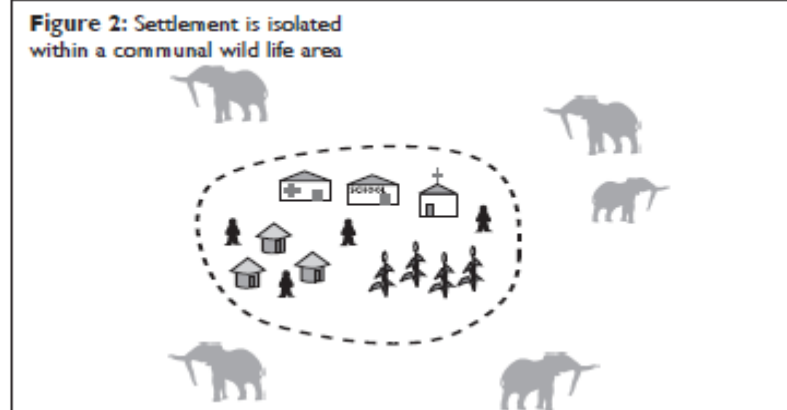
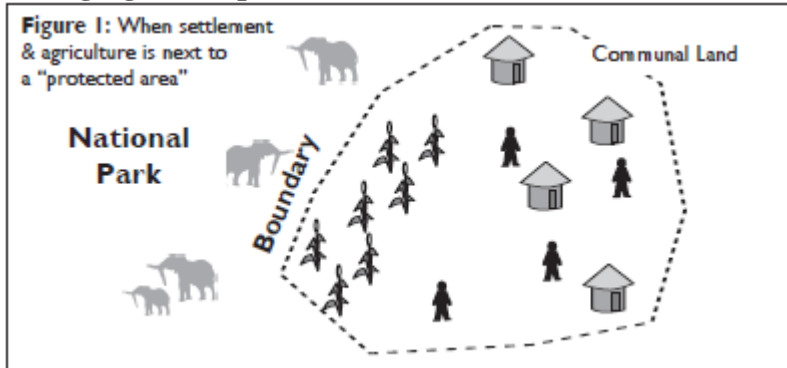
**Chapter 6:** Prevention and detection of offences (Section 50-58)

This chapter embraces the power of entry, search, arrest and detention against those intruders or illegal traders who violate the law.

## **2.6. PEOPLE Vs PARK**

Protected areas are refuges of tranquility and peace, yet they are also places where conflict occurs. In a world in which the bio-physical environment and socio-cultural systems are changing rapidly, conflicts involving protected areas are inevitable. It is important to emphasize that conflict is not necessarily bad. Conflict can represent the productive interaction of competing interests and values, an ever-present function in a dynamic society. Conflicts that are properly addressed can be opportunities for problems to be identified and solved, and progress achieved. Many conflicts, however, can become counterproductive and destructive, leading to detrimental results and hostile relationships. Protected area staff faces the challenge of trying to respond to conflicts so that unproductive consequences can be avoided while human well being and the natural environment are protected. Conflicts can be resolved in a variety of ways. One side may defeat the other side through armed combat. Or a formal legal or institutional mechanism (such as a court proceeding or legislative action) may be utilized to resolve the conflict. The conflict resolution framework described in this Handbook is oriented toward informal, voluntary, collaborative approaches that can be used either to supplement formal mechanisms or as stand-alone processes. The assumption behind the framework is that a good conflict resolution process is one in which stakeholders (those individuals or groups who are directly involved in the conflict, or who may be affected by how the conflict is resolved) have the opportunity to really understand each other's needs, develop a range of alternatives for how to address those needs, and reach a mutually agreeable solution. The emphasis is on communication. Another way to think about this kind of conflict resolution approach is as joint problem solving or decision-making when there is disagreement, something we all do every day, with our families, friends, and co-workers. Many of the same common-sense approaches we use in those settings can be applied to protected area conflicts.

**The following figures depict interferences of human settlements to wildlife habitat:**



**Key Principles**

All conflicts occur, and must be addressed, within a particular cultural, political, and social context. Any conflict management approach must be appropriate for the context in which it happens and must take local conflict resolution customs and institutions into account. Nevertheless, there are three general principles that should be applicable to the majority of protected area conflicts.

**Principle One - Focus on Underlying Interests**

A major challenge in resolving conflicts is to address the underlying interests that are really at stake rather than getting stuck arguing over positions. The term "interests" is used to mean people's fundamental needs and concerns. The term "positions" is used to mean the proposals that people put forward to try to satisfy their interests. The difference between interests and positions can be illustrated by this example.

**Example:** Animals from a protected area are trampling and eating crops in gardens belonging to people who live near the area. The interests of those local people are to protect their lives and

livelihoods. The positions that could serve their interests might include: 1) shooting animals that enter their gardens, 2) using electric fences to keep the animals out of the gardens, 3) relocating the people to some other place which is not subject to wildlife depredation, 4) eliminating the gardens and providing the people with food from some other source, or 5) compensating the people for the losses from the gardens.

Obviously, some of these solutions are more desirable and feasible than others. The point is that there are probably a variety of positions that might serve the same interest. Too often, however, individuals involved in a conflict decide on a single position and then spend all their time and energy defending that position instead of trying to understand the interests at stake and identifying and exploring a variety of positions that might satisfy those interests. Usually only by examining a variety of possible positions can parties in conflict come up with a mutually agreeable resolution to the conflict (or at least a resolution that represents a fair compromise).

A conflict management effort in which all interests are satisfied (i.e., a mutually agreeable or "win-win" outcome) is much more likely to result in a lasting and satisfactory resolution than one in which the interests of only one side are addressed (i.e., a "win-lose" outcome). A win-win solution indicates that all parties believe they have gained something. The reason conflict participants do not always strive for a mutually agreeable outcome, of course, is that to do so often involve some amount of compromise. Unfortunately, therein lays the root of what so often makes conflict destructive and enduring.

Nevertheless, compromise is often the best way to serve everyone's interests in the long run, especially when overt conflict is replaced with the stability and predictability of a mutually acceptable solution. For example, in the context of protected area management, allowing some use of an area's resources may ultimately serve a protected area's interests better than keeping the area in strict reserve status, and could serve interests of adjacent communities as well. The alternative (perhaps uncontrolled poaching or outright warfare) could be worse.

**Principle Two - Involve all Significantly Affected Stakeholders in a Fair and Respectful Process:**

To resolve conflicts, there has to be an effort to involve all significantly affected stakeholders. Stakeholders are those individuals or groups who are directly involved in the conflict, or who may be affected by how the conflict is resolved. People want to be involved in decisions when their interests are at stake, they want to have their opinions and ideas heard and valued, and they want to be respected as individuals. Lack of affected stakeholders inclusion in the establishment and design of a protected area and in decisions affecting the management of the area after it has been established are major sources of conflict. If affected groups are not included, their interests and concerns can not be known or considered. Therefore, the protected area manager may create or exacerbate conflict out of ignorance about how his/her decisions may adversely affect others.

**Principle Three - Understand the Power That Various Stakeholders Have, and Take That Into Account When Trying to Resolve a Conflict:**

Power is a critical element in conflict resolution. Each stakeholder's decisions about how they approach the conflict will depend to a large extent on their view of the power they have and the power balance among the various stakeholders. For example, a group that feels powerless to influence an outcome through a bureaucratic decision making process may choose to use illegal activity or armed force instead.

Some power is real, some is perceived (it does not really exist, but someone thinks it does). The protected area manager who is involved in a conflict resolution process needs to understand the relative power (both perceived and real) of the stakeholders involved in the conflict.

There are many different kinds of power, including:

- power of position (having authority, being in a position to make or influence decisions);
- power of knowledge (having information);
- personal power (being personally forceful/persuasive);



- economic power (having financial resources);
- political power (having a supportive constituency or access to political leadership);
- legal power (having a "good" legal case, expert legal council, or access to courts);
- coercive physical power (having police or military backing, or weaponry);
- family power (being from a well connected family); and
- group power (being a member of an ethnic, religious, or other type of group that has power or, for example, being male in a male dominated society).

There are often extreme differences in power between different stakeholders. In attempting to resolve a protected area conflict it is especially important to involve both those with substantial power (especially those with the ability to thwart the implementation of a proposed resolution to the conflict) and those who are the least powerful.

**In line with current understanding of the concept of sustainable development, as well as with several international agreements and dispositions, IUCN/WCPA and WWF have recognized that:**

- Protected areas will survive only if they are seen to be of value, in the widest sense, to the nation as a whole and to local people in particular;
- The rights of indigenous and other traditional peoples inhabiting protected areas must be respected by promoting and allowing full participation in co-management of resources, and in a way that would not affect or undermine the objectives for the protected area as set out in its management plan;
- Knowledge, innovations and practices of indigenous and other traditional peoples have much to contribute to the management of protected areas;
- Governments and protected area managers should incorporate customary and indigenous tenure and resource use, and control systems, as a means of enhancing biodiversity conservation.

(Source:

- Handbook of Environment, Forest, and Wildlife Protection Laws in India by Justice K.Singh, Natraj Publications
- Indigenous and traditional people and protected areas: Principles, Guidelines and Case studies, IUCN Report, 2000
- Managing Conflicts in protected areas, IUCN Report, 1996)

## **2.7 BIOSPHERE RESERVES**

Biosphere reserves are areas of terrestrial and coastal ecosystems promoting solutions to reconcile the conservation of biodiversity with its sustainable use. They are internationally recognized, nominated by national governments and remain under sovereign jurisdiction of the states where they are located. Biosphere reserves serve in some ways as 'living laboratories' for testing out and demonstrating integrated management of land, water and biodiversity. Collectively, biosphere reserves form a world network: the World Network of Biosphere Reserves (WNBR). Within this network, exchanges of information, experience and personnel are facilitated. There are over 500 biosphere reserves in over 100 countries. In India there are about 17 biosphere reserves at present.

Biosphere reserves are organized into 3 interrelated zones:

- the core area
- the buffer zone
- the transition area

The biosphere reserve concept can be used as a framework to guide and reinforce projects to enhance people's livelihoods and ensure environmental sustainability. UNESCO's recognition can serve to highlight and reward such individual efforts.

## **2.8 BIOLOGICAL DIVERSITY ACT 2002: SOME SALIENT FEATURES**

The Biological diversity Act 2002 is an act to provide for conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto.

### **Chapter 1: Preliminary (Section 1-2)**

Deals with the basic definitions related to biodiversity and the administrative set up governing the biological resource protection issues.

- (a) “Benefit claimers” means the conservers of biological resources, their by products, creators and holders of knowledge and information relating to the use of such biological resources, innovations and practices associated with such use and application;
- (b) “Biological diversity” means the variability among living organisms from all sources and the ecological complexes of which they are part and includes diversity within species or between species and of eco-systems;
- (c) “Biological resources” means plants, animals and micro-organisms or parts thereof, their genetic material and by-products (excluding value added products) with actual or potential use or value, but does not include human genetic material;
- (d) “Bio-survey and bio-utilisation” means survey or collection of species, sub-species, genes, components and extracts of biological resource for any purpose and includes characterization, inventorisation and bioassay;
- (e) “Chairperson” means the Chairperson of the national Biodiversity Authority or, as the case may be, of the State Biodiversity Board;
- (f) “Commercial utilization” means end uses of biological resources for commercial utilization such as drugs, industrial enzymes, food flavours, fragrance, cosmetics, emulsifiers, oleoresins, colours, extracts and genes used for improving crops and livestock through genetic intervention, but does not include conventional breeding or traditional practices in use in any agriculture, horticulture, poultry, dairy farming, animal husbandry or bee keeping;
- (g) “Fair and equitable sharing” means sharing of benefits as determined by the National Biodiversity Authority under section 21;
- (h) “Local bodies” means Panchayats and Municipalities, by whatever name called, within the meaning of clause (1) article 243B and clause (1) of article 243Q of the Constitution and in the absence of any Panchayats or Municipalities, institutions of self-government constituted under any other provision of the Constitution or any Central Act or State Act;
- (i) “Member” means a member of the National Biodiversity Authority or a State Biodiversity Board and includes the Chairperson;
- (j) “National Biodiversity Authority” means the National Biodiversity Authority established under section 8;
- (k) “Prescribed” means prescribed by rules made under this Act;
- (l) “Regulations” means regulations made under this Act;
- (m) “Research” means study or systematic investigation of any biological resource or technological application, that uses biological systems, living organisms or derivatives thereof to make or modify products or processes for any use;
- (n) “State Biodiversity Board” means the State Biodiversity Board established under section 22;
- (o) “Sustainable use” means the use of components of biological diversity in such manner and at such rate that does not lead to the decline of the biological diversity thereby maintaining its potential to meet the needs and aspirations of present and future generations;
- (p) “Value added products” means products which may contain portions or extracts of plants and animals in unrecognizable and physical inseparable form.

**Chapter 2: Regulation of access to biological diversity (Section 3-7)**

This is an important chapter that deals with the aspects of regulations towards any access to biodiversity. The sections 3 and 4 mainly involve the prohibitory aspects towards any access towards the national biodiversity pool. However sections 5 and 6 deal with the major issues of prior approval that must be taken before obtaining any bio-resource or its associated knowledge. Section 7 incorporates the strict measures for any unrecognized person or organization against the commercial utilization of any bio-resource.

**Chapter 3: National Biodiversity Authority (Section 8-17)**

The National Biodiversity Authority is the nodal agency constituted by the Central government to look after all the possible aspects related or linked with nation's biodiversity. The major sections like 8 to 11 deal with the formation of the NBA, election of members, powers vested on the members respectively. Sections 12 and 13 deal with the meetings and formation of various strategies by the board. Section 17 focuses on the salary of the members.

**Chapter 4: Functions & Power of the NBA (Section 18)**

The section 18 in this chapter deals with the function and power of the National Biodiversity Authority. The National Biodiversity Authority may, on behalf of the Central Government, take any measures necessary to oppose the grant of intellectual property rights in any country outside India on any biological resource obtained from India or knowledge associated with such biological resource which is derived from India.

**Chapter 5: Approval by the NBA (Section 19-21)**

The sections 19 to 21 mainly focus on the procedure of approval and grant by the National Biodiversity Authority before accessing the biodiversity of the nation.

**Chapter 6: State Biodiversity Board (Section 22-25)**

The sections (22 to 25) in this chapter throw a light on the formation, administrative set-up and functions of the state biodiversity boards that have been constituted in each state of the nation in order to undertake efficient monitoring and management of the bio-resources.

**Chapter 7: Finance, Account and Audit of National Biodiversity Authority (Section 26-30)**

The sections 26 and 27 deal with the source of funding and its channeling respectively. The subsequent sections like 28 to 30 focus on budgeting and auditing of the available funds.

**Chapter 8: Finance, Account and Audit of State Biodiversity Board (Section 31-35)**

The sections 31 to 35 deal with the funding agencies of the board, its channeling, auditing etc.

**Chapter 9: Duties of the Central government and State governments (Section 36-40)**

The Central Government shall develop national strategies, plans, programs for the conservation and promotion and sustainable use of biological diversity including measures for identification and monitoring of areas rich in biological resources, promotion of in situ, and ex situ, conservation of biological resources, incentives for research, training and public education to increase awareness with respect to biodiversity.

The State Government, in consultation with the Central Government, may frame rules for the management and conservation of all the heritage sites (areas with rich biodiversity). The State Government shall frame schemes for compensating or rehabilitating any person or section of people economically affected by such notification.

(Source: <http://www.genecampaign.org/home/Biological%20Diversity%20Act%202002.pdf>)

**2.9. A. BIODIVERSITY CONSERVATION**

Ecological degradation and its corollary - biodiversity loss - pose a serious threat to development. 'Ecologically destructive economic activities are inefficient not merely because of the resulting resource misallocation but also because of the (excessive) scale of activity levels; excessive in relation to the limited availability of natural capital when the latter is complementary to human-made capital'. In order to bring about sustainable resource conservation and management, it is essential to adopt several different approaches for managing our forests and biodiversity.

Protecting biodiversity does not merely involve setting aside chunks of area as reserves. Instead, all the ecological processes that have maintained the area's biodiversity such as predation, pollination, parasitism, seed dispersal, and herbivory, involving complex interactions between several species of plants and animal needs to be ensured. Different strategies for biodiversity conservation can be:

- Expansion of the protected area network
- Population surveys and assessments and database creation
- Mapping of forest types, protected areas, and natural forests
- Improved protection efforts and a landscape approach to conservation
- In situ conservation
- Regular population-habitat viability and risk simulations
- Preservation plots

(Source: <http://www.cnhp.colostate.edu/biodiversity.asp>  
<http://en.wikipedia.org/wiki/Biodiversity>)

## **2.9. B. BIOPIRACY**

Biopiracy is the theft or usurpation of genetic materials especially plants and other biological materials by the patent process. The threat from biopiracy lies in four facts : that knowledge and / or genetic resources belonging to a region, community or country is stolen or claimed as one's own; that the use of this knowledge or genetic resource in the area of its origin or traditional usage may be hampered or sought to be prevented; that the patent holder will unfairly profit from the patent; and that the patent claimed and awarded illegally and unethically is bound to disturb an established system somewhere in the world, be it related to food, medicine, livelihood or lifestyle.

(Source : <http://www.satavic.org/biopiracy.htm>)

## **2.10 SUGGESTED READINGS**

1. Environmental law in India: Issues & Responses by R.B.Singh and Suresh Mishra, Google books

Handbook of Environment, Forest and Wildlife Protection Laws in India by Justice K.Singh, Natraj Publications

Community Forest Management: A casebook from India by Joe Human and Manoj Pattnaik, Google Books

Environmental law by Dharmendra S. Sengar, Google Books

<http://www.envlaws.org/FCA/spg2.html>

Managing Conflicts in protected areas, IUCN Report, 1996.

Indigenous and traditional people and protected areas: Principles, Guidelines and Case studies, IUCN Report, 2000.

<http://www.satavic.org/biopiracy.htm>

<http://en.wikipedia.org/wiki/Biodiversity>

<http://www.cnhp.colostate.edu/biodiversity.asp>

<http://www.genecampaign.org/home/Biological%20Diversity%20Act%202002.pdf>

<http://www.unesco.org/mab/doc/faq/brs.pdf>

<http://www.envlaws.org/FCA/spg2.htm>

## **2.11 PROBABLE QUESTIONS**

Fill in the blanks:

Indian forest act came in vogue in \_\_\_\_\_ 1927.

In Indian Forest Act 1927 there are \_\_\_\_\_ chapters and \_\_\_\_\_ sections.

Diversion of forest land for other purposes are dealt in \_\_\_\_\_ Act.

If a forest land of 550 ha is diverted for non forest purpose then compensatory afforestation shall be carried for a minimum of \_\_\_\_\_ ha.

The first National forest policy was enacted in the year \_\_\_\_\_.

Define the following:

Forest officer (as per Indian Forest Act, 1927)

Cattle (-----do-----)

Forest produce (-----do-----)

Tree (-----do-----)

Biosphere reserve (as per Wildlife Protection Act, 1972)

Wild Animal (-----do-----)

Habitat (-----do-----)

Biodiversity (as per Biodiversity Act, 2002)

Biological resources (-----do-----)

Research (-----do-----)

What do you understand by National forest policy? Discuss the salient features of National forest policy 1980.

Discuss the procedure of seizure under Indian forest act 1927.

Discuss in detail the role and power of forest officer under the provision of Indian forest act, 1927.

What do you understand by compensatory afforestation under Forest Conservation Act? What are the projects exempted from compensatory afforestation?

# **DEM 201-ENVIRONMENTAL LAWS AND POLICIES**

## **UNIT-3: INDIAN ENVIRONMENTAL POLICIES AND MAJOR INITIATIVES**

### **UNIT STRUCTURE**

3.1 NATIONAL FOREST POLICY, 1988

3.2 THE NATIONAL ENVIRONMENT POLICY (NEP):

3.3 NATIONAL ACTION PLAN ON CLIMATE CHANGE

3.4 NATIONAL GREEN TRIBUNAL

3.5 NATIONAL RIVER CONSERVATION DIRECTORATE

*In this unit some of the greater national policies are introduced to you. India being part of several international treaties and conventions, including Stockholm 1972, it is pertinent for India to show commitment for environmental concerns. Therefore, besides enacting stringent laws for the protection of the environment, India came up with national policies to safeguard natural resources and promote sustainability and protect the environment from pollution and degradation. Policies also show a vision that India as a nation would like to achieve in the future in terms of economic development keeping parity with the environmental wellbeing. The national policies are often compiled as large documents; however, for easy learning the same has been encapsulated. You are to focus your understanding primarily on the objectives and strategies to fetch such objectives while reading the policies.*

### **3.1 NATIONAL FOREST POLICY, 1988**

You have already been introduced to the National Forest Policy in the previous unit. A little bit of the policy has been given in the following paragraphs.

In May, 1952, the Government of India in the erstwhile Ministry of Food and Agriculture enunciated a Forest Policy to be followed in the management of State Forests in the country. However, over the years, forests in the country have suffered serious depletion. This is attributable to relentless pressures arising from ever-increasing demand for fuel-wood, fodder and timber; inadequacy of protection measures; diversion of forest lands to non-forest uses without ensuring compensatory afforestation and essential environmental safeguards; and the tendency to look upon forests as revenue earning resource. The need to review the situation and to evolve, for the future, a new strategy of forest conservation has become imperative. Conservation includes preservation, maintenance, sustainable utilisation, restoration, and enhancement of the natural environment. It has thus become necessary to review and revise the National Forest Policy.

The objectives that should govern the National Forest Policy - are the following:

- ✓ 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 programmes, 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 utilisation of forest produce and maximising substitution of wood.
- ✓ Creating a massive people's movement with the involvement of women, for achieving these objectives and to minimise pressure on existing forests.

Some of the major achievements of National Forest Policy, 1988, inter alia, are highlighted below:

- ✓ There has been increase in the forest and tree cover.
- ✓ Involvement of local communities in the protection, conservation and management of forests through Joint Forest Management Programme.
- ✓ Meeting the requirement of fuel wood, fodder minor forest produce and small timber of the rural and tribal populations.
- ✓ Conservation of Biological Diversity and Genetic Resources of the country through ex-situ and in-situ conservation measures.
- ✓ Significant contribution in maintenance of environment and ecological stability in the country.

### **3.2 THE NATIONAL ENVIRONMENT POLICY (NEP):**

The National Environment Policy (NEP) of India aims at mainstreaming environmental concerns into all developmental activities. It emphasizes conservation of resources, and points that the best

way to aid conservation is to ensure that people dependent on resources obtain better livelihoods from conservation, than from degradation of the resources. It argues that environmental degradation often leads to poverty and poor health outcomes among populations.

The key environmental challenges that the country faces relate to the nexus of environmental degradation with poverty in its many dimensions, and economic growth. These challenges are intrinsically connected with the state of environmental resources, such as land, water, air, and their flora and fauna. The proximate drivers of environmental degradation are population growth, inappropriate technology and consumption choices, and poverty, leading to changes in relations between people and ecosystems, and development activities such as intensive agriculture, polluting industry, and unplanned urbanization. It is increasingly evident that poor environmental quality has adversely affected human health. Environmental factors are estimated as being responsible in some cases for nearly 20 percent of the burden of disease in India, and a number of environment-health factors are closely linked with dimensions of poverty (e.g. malnutrition, lack of access to clean energy and water). Another major set of challenges arises from emerging global environmental concerns such as climate change, stratospheric ozone depletion, and biodiversity loss. The key is to operationalize the principle of common but differentiated responsibility of countries in relation to these problems.

The policy document highlights the following issues:

- Important role of human beings in the sustainable development processes
- The non negotiability and incomparable value of environmental resources
- Right to development for all
- Equity in the use of environmental resources and
- The need for the decentralized and multispectral approach in dealing with environmental issues.

The following are the objectives that are stressed upon in the policy document:

- Conservation of critical environmental resources
- Intra-generational equity
- Livelihood security for the poor
- Inter-generational equity
- Integration of environmental concerns in economic and social development
- Efficiency in environmental resource use



- Environmental governance
- Enhancement of resources for environmental conservation

The document outlines a range of strategies to meet these objectives that aim at:

**1. Conservation of existing environmental resources through regulatory reforms:** The regulatory regimes for environmental conservation comprise a legislative framework, and a set of regulatory institutions. Inadequacies in each have resulted in accelerated environmental degradation on the one hand, and long delays and high transactions costs in development projects on the other. Apart from legislation which is categorically premised on environmental conservation, a host of sectoral and cross-sectoral laws and policies, including fiscal regimes, also impact environmental quality.

**2. Enhancing and Conserving Environmental Resources:**

Perverse production and consumption practices are the immediate causes of environmental degradation, but an exclusive focus on these aspects alone is insufficient to prevent environmental harm. The causes of degradation of environmental resources lie ultimately in a broad range of policy, and institutional, including regulatory shortcomings, leading to the direct causes. In addition, there is lack of awareness of the causes and effects of environmental degradation, and how they may be prevented, among both specialized practitioners of the relevant professions, including policymakers, as well as the general public, which needs to be redressed.

**3. Clean Technologies and Innovation:** Clean technologies, as distinct from “end-of-pipe” abatement technologies minimize the generation of waste streams in the production processes and utilize waste from other consumption goods and production processes, rather than treating the waste after generation. In general, clean technologies are less intensive in use of raw materials and energy, than conventional technologies, which rely on pollution abatement after generation. For this reason, they may also offer significant cost advantages to the producer.

**4.Environmental Awareness, Education, and Information:** Enhancing environmental awareness is essential to harmonize patterns of individual behavior with the requirements of environmental conservation. Environmental education is the principal means of enhancing such awareness, both among the public at large, and among focused groups. Such education may be formal, or informal, or a combination of both. Access to environmental information is the principal means by which environmentally conscious stakeholders may evaluate compliance by the concerned parties with environmental standards, legal requirements, and covenants.

**5. Partnerships and Stakeholder Involvement:** Conservation of the environment requires the participation of multiple stakeholders, who may bring to bear their respective resources, competencies, and perspectives, so that the outcomes of partnerships are superior to those of each acting alone. A number of specific themes for partnerships have been identified. Some of which are given below:

- a) Public-Community Partnerships
- b) Public-Private Partnerships
- c) Public-Community-Private Partnerships
- d) Public-Voluntary Organization Partnerships

**6. Capacity Building:** The multi-stakeholder character of environmental issues and continuous developments in the field of environment, make it necessary to have a continuing focus on capacity building in all concerned institutions: public, private, voluntary, academic, research, and the media.

**7. Research and Development:** In order to rapidly advance scientific understanding of environmental issues, it is necessary to promote properly focused research by competent institutions.

Key areas of research are as follows (not in order of priority, which is changeable over time):

- ✓ -Taxonomies of living natural resources.
- ✓ -Research leading to better understanding of ecological processes and pathways.
- ✓ -Research which provides direct inputs to policy making.
- ✓ -R&D in technologies for environmental management and clean production.

The following actions would be taken:

- a) Periodically identify and prioritize areas for research.
- b) Establish a research programme in priority areas within the Government, with expected outputs clearly specified.
- c) Encourage research in priority areas outside the Government, with necessary financial and institutional support.

**8. International Cooperation:** The country has contributed to, and ratified several key multilateral agreements on environmental issues in recognition of the transboundary nature of several environmental problems, and has complied with its commitments.

Given the need to enhance our own capacities to comply with our commitments, and ensure sustained flows of resources for environmental management, the following steps would be taken:

- a) Avail of multilateral and bilateral cooperation programs, for capacity building for environmental management, particularly in relation to commitments under multilateral instruments.
- b) Participate in mechanisms and arrangements under multilateral agreements for enhancing flows of resources for sustainable development.
- c) Provide assistance to other developing countries, in particular for scientific and technical capacity building for environmental management.

**9. Review of the Policy:** The environmental issues that are salient as of now may evolve over time, and new ones may take their place. The following provisions are, accordingly made for review, updating, and renewal of the National Environment Policy:

- a) Undertake consultations every three years with groups of diverse stakeholders, i.e. researchers and experts, community based organizations, industry associations, and voluntary organizations, and update the National Environment Policy.
- b) In the third of the three-year reviews, undertake a more comprehensive examination of the scientific and policy understanding of environmental issues, redefine the Objectives and Principles, and recast the Strategic Themes for Action. A new National Environment Policy should be the outcome.

### **3.3 NATIONAL ACTION PLAN ON CLIMATE CHANGE**

India being a vast country with a huge population what is dependent on agriculture and so climate is a vital force that regulate the growth of the country. Maintaining a high growth rate is essential for increasing living standards of the vast majority of our people and reducing their vulnerability to the impacts of climate change. In order to achieve a sustainable development path that simultaneously advances economic and environmental objectives, the National Action Plan for Climate Change (NAPCC) will be guided by the following principles:

- Protecting the poor and vulnerable sections of society through an inclusive and sustainable development strategy, sensitive to climate change.
- Achieving national growth objectives through a qualitative change in direction that enhances ecological sustainability, leading to further mitigation of greenhouse gas emissions.
- Devising efficient and cost-effective strategies for end user Demand Side Management.
- Deploying appropriate technologies for both adaptation and mitigation of greenhouse gases

emissions extensively as well as at an accelerated pace.

Engineering new and innovative forms of market, regulatory and voluntary mechanisms to promote sustainable development.

- Effecting implementation of programmes through unique linkages, including with civil society and local government institutions.
- Welcoming international cooperation for research, development, sharing and transfer of technologies enabled by additional funding and a global IPR regime that facilitates technology transfer to developing countries under the UNFCCC.

The NAPCC addresses the urgent and critical concerns of the country through a directional shift in the development pathway, including through the enhancement of the current and planned programmes presented in the Technical Document.

The NAPCC identifies measures that promote our development objectives while also yielding co-benefits for addressing climate change effectively. It outlines a number of steps to simultaneously advance India's development and climate change-related objectives of adaptation and mitigation.

There are Eight National Missions which form the core of the National Action Plan, representing multi-pronged, long-term and integrated strategies for achieving key goals in the context of climate change. They are:

### **1. National solar mission**

A National Solar Mission will be launched to significantly increase the share of solar energy in the total energy mix while recognizing the need to expand the scope of other renewable and non-fossil options such as nuclear energy, wind energy and biomass.

### **2. National Mission for Enhanced Energy Efficiency**

The Energy Conservation Act of 2001 provides a legal mandate for the implementation of the energy efficiency measures through the institutional mechanism of the Bureau of Energy Efficiency (BEE) in the Central Government and designated agencies in each state. A number of schemes and programmes have been initiated and it is anticipated that these would result in a saving of 10,000 MW by the end of 11<sup>th</sup> Five Year Plan in 2012.

### **3. National mission on sustainable habitat**

A National Mission on Sustainable Habitat will be launched to make habitat sustainable through improvements in energy efficiency in buildings, management of solid waste and modal shift to

public transport. The Mission will promote energy efficiency as an integral component of urban planning and urban renewal through three initiatives.

#### **4. National water mission**

A National Water Mission will be mounted to ensure integrated water resource management helping to conserve water, minimize wastage and ensure more equitable distribution both across and within states. The Mission will take into account the provisions of the National Water Policy and develop a framework to optimize water use by increasing water use efficiency by 20% through regulatory mechanisms with differential entitlements and pricing. It will seek to ensure that a considerable share of the water needs of urban areas are met through recycling of waste water, and ensuring that the water requirements of coastal cities with inadequate alternative sources of water are met through adoption of new and appropriate technologies such as low temperature desalination technologies that allow for the use of ocean water.

#### **5. National Mission for Sustaining the Himalayan Ecosystem**

A Mission for sustaining the Himalayan Ecosystem will be launched to evolve management measures for sustaining and safeguarding the Himalayan glacier and mountain eco-system. Himalayas, being the source of key perennial rivers, the Mission would, inter-alia, seek to understand, whether and the extent to which, the Himalayan glaciers are in recession and how the problem could be addressed. This will require the joint effort of climatologists, glaciologists and other experts. We will need to exchange information with the South Asian countries and countries sharing the Himalayan ecology.

An observational and monitoring network for the Himalayan environment will also be established to assess freshwater resources and health of the ecosystem. Cooperation with neighboring countries will be sought to make the network comprehensive in its coverage.

#### **6. National Mission for a Green India**

A National Mission will be launched to enhance ecosystem services including carbon sinks to be called Green India. The national target of area under forest and tree cover is 33% while the current area under forests is 23%. The Mission on Green India will be taken up on degraded forest land through direct action by communities, organized through Joint Forest Management Committees and guided by the Departments of Forest in state governments. A Compensatory Aforestation Management and Planning Authority (CAMPA) was formed to support aforestation programmes.

## **7. National Mission for Sustainable Agriculture**

The Mission would devise strategies to make Indian agriculture more resilient to climate change. It would identify and develop new varieties of crops and especially thermal resistant crops and alternative cropping patterns, capable of withstanding extremes of weather, long dry spells, flooding, and variable moisture availability.

## **8. National Mission on Strategic Knowledge for Climate Change**

To enlist the global community in research and technology development and collaboration through mechanisms including open source platforms, a Strategic Knowledge Mission will be set up to identify the challenges of, and the responses to, climate change. It would ensure funding of high quality and focused research into various aspects of climate change.

### **3.4 NATIONAL GREEN TRIBUNAL**

It is a matter of common knowledge that the higher judiciary in India is overburdened with a large backlog of cases. It may be appreciated that in order to have effective prevention of environmental pollution environmental complaints should be decided expeditiously which is not possible in the present context of judicial administration. Therefore, there was an urgent need for an alternative forum so that environmental cases were decided without much delay. The Indian Apex Court opined that it would be desirable to have the setting up of “environmental courts on the regional basis with a professional judge and two experts drawn from the Ecological Science Research Group.” A similar view was expressed by some of the prominent jurists of the country.

It may be noted that Principle 13 of the Rio Declaration on Development and Environment states that “states shall develop the national law regarding liability and compensation for the victims of Pollution and other environmental damage”. To give effect to the above directive and to provide for a forum for effective and expeditious disposal of cases arising from any accident occurring while handling any hazardous substance, the Indian Parliament enacted the National Green Tribunal Act, 2010.

The Act seeks to replace the National Environment Tribunal Act, 1995 and the National Environment Appellate Authority Act, 1997 which have been in operation for sometime in the country. The Act has been enacted in response to the recommendations of the Law Commission of India and the Indian Supreme Court which highlighted the large number of environment – related cases pending in the courts.

The Act seeks to establish specialized Green Tribunal with five benches located at different regions in the country. 1st jurisdiction to hear a case involving environmental matters is wider than the one conferred on the National Environmental Appellate Authority which has now been replaced by the new Act. The Act confers on the Green Tribunal to hear initial complaints as well as appeals from decisions of authorities under various environmental laws. The Tribunal, when established, would not be bound to follow the procedure laid down in the Code of Civil Procedure 1973. Instead, it is allowed to follow the abstract principles of natural justice. However, the Tribunal will have the powers of a civil court under the civil procedure code.

The most salient feature of the Act is that the Green Tribunal is enjoined to follow the internationally recognized and nationally applied environmental principles of sustainable development, Precautionary principle and polluter pays Principle while issuing any order, decision or award. While the Act envisages the conferment of wide jurisdiction on the Green Tribunal, it also, at the same time, seeks to restrict the scope of its jurisdiction only to matters involving substantial, questions, relating environment. The expression a substantial question” has been defined as an instance where there is a direct violation of specific environmental obligation affecting either the community at large other than an individual or group of individuals by its environmental consequence or where the gravity of the damage to the environment or property is substantial or (iii) where the damage to public health is broadly measurable. It is interesting to note while the right to Article 21 of the constitution is a fundamental right guaranteed to individuals, the Act seeks to deny to the same individuals and groups of individuals the right to question any environmental consequence that affects them unless it also affects the community at large or public health.

The Act empowers the Central Government to establish, by notification with effect from such date as may be specified therein, the Green Tribunal to exercise jurisdiction, powers and authority that may be conferred on such Tribunal by or under this Act. The Central Government may in consultation with the chairperson of the Tribunal, make rules for regulating the ordinary practice and procedure of the Tribunal

The Tribunal shall have jurisdiction over all cases where a substantial question relating to environment is involved and such question arises out of the implementation of the enactments specified in Schedule-I. The Tribunal is authorized to hear all disputes arising from substantial questions relating environment and settle disputes and pass orders there in, provided the application for adjudication of the dispute is made within a period of six months from the date on which the cause of action for such dispute first arose.

The Act provides for various kinds of relief. It says that the Tribunal may, by an order, provide relief and compensation to the victims of pollution and other environmental damage arising under the enactments specified in the Schedule-I to the Act, including accident occurring while handling any hazardous substance. It may also order the restitution of the property damaged and the restitution of the environment for that areas as the Tribunal may think fit. The relief under this Act is an addition to the relief given under the Public Liability Insurance Act, 1991.

The Act provides that an application for grant of relief or compensation or settlement of dispute may be made to the Tribunal by —(a) any person who has sustained the injury; or (b) the owner of the property to which the damage has been caused or (c) all or any of the legal representatives of the deceased where death has resulted from the environmental damage or (d) any agent duly authorized by such person or owner of such property or all or any of the legal representatives of the deceased, as the case may be; or (e) any person aggrieved ; including any representative body or organization. In addition, the Central Government or a State Government, or a Union Territory administration or the Central Pollution Control Board or a State Pollution Control Board or a Pollution Control Committee or a local Authority or any environmental authority constituted or established under the Environment (Protection) Act, 1986 or any other law for the time in force, can also move the Tribunal.

### **The National Green Tribunal: Short Introduction**

The National Green Tribunal is a special fast-track court for speedy disposal of environment-related civil cases. The main bench of the tribunal will be set up in Bhopal. The tribunal would have four circuit Benches. This is the first body of its kind that is required by its parent statute to apply the “polluter pays” principle and the principle of sustainable development. The Act is considered a critical step in capacity development because the Act strengthens the framework of global environmental governance. The judiciary has been the backbone for developing a large body of environmental jurisprudence, even though policy enforcement has been weak. A National Environment Protection Authority is also to be established shortly to monitor the implementation of environment laws. However, it is hoped that National Green Tribunal will play a lead role in environmental protection, enforcement and compliance.

## **3.5 NATIONAL RIVER CONSERVATION DIRECTORATE**

The National River Conservation Directorate, under the Ministry is engaged in implementing the River and Lake Action Plans under the National River Conservation Plan (NRCP) and National Lake Conservation Plan (NLCP) by providing assistance to the State Governments.



The objective of NRCP is to improve the water quality (upto bathing class) of the rivers, which are the major fresh water sources in the country, through the implementation of pollution abatement schemes. So far a total of 34 rivers have been covered under the programme. The rivers are: Adyar , Ganga , Musi , Tunga , Betwa , Godavari, Narmada, Tungabhadra , Bhadra, Gomati, Pennar, Tamrabarani, Brahmani, Khan ,Pamba, Vaigai, Cauvery, Krishna, Rani Chu ,Vennar, Cooum, Kshipra , Sabarmati, Wainganga, Chambal, Mahanadi, Satluj, Yamuna, Damodar, Mandovi, Subarnarekha, Dhipu, Dhansiri, Mahananda & Tapi.

The important works being taken up under the NRCP include:

1. Interception and diversion works to capture the raw sewage flowing into the river through open drains and divert them for treatment.
2. Setting up Sewage Treatment Plants for treating the diverted sewage.
3. Construction of Low Cost sanitation toilets to prevent open defecation on river banks.
4. Construction of Electric crematoria and Improved Wood Crematoria to conserve the use of wood and help in ensuring proper cremation of bodies brought to the burning ghats.
5. River Front Development works such as improvement of bathing ghats.
6. Aforestation and Public Awareness and Participation

The present approved cost of NRCP projects as a whole stands at Rs.4735.42 crore covering pollution abatement works in 160 towns along polluted stretches of 34 rivers spread over twenty States. The river-wise details of all the 160 towns of NRCP are given at Annexure-I. Some of the important programmes are detailed below.

The following are the main activities taken under the NRCP.

### **1. Ganga Action Plan (GAP)**

The first River Action Plan to be taken up under the NRCD was the Ganga Action Plan. A sewage treatment capacity of 865 MLD under Phase-I has been created under the programme and an amount of about Rs.452 crore spent. Additional works are also being taken up in 60 towns (including river Mahananda approved from the savings of World Bank) along the main stem of river Ganga at an approved cost of Rs.682.11 crore. As a part of the Development Study, Japan International Cooperation Agency (JICA) is also providing grant assistance amounting to about Rs.70 lakhs for improvement of one ghat (Manikarnika ghat at Varanasi). This work is being got done by the JICA Study Team themselves in close consultation with Varanasi Nagar Nigam and the local people.

### **2. Yamuna Action Plan (YAP)**

Government of India, through the Ministry have received financial assistance of Yen 13.33 billion from the Japan Bank for International Cooperation for implementation of Yamuna Action

Plan (YAP) Phase II, which is part of the National River Conservation Plan (NRCP). The loan agreement between Government of Japan and Government of India has been signed on 31st March, 2003. The project has been approved by Cabinet Committee of Economic Affairs (CCEA) at an estimated cost of Rs.624 crore for abatement of pollution of river Yamuna in Delhi, UP (nine towns) and Haryana (eight towns) under YAP-II. Works have started since 1st December, 2004.

### **3. Gomti Action Plan**

The sanctioned cost of Gomti Action Plan Phase-II at Lucknow is Rs.263.04 crore. The project cost is to be shared in the ratio of 70:30 between Government of India and State Government. The works in this phase will include two sewage treatment plants of a total capacity of 375 MLD (over and above the 42 MLD capacity being set up in the first phase), interception & diversion works of sewage of the remaining drains and other miscellaneous items such as river front development, toilets, plantation, public awareness and participation, and acquisition of land. Out of 30 projects, works on 10 projects have started.

### **4. Other River Action Plans**

Pollution abatement works are also being taken up in 64 towns along 29 other rivers in 14 States of the country. Out of 340 projects of pollution abatement sanctioned so far, 181 projects have been completed. About 3154 million litres per day (MLD) of sewage is targeted to be intercepted, diverted and treated. A total of 645 mld sewage treatment capacity has been created. The approved cost under this plan is Rs.2319.21 crore.

### **5. Water Quality Management Plan for River Ganga**

The water quality of river Ganga is being monitored at 27 locations from Rishikesh in Uttaranchal to Uluberia in West Bengal. The number of monitoring stations presently are 158 in 10 rivers which include 26 stations set up in the upper reaches of Ganga and 32 stations of Chennai Waterways in the current year.

### **6. National Lake Conservation Plan**

Government of India under National Lake Conservation Plan (NLCP) approved a programme for conservation and management of polluted lakes in May, 2001. The objective of the scheme is to restore and conserve polluted and degraded lakes and other similar bodies namely tanks/talabs etc. So far works on 37 lakes have been taken up including Dal lake in J&K and Velli Akkulam in Kerala where the works were taken up at a cost of Rs.298 crore and 24.56 crore respectively in 2005-06.

## **7. Wetland Conservation**

Taking into consideration deterioration of water bodies, a programme on Conservation of Wetlands was initiated in 1987 with the basic objective of assessment of wetland resources, identification of wetlands of national importance, promotion of Research and Development activities and formulation and implementation of management action plans of the identified wetlands.

Under the Management Action Plans for identified wetlands, activities includes survey and demarcation, Catchment Area Treatment (CAT), desiltation, weed control, fisheries development, community participation, water management, public awareness, pollution abatement, etc. State Steering Committees have been constituted in most of the concerned States under the chairmanship of Chief Secretary having members from various subject matter departments relating to wetland conservation in the State.

### **Self Assessment Questions:**

1. Do you think the national forest policy made significant changes in the forest management in the country? Arrange your thoughts and put up an argumentative narrative for your statement.
2. What are the key attributes of the National Environment Policy 2006 of India? Explain the range of strategies that were adopted to fulfill the objectives of the Policy.
3. Why was it imperative for India to have a policy on climate change? What are the thrust areas of activity India focused in the National Action Plan on Climate Change?

### **Activity:**

Visit a wetland near your hometown. Identify key issues associated with the wetland. Apply what you could do taking note of National Policies of India.

**UNIT STRUCTURE****4.0 OBJECTIVES:****4.1. INTRODUCTION:****4.2. WATER POLLUTION: SCOPE OF THE PROBLEM****4.3. THE WATER ACT**

## 4.3.1 FRAMEWORK OF THE WATER ACT

## 4.3.2 CRIMINAL LIABILITY

## 4.3.3 THE ENVIRONMENT (PROTECTION) ACT of 1986

## 4.3.4 RIPARIAN RIGHTS AND WATER POLLUTION

## 4.3.5 JUDICIAL INITIATIVES

**4.4. AIR POLLUTION CONTROL**

## 4.4.1 SCOPE OF THE PROBLEM

## 4.4.2 THE STATUTES

## 4.4.3 VEHICULAR POLLUTION

## 4.4.4 NOISE POLLUTION

**4.0 OBJECTIVES:**

This unit is presented to the learners to develop basic understanding of water and air pollution problem and legal controls in India. The gist of the major Acts on pollution control has been presented so that the learners can appreciate the Acts in totality.

**4.1. INTRODUCTION:**

The Indian legal system provides four major sources of law for addressing water pollution problems:

1. A comprehensive scheme of administrative regulation through the permit system of the water (prevention and control of pollution ) Act of 1974
2. Provisions of the environment (Protection) Act of 1986 relating to water quality
3. Public nuisance actions against polluters, including municipalities charged with controlling water pollution
4. The common law right of riparian owners of unpolluted water.

In addition to this, the Supreme Court of India and the High Courts have added to the force of these laws by hearing public interest writ petitions that seek implementation of measures to prevent water pollution.

To combat air pollution The Air (Prevention and Control of Pollution) Act of 1981 was enacted. Besides the Air Act, The environment Protection Act also imply as an umbrella act to address air pollution issues.

**4.2. WATER POLLUTION: SCOPE OF THE PROBLEM**

Polluting a river is dangerous because a river is the primary source of drinking water for towns and cities downstream of the point of pollution. Broadly, the causes of water pollution can be ascribed to:

**Urbanization:** Many of the towns and cities that came up on the banks of a river did not give a thought to the problem of urban sewage. Most of the sewage was conveniently allowed to flow into the rivers. The 25 large towns and cities on the Ganga, for instance, generate 1,340 million litres per day (mld) sewage. Prior to the rapid increase in industrial pollution at these urban centres. Effluents from industries, many a time containing toxics and heavy metals, drain into the rivers. Ironically, the water of the same dirty river is the source of drinking water for another town downstream.

**Municipal water treatment facilities in India,** at present, do not remove traces of heavy metals. Given the fact that heavily polluted rivers are the major sources of municipal water for most towns and cities along their courses, it is believed that every consumer has been, over the years, exposed to unknown quantities of pollutants in the water they have consumed. To add to this, Indian towns and cities have grown in an unplanned manner over the years due to huge population increase in these settlements. The direct result on the rivers, which receive untreated sewage, is that the concentrated sewage flow has increased.

**Industrial pollution:** Most India rivers and freshwater streams are polluted by industrial wastes or effluents. All these industrial wastes are toxic to life forms that consume this water. This could harm the liver, kidneys, reproductive systems, respiratory systems or the nervous systems. Water treatment facilities in India do not remove traces of heavy metals from water. Technologically, the present treatment facilities are incapable of treating micropollutants like heavy metals and pesticides. Upgrading to improve treatment facilities, which are expensive, will be able to treat these pollutants.) Hence, traces of heavy metals in water enter the body of the consumer.

**Withdrawal of water:** Heavy abstraction of freshwater for irrigation and other purpose leaves almost no water in rivers. The only water that flows in the rivers thereafter is that from sewers, drains and seepage of groundwater. The Yamuna, for example, has almost no water at Tajewala in haryana, where the Eastern Yamuna Canal and the Western Yamuna Canal abstract all the water for irrigation. Similarly, the upper and the lower Ganga canals have left the Ganga downstream dry.

**Agricultural runoff and improper agricultural practices:** Traces of fertilizers and pesticides are washed into the nearest water bodies at the onset of the monsoons or whenever there are heavy showers. As the point of entry of such agricultural inputs is diffused throughout the river basin, they are termed non-point sources of pollution. Consumer are also affected by agricultural contaminants such as fertilizer and pesticides that run off from fields into rivers.

**Religious and social practices:** Carcasses of cattle and other animals disposed of in the so – called ‘holy’ rivers add to the pollution load. In keeping with ancient rituals, the dead are still cremated on river banks. Spinning wood prices also have resulted in partially burnt bodies often being flung into rivers. The tradition of throwing unburnt bodies of holy men, infants and those who succumb to contagious diseases, into rivers, has given the issue of pollution in Indian rivers an unhealthy social dimension. Mass bathing in a river during religious festivals is another environmentally harmful practice. Studies have indicated that the biochemical oxygen demand goes up drastically when tens of thousands of people simultaneously take a ‘holy dip’ Religious practices also demand that offerings from a puja be immersed in a river. It is now common to see people immersing offerings in plastic bags, further adding to the pollution load of a river

Indian rivers showcase the price paid for mindless development; a classic example of pay-off between rapid population and economic growth and environmental degradation.

### **4.3. THE WATER ACT**

The Water (Prevention and Control of Pollution) Act of 1974 is a complex statute which has been in effect for over three decades. The Act was the culmination of over decade of discussion and deliberation between the Centre and the states. The history and the preamble of the Act suggest that only state governments can enact water pollution legislation. The Act, therefore,

was passed by the parliament pursuant to enabling resolutions by twelve states under the article 252(1) of the Constitution. The Act vests regulatory authority in state boards and empowers these boards to establish and enforce effluent standards for factories discharging pollutants into water bodies.

#### **4.3.1 FRAMEWORK OF THE WATER ACT**

The Water Act of 1974 represented one of India's first attempts to deal comprehensively with an environmental issue. Parliament adopted minor amendments to the Act in 1978 and revised the Act in 1988 to more closely conform to the provisions of the Environment (Protection) Act of 1986.

Water is a subject in the State List under the Constitution. Consequently, the Water Act, a central law, was enacted under article 252 (1) of the Constitution, which empowers the Union government to legislate in a field reserved for the states, where two or more State Legislatures consent to a central law. All the states have approved implementation of the Water act as enacted in 1974.

The water Act establishes a Central and state pollution control boards. The central board may advise the Central Government on water pollution issues, coordinate the activities of state pollution control boards, sponsor investigation and research relating to water pollution, and develop a comprehensive plan for the control and prevention of water pollution. The Central board also performs the functions of a state board for the union territories. In conflicts between a state board and the Central board, the Central board prevails. Since 1982, the central board has been attached to the Union Government's Department of Environment, Forests, and Wildlife.

The Water Act is comprehensive in its coverage, applying to streams, inland waters, subterranean waters, and sea or tidal waters. Standards for the discharge of effluent or the quality of the receiving waters are not specified in the Act itself. Instead, the Act enables state boards to prescribe these standards.

The Act provides for a permit systems or 'consent' procedure to prevent and control water pollution. The Act generally prohibits disposal of polluting matter in streams, wells and sewers or on land in excess of the standards established by the state boards. A person must obtain consent from the state board before taking steps to establish any industry, operation or process, any treatment and disposal systems or any extension or addition to such a systems which might result in the discharge of sewage or trade effluent into a stream, well or sewer or onto land. The state board may condition its consent by orders that specify the location, construction and use of the outlet as well as the nature and composition of new discharge. The state board must maintain and make public a register containing the particulars of the consent orders. The Act empowers a state board, upon thirty days notice to a polluter, to execute any work required under a consent order which has not been executed. The board may recover the expenses for such work from the polluters.

Other functions of the state boards specified by the water Act include: 1) planning a comprehensive programme for prevention, control, and abatement of water pollution in the state; (2) encouraging, conducting, and participating in investigations and research of water pollution problems; (3) inspecting facilities for sewage and trade effluent treatment; and (4) developing economical and reliable methods of treatment of sewage and trade effluents. The Act gives the state boards the power of entry and inspection to carry out their functions. Moreover, a state board may take certain emergency measures if it determines that an accident or other unforeseen event has polluted a stream or well. These measures include removing the pollutants, mitigating the damage, and issuing orders to the polluter prohibiting effluent discharges.

The 1988 amendment introduced a new section 33A, which empowers state boards to issue directions to any person, officer or authority, including orders to close, prohibit or regulate any industry, operation or process and to stop or regulate the supply of water, electricity or any

other service. Prior to the adoption of section 33A, a state board could issue direct orders to polluters under section 32 of the Act. A state board, however, could only exercise this power if the pollution arose from 'any accident or other unforeseen act or event'. Moreover, a state board's authority to issue orders under section 32 was limited to orders directed to the polluter, not to government officials or other parties. The state boards can also apply to courts for injunctions to prevent water pollution under section 33 of the Act. Under section 41, the penalty for failure to comply with a court order under section 33 or a direction from the board under section 33 A is punishable by fines and imprisonment.

The amendments also increased the power of the Central board relative to the state boards. Under section 18 of the Act, the Central Government may determine that a state board has failed to comply with Central board directions and that because of this failure an emergency has arisen. The Central Government may then direct the Central board to perform the functions of the state board.

The 1988 amendments modified section 49 to allow citizens to bring actions under the Water Act. Now a state board must make relevant reports available to complaining citizens, unless the board determines that the disclosures would harm 'public interest'. Previously, the Act allowed court to recognize only those actions brought by a board, or with a previous written sanction of a board.

#### **4.3.2 CRIMINAL LIABILITY**

The Water Act establishes criminal penalties of fines and imprisonment for noncompliance with section 33 orders, section 20 directions concerning information, section 32 emergency orders and section 33A directions issued by a state board. Polluters violating the Act are also subject to criminal penalties. The 1988 amendments to the Water Act increased the penalties for these offences, bringing them into line with the 1987 amendments to the Air Act.

Section 47 of the Water Act extends liability for violations committed by companies to certain corporate employees and officials. The Act also extends liability for violations to heads of government departments when a department has committed a violation, unless the department head can prove that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of the offence.

The following commentary discusses the liability of corporate officials and employees under the Water Act.

#### **4.3.3 THE ENVIRONMENT (PROTECTION) ACT of 1986**

The Environment (Protection) Act of 1986 clearly extends to water quality and the control of water pollution. Section 2 (a) of the Act defines the environment to include water and the interrelationship which exist among and between water and human beings, other living creatures, plants, micro-organisms, and property. The Act authorizes the Central Government to establish standards for the quality of the environment and for emission or discharge of environmental pollutants from any source. The Ministry of Environment and Forests has published Environment (Protection) Rules establishing general standards and industry – based standards for certain types of effluent discharge. The ministry has not yet promulgated rules establishing ambient inland water quality standards, through state boards must have regard to the assimilative capacity of receiving bodies. In 1997, the Maharashtra pollution control board pioneered the development of ambient norms for fresh water bodies. However, these norms do not have statutory sanction and serve only to guide industry in selecting a suitable location.

The Environment Act includes a citizens' initiative provision and a provision authorizing the Central Government to issue direct orders to protect the environment. The Central Government may delegate specified duties and powers under the Environment Act to any officer, state government, or other authority. For example, the power to issue directions under section 5 has

been delegate to the state governments and the power of entry and the right to take samples sections 10 and 11 have been delegated to various officers.

#### **4.3.4 RIPARIAN RIGHTS AND WATER POLLUTION**

A riparian owner is one who has title to land adjacent to a natural stream. The Indian legal system has recognized the right of riparian owners to unpolluted waters at least since the adoption of the Indian Easements Act of 1882. Under section 7 of that Act every riparian owner has the right to the continued flow of the waters of a natural stream in its natural condition without obstruction or unreasonable pollution.

The legal systems also recognizes a common law riparian right to unpolluted water. This common law right is rarely invoked in contemporary litigation concerning water pollution. The Supreme Court, however, revived this doctrine in *M.C. Mehta v Union of India (Municipalities)* by stating:

In common law the Municipal Corporation can be restrained by an injunction in an action brought by a riparian owner who has suffered on account of the pollution of the water in a river caused by the Corporation by discharging into the river insufficiently treated sewage from discharging such sewage into the river.

#### **THE GANGA ACTION PLAN**

Amidst great fanfare in 1985, the Government of India announced an ambitious new plan for cleaning up the Ganges river. A newly created Ganga Authority, headed by the prime Minister, is ultimately responsible for the river's restoration. The eight – member authority includes the Central Government's planning and environmental ministers and the chief minister of the states through which the Ganges flows.

The central pollution control board has product an 'Action Plan for the prevention of pollution of the Ganga as a guide for steps in the cleanup. The government has established an inter-departments steering and monitor implementation of the Plan. A Ganga Project Directorate is included within the Department of Environment ronment to appraise and clear projects prepared by field level agencies, release funds, and coordinate long – term activities under the Action Plan.

The Ganga Action Plan is based on a comprehensive survey of the Ganga Basin carried out by the Central board. About 80 per cent of the pollution in the rivers is caused by raw sewage discharged directly into the river. The first phase of the Ganga Action Plan focuses on construction of an extensive network of self-sustaining sewage treatment plants in the cities along the Ganga River as the first measure to reduce pollution. Most of the physical infrastructure for intercepting, diverting and treating municipal sewage has been created, though the efficacy of these schemes remains uncertain. In the second phase, the Plan envisages establishing similar facilities along the Ganga's major tributaries, including the Yamuna and Gomti. The Central Government has also initiated an ambitious scheme to replicate the Ganga model for cleaning up polluted stretches elsewhere in the country through a National River Conservation Plan (NRCP)

#### **4.3.5 JUDICIAL INITIATIVES**

In 1985, M C Mehta, an activist Supreme Court advocate, filed a writ petition under Article 32 of the Constitution on the issues of pollution in the Ganga River. Among other things, the petition was directed at the Kanpur Municipality's failure to prevent waste water from polluting the Ganga. Mehta requested the court to order government authorities and tanneries at Jajmau near Kanpur to stop polluting the Ganga with sewage and trade effluents.

In early 1995, under the stewardship of Chief Justice B.N. Kirpal the Gujrat High Court embarked on a crusade against industrial pollution in Gujart. The sate of Gujrat has large



chemical and textile industries which have thrived at the cost of the environment. As the High Court discovered, untreated effluents from scores of units had blighted agricultural fields around Ahmedabad city.

## **4.4. AIR POLLUTION CONTROL**

### **4.4.1 SCOPE OF THE PROBLEM**

Air pollution is one of the serious environmental concern of the urban Asian cities including India where majority of the population is exposed to poor air quality. The health related problems such as respiratory diseases, risk of developing cancers and other serious ailments etc. due to poor air quality are known and well documented. Besides the health affects, air pollution also contributes to tremendous economic losses, especially in the sense of financial resources that are required for giving medical assistance to the affected people. The poor are often the most affected segment of the population as they do not have adequate measures to protect themselves from air pollution.

Most of the Indian Cities are also experiencing rapid urbanization and the majority of the country's population is expected to be living in cities within a span of next two decades. Since poor ambient air quality is largely an urban problem this will directly affect millions of the dwellers in the cities.

The rapid urbanization in India has also resulted in a tremendous increase the number of motor vehicles. The vehicle fleets have even doubled in some cities in the last one decade. This increased mobility, however, come with a high price. As the number of vehicles continues to grow and the consequent congestion increases, vehicles are now becoming the main source of air pollution in urban India. Although, the air quality can be improved through a combination of technical and non-technical measures, legislative reforms, institutional approaches and market-based instruments, there are certain unique challenges which the country has to face in tackling the problem of urban air pollution. These include, the transport features which are different from the developed countries particularly in terms of the types of vehicles commonly used, the manner in which the road network is operated and sharing of the limited space by pedestrians and non-motorized modes with modern vehicles in Indian cities. Vehicles in India are often much older and usually comprise technologies considered as out-dated in the developed world. The institutions responsible for managing urban air quality are also not as well developed as those in the developed countries.

The country has however taken a number of measures for the improvement of the air quality in cities. These include, right from the improvement in the fuel quality, formulation of necessary legislation and enforcement of vehicle emission standards, improved traffic planning and management etc. The non-technical measures taken include, awareness raising regarding the possible economic and health impacts of air pollution and available measures for improving air quality, increasing use of cleaner fuels and purchase of vehicles with advance emission control devices, increasing institutional framework and capacity building for the monitoring of vehicle emissions.

### **4.4.2 THE STATUTES**

Unlike the Water Act, which was enacted by Parliament under article 252 (1) of the Constitution after securing enabling resolution from 12 states, the Air (Prevention and Control of pollution) Act of 1981 was enacted by invoking the Central Government's power under Article 253 to make laws implementing decisions taken at international conferences. The preamble to the Air Act states that the Act represents an implementation of the decisions made at the United nations Conference on the Human Environment held at Stockholm in 1972. Although a central statute,

executive functions under the Air Act are carried out in the states by state pollution control boards. This delegation of executive functions is permitted by Article 258 (2) OF THE Constitution Article 258 (3) requires the Central Government to compensate the states for the cost of carrying out these delegated functions.

The Air Act of 1981, as amended in 1987, contains several interesting features. First, the Act grants discretion to each state government to designate particular areas as 'air pollution control areas'. Within a declared air pollution control area, neither the board nor the state government may exempt a polluter from the purview of the Act. Polluters located outside such air pollution control areas cannot be prosecuted by the state board, but every industrial operator within an air pollution control area must obtain a permit (consent order) from the state board. Second, the Act enables a magistrate to restrain an air polluter from discharging emissions, and empowers both the Central and state boards to give directions to industries which, if not followed, can be enforced by the board closing down the industry or withdrawing its supply of power and water.

Third citizens can not only sue to enforce the Act to gain compliance by the industries, but can also require the board to provide the emissions data needed to build a citizens' case.

Procedurally, the Air Act follows the basic structure of the water Act-with a Central board and state boards administering a system of consent orders, monitoring activities, and enforcement through fines and criminal prosecutions. The Air Act specifies that Central and state air pollution control authority is to be exercised by the Central and state water boards. (These boards have generally dropped the term 'Water' from their title and are usually known as 'State Pollution Control Board')

The state board is required to carefully examine all relevant facts including the measure taken to prevent pollution. When processing a consent application. Although there is no express mandate in the Air or Water Acts requiring community consultation or transparency at this stage, the Supreme Court has intervened to review the board's decision, where the consent issued affected the community at large. The court termed 'incongruous' certain conditions in the consent requiring deferred compliance, despite the immediate impact of the pollution on the public.

The Air Act as a matter of practice, operates in tandem with the Environment (Protection) Act of 1986 (EPA). Being a self-contained statute, the Air Act empowers the state boards to independently notify standards under section 17 (g). There is an overlap, however. The EPA enables the Central Government to lay down emission standards which are found in the schedules appended to the Environment (Protection) Rules of 1986 (EPR). By operation of section 24 of the EPA, the EPR norms take precedence and hence in practice the state boards generally re-notify the EPR standards under the Air Act.

The rules framed under the EPA prescribe emission norms for specific industries and general emission standards which are 'concentration based', 'equipment based' and load/mass-based'. The general standards apply in the absence of industry specific norms. In addition to emission norms, National Ambient Air Quality Standards (NAAQS) are notified for industrial, residential and rural areas, and sensitive regions. The NAAQS are levels of air quality intended to protect public health, vegetation and property with an adequate margin of safety. Two other major areas where standards have been issued under the EPR are ambient air quality standards in respect of noise and emission standards for motor vehicles. Both these topics are separately dealt with below

## STONE QUARRYING

Limestone quarrying in the Dehradun Vally triggered the **first major public interest environmental** case in the Supreme Court. The primary ecological concerns of the court were the devastation of forests, landslides and the impact of quarrying on the hydrological systems in the Mussoorie Hill Range. In this section, we focus on air pollution problems caused by unregulated quarrying.

Over six month in 1993, a division bench of the Himachal Pradesh High Court guided a public interest litigation to prevent stone crushing in the hills around Shimla. Assisted by a team of lawyers appointed amicus curiae, the court framed a scheme that would protect Shimla's environs while cushioning the economic impact on the quarry owners.

### PRESERVING THE TAJ MAHAL

On the eve of his retirement, Justice Kuldip Singh delivered the Supreme Court judgment in the Taj Trapezium Case, culminating a long and arduous battle fought by M.C. Mehta for over a decade. In the winter of 1984, M.C. Mehta, a conscientious advocate practicing at the Bar of the Supreme Court, placed before the court the material he had gathered and warned of damage to the Taj Mahal from air pollutants. The Taj Case was Mehta's first tentative step in the nascent field of environmental litigation. In the following year, he filed Article 32 petitions to clean up the Ganga, rid Delhi of hazardous and heavy industry, close down and relocate Shriram's industrial complex in the heart of the capital and regulate air pollution caused by automobiles thermal power stations and industries. Over time, each of these cases grew into full blown class actions involving scores of parties.

Mehta's cases rode on the passion of the presiding judge. The Shriram Gas Leak Case was the first to kick off under the stewardship of Chief Justice Bhagwati who was anxious to help the Bhopal victims by articulating the principles of mass tort liability. The next of Mehta's cases to gain momentum was the Ganga Pollution case where Justice Venkataramiah issued a series of opinions to discipline the Kanpur tanneries and riparian municipalities. Troubled by the deteriorating air quality in Delhi and the soot on his shirt collar, Chief Justice Ranganath Misra pulled the Motor Vehicles Case off the back burner in 1991. Although first among Mehta's cases, the Taj Case was the last to evoke interest. It was propelled to the fore in 1993 by a series of orders issued by Justice Kuldip Singh. We carry excerpts from the final judgement delivered almost four years after the periodic hearings commenced in January, 1993. Before perusing the judgement, review the opening reading in this chapter describing the air pollution problems of Agra. The 'Taj Trapezium Zone' referred to by the court is a 10,400sq.km trapezium-shaped area covering the five districts of the Agra region

### 4.4.3 VEHICULAR POLLUTION

Motor vehicles have been closely identified with increasing air pollution levels in urban centres of the world. Besides substantial carbondioxide emissions, significant quantities of carbon monoxide, hydrocarbon, NO<sub>x</sub>, SPM and other air toxins are emitted from these motor vehicles in the atmosphere, causing serious environmental and health impacts. Like many other parts of the world, air pollution from motor vehicles is one of the most serious and rapidly growing problems in urban centres of India. The problem of air pollution has assumed serious proportions in some of the major metropolitan cities of India and vehicular emissions have been identified as one of the major contributors in the deteriorating air quality in these urban centers. The problem has further been compounded by the concentration of large number of vehicles and comparatively high motor vehicles to population ratios in these cities. Reasons for increasing vehicular pollution problems in urban India can be reasoned out as per the following:

- High vehicle density in Indian urban centers.

- Older vehicles predominant in vehicle vintage
- Predominance of private vehicles especially cars and two wheelers, owing to unsatisfactory public transport system, thereby causing higher idling emissions and traffic congestion.
- Absence of adequate land use planning in development of urban areas, thereby causing more vehicle travel and fuel consumption
- Inadequate inspection & maintenance facilities.
- Adulteration of fuel & fuel products
- Improper traffic management system & road conditions
- High levels of pollution at traffic intersections
- Absence of effective mass rapid transport system & intra-city railway networks
- High population exodus to the urban centers.
- Increasing number Skyrocketing buildings in the urban areas causes stagnation of the vehicular emissions to the ground level and unable its proper dispersion.

The Environment (Protection) Rules of 1986 lays down the vehicular emission standards.

#### **4.4.4 NOISE POLLUTION**

Acute exposure to high noise levels and prolonged exposure at lower levels are known to adversely affect the health and social development of exposed persons. The direct physiological effects include a loss hearing, either temporary or permanent. The non-auditory effects include cardiac ailments, stress and fatigue, and sleep disturbances. Among the psychological effects documented by experts are a lack of concentration, loss of memory and an adverse impact on the education of children. Noise is also suspected of aggravating nausea, headache, insomnia and a loss of appetite.

The Environment (Protection) Act of 1986 (EPA) recognizes noise as an environmental pollutant and empowers the Central Government to frame rules prescribing the maximum permissible limits for noise in different areas. On 14 February 2000, the Centre framed the Noise Pollution (Regulation and Control) Rules. Two types of noise standards are prescribe: Ambient air quality standards in respect of noise and emission limits for designated types of machinery, appliances and fire crackers.

Separate ambient levels are fixed for industrial, commercial and residential areas and silence zones. The prescribed day time levels (6.00 AM to 10.00 PM) are typically ten decibels higher than the corresponding levels for night time. The Noise Rules require the states to designate an authority or officer responsible for maintaining the ambient standards. The designated authority could be the district magistrate or police commissioner or any other official. Rule 3 requires the states to take measure to ensure that ambient air quality standards are met and imposes a duty on local bodies to have regard to noise pollution as a parameter of quality of life while planning development activity. Rule 5 prohibits the use of loudspeakers at night except in a closed premises. Day time use of loudspeakers is allowed after obtaining permission of the authority. The authority has jurisdiction to entertain complaints about excess noise and may issue

directions under rule 8 to abate the nuisance. The cases discussed below relate to the prior to the framing of the Noise Rules, 2000.

The emission equipment standards prescribed in Schedule VI of the Environment (Protection) Rules of 1986 relate to motor vehicles, air conditioners, refrigerators, diesel generators for domestic use and certain types of construction equipment.

The 1987 amendments to the Air Act specifically extended the provisions of the Air Act, including increased penalties and the issuance of injunctions by magistrates, to noise pollution. The definition of 'air pollutant' was expanded to include noise. Besides these central statutes, local municipal legislation and the police Acts also regulate certain types of activity which generates noise. For example, in several states regulations governing the use of loud speakers are framed under the local police Act.

The High Courts at Bombay and Calcutta have responded energetically to citizens' complaints about noise. On 30 September 1985, Justice Sujata Manohar of the Bombay High Court constituted an expert committee to improve regulation. The petition was filed by doctors, including Dr. Oke, who were concerned about the adverse health impact on the citizens of Bombay from exposure to high noise levels. The report prepared by the expert committee provides an excellent survey of the problems faced by the citizens in the Greater Bombay area. Nothing the recommendations of the expert committee, the High Court disposed of the petition by recording the decision of government to suitably amend existing legislation and to address the concerns expressed by the committee.

#### Summary:

India has enacted laws to address the pollution issues long ago and India is actually serious about combating water and air pollution. The three major Acts in India that were enacted to control pollution are water (prevention and control of pollution) Act of 1974, Air (Prevention and Control of Pollution) Act of 1981 and The Environment (Protection) Act of 1986. The Environment (Protection) Act of 1986 is considered as the umbrella Act on all pollution control issues. The Supreme Court of India and the High Courts address the pollution issue through writ jurisdictions and PILs. Pollution Control Boards at the Centre and the states have been created for implementation of the Acts and control pollution. The Environment (Protection) Act of 1986 has empowered the centre tremendously to make rules as and when required for controlling pollution, which will be discussed elaborately in the UNIT 5.

## SELF ASSESSMENT QUESTIONS:

### I. Answer in short

- (a) What are the Acts primarily address water and air pollution issues in India?
- (b) What are the major sources of law to address pollution issues in India?
- (c) How to stone quarrying conflicts Indian Laws?
- (d) Explain the purpose of creating Pollution Control Boards.

### II. Elaborate the following:

- (a) Water is a State List subject yet a national law to control water pollution exists in India. How was the act enacted? Explain the how the Act has been implemented.
- (b) Enacting the Air Act was easy for the Centre. Explain.

### Activity:

Conduct a survey to gather all the water and air pollution issues published in various newspapers and try to find relation with the existing laws to handle them.

**1986)****UNIT STRUCTURE**

5.0. OBJECTIVE:

5.1. INTRODUCTION:

5.2. THE SCOPE OF THE ACT

5.3. DELEGATED LEGISLATION

5.3.1 POLLUTION CONTROL

5.3.2 HAZARDOUS SUBSTANCE REGULATION

5.3.3 ENVIRONMENT IMPACT ASSESSMENT (ENVIRONMENTAL CLEARANCE)

5.3.4 COASTAL REGULATIONS AND PROTECTION OF SPECIFIC AREAS

5.4. SECTIONS 3 AND 5 OF THE Act

5.5. VIOLATIONS AND PENALTIES UNDER THE ACT

5.6. ENFORCEMENT OF THE ACT

5.7. THE NATIONAL ENVIRONMENTAL APPELLATE AUTHORITY ACT OF 1997

5.8 SUMMARY

**5.0 OBJECTIVE:**

To understand –

- Need to have an Act like EPA 1986 in India
- The scope and delegated regulations
- Penal actions under the act
- How the Act is enforced

**5.1. INTRODUCTION:**

The Environment (Protection) Act, 1986 was enacted to provide for the protection and improvement of the quality of environment and preventing, controlling and abating environmental pollution. The Act came into existence as a direct consequence of the *Bhopal Gas Tragedy*. under Article 253 of the Constitution. The purpose of the Act is to implement the decision of the United Nations Conference on the Human Environment of 1972, in so far as they relate to the protection and improvement of the human environment and the prevention of hazards to human beings, other living creatures, plants and property.

The EPA is an 'umbrella' legislation designed to provide a framework for Central Government coordination of the activities of various central and state authorities established under previous laws, such as the Water act and Air Act. It is also an 'enabling' law, which articulates the essential legislative to enable bureaucrats to frame necessary rules and regulation. Since the time

it entered the statute book, the Act has served to back a vast body of subordinate environmental legislation in India.

## **5.2. THE SCOPE OF THE ACT**

The scope of the EPA is broad, with ‘environment’ defined to include water, air and land and the inter – relationship which exist among water, air and land, and human beings and other living creatures, plants, micro-organisms and property. ‘Environment pollution’ is the presence of any environmental pollutant, defined as any solid, liquid or gaseous substance present in such concentration as may be, or may tend to be, injurious to the environment. ‘Hazardous substances’ include any substance or preparation which may cause harm to human beings, other living creatures, plants, micro-organisms, property or the environment.

Section 391, of the Act empowers, the centre ‘to take all such measures as it deems necessary or expedient for the purpose of protecting and improving the quality of the environment and preventing, controlling and abating environmental pollution.’

Specifically, the Central Government is authorized to set new national standers for the quality of the environment (ambient standards) as well as standards for controlling emissions and effluent discharges; to regulate industrial locations; to prescribe procedures for managing hazardous substances; to establish safeguards for preventing accidents; and to collect and disseminate information regarding environmental pollution.

Section 23 of the Act empowers the Centre to delegate its powers and functions to any officer, state government or other authority. Section 24 of the EPA ensures that the provisions of this Act and subordinate rules or orders override any other law. A broad rule – making power is conferred on the Central Government under sections 6 and 25.

## **5.3. DELEGATED LEGISLATION**

The mass by the Department of Environment, Forests and Wildlife of the Central Ministry of Environment and Forests falls under four broad categories: pollution control; hazardous substance regulation; environment impact assessment; and the protection of the coast and other ecologically fragile areas. Most of these regulations are analysed in greater detail under the related chapters later in the book. Here, we summarize the broad features of the rules.

### **5.3.1 POLLUTION CONTROL**

Section 7 of the EPA prohibits the discharge or emission of environmental pollutants in excess of the prescribed standards. To implement this mandate, the government has framed the Environment (Protection) Rules of 1986 (EPR). The standards are set out in the schedules

appended to the EPR. Broadly, there are three types of standards: source standards which require the pollutants to restrict at source the emission and discharge of environmental pollutants; product such as cars; and ambient standards to set maximum pollutants loads in the air, and to guide regulators on the environmental quality that ought to be maintained for healthy living.

Schedule I lays down industry-specific standards for effluent discharge and emissions in respect of designated industries. Every industrial unit must comply with the norms within one year of their publication or such shorter period that may be ordered by the pollution control board. In respect of any specific industry the Central Government may extend the lead time for compliance beyond one year.<sup>90</sup> In cases where the standards were prescribed prior to 16 January 1991 the industry was required to achieve compliance by the year end.

In cases where the polluter is not covered by Schedule I, the unit must comply with the general standards for discharge of environmental pollutants prescribed in Schedule VI. The general standards are also referred to as the 'minimum national standards' since they represent the parameters which every industry, at the very least, must meet until specific standards under schedule I are notified. The pollution control boards are empowered to specify stricter standards than those published in respect of any industry, operation or process, where necessary.

Regarding product standards, new motor vehicles must meet emission and noise limits. Consumer durables such as air conditioners, refrigerators and air coolers and some types of construction equipment manufactured after 31 December 1993 are required to meet prescribed noise levels.

In addition to the source and product norms, Schedules III and VI prescribe national ambient air quality standards in respect of noise and other air pollutants. The levels of ambient air quality have been fixed after providing an adequate margin of safety to protect public health, vegetation and property.

Supplementing the EPR are the Noise pollution (Regulation and Control) Rules which were enforced on 14 February 2000. These Rules prescribe ambient air quality standards in respect of noise for industrial, commercial and residential areas as well as designated 'silence zones'. The Rules impose restrictions on the use of loud speakers and public address systems and cast a duty on district magistrates and police commissioners to ensure that noise levels do not exceed the norms.

### **5.3.2 HAZARDOUS SUBSTANCE REGULATION**

The Hazardous wastes (Management and Handling) Rules, issued under the Act in July, 1989 have introduced a permit system to regulate the handling and disposal of hazardous wastes. These



Rules fix responsibility for the proper handling, storage and disposal of such wastes on the person generation the wastes.

The manufacture, Storage and Import of Hazardous Chemicals Rules of November, 1989 spell out the responsibilities of those handling hazardous substances (other than hazardous wastes. Under these Rules, a hazardous industry is required to identify major accident hazards, take adequate preventive measures and submit a safety report to the designated authority. An importer of hazardous chemicals must furnish complete product safety information to the competent authority and must transport the imported chemicals in accordance with the central Motor Vehicle Rules of 1989.

In August, 1996 the central Government framed the Chemical accidents (Emergency, Planning, preparedness and Response) Rules. These Rules require the Centre to constitute a central crisis group (CCG) for the management of chemical accidents and to set up a quick response mechanism termed as the crisis alert System. The CCG is the apex body for dealing with major chemical accidents and providing expert guidance to contain the damage caused by such accidents.

The Rules also contemplate the setting up of crisis groups at the state, district or local levels to assist the administration in prevention and control measures.

Rules to regulate the manufacture, use, import, export and storage of hazardous micro-organisms and genetically engineered cells were issued under the Environment Act in December, 1989. Under these Rules a Genetic Engineering approval Committee has been established in the Ministry of Environment and Forests to licence experiments in, and field trials of, genetically engineered organisms.

In July 1998, the Central Government issued the Bio-Medical Waste (Management and Handling) Rules, to regulate hospitals, clinics, veterinary institutions and other persons generating bio-medical wastes. The Rules introduce a licensing and reporting system requiring institutions to segregate, and dispose of designated categories of bio-medical waste in the prescribed manner.

### **5.3.3 ENVIRONMENT IMPACT ASSESSMENT (ENVIRONMENTAL CLEARANCE)**

The first attempt at a comprehensive statutory environment impact assessment (EIA) programme began on 27 January 1994 when the Union Ministry of Environment and Forests issued a notification dealing with mandatory EIA. The notification mandates a public hearing and requires the project proponent to submit an EIA report, an environment management plan, details of the public hearing and project report to the impact assessment agency for clearance, with further review by a committee for experts in certain cases. The impact assessment agency is the ministry

itself. The EIA regulations apply to 29 designated projects/industries which are enumerated in schedule I to the notification.

In April 1997, the ministry took a first step towards de-centralizing the EIA regulatory machinery by shifting the responsibility for environmental site clearance in respect of thermal power projects to the states. This notification describes the categories of thermal power plants falling within state government purview and largely replicates the procedure under the principal notification of 1991.

#### **5.3.4 COASTAL REGULATIONS AND PROTECTION OF SPECIFIC AREAS**

In addition of the EIA requirements, specific prohibitions and regulations operate in designated ecologically sensitive areas. The widest in reach and scope are the Coastal Zone Regulatory issued in February 1991. These regulations strictly control development activity including tourism within a strip of 500 meters for the sea shore. While some activities such as setting up of new industries and the expansion of existing factories are completely prohibited and other types of commercial activities are restricted.

In response to the environmental threats, industrial activity has also been curbed by the central notifications in some ecologically sensitive regions like the horticultural belt in the Dahanu region in Maharashtra, the Himalayan foothills around Doon valley, the coastal Murud-Janjira area in the Raigad district of Maharashtra, the congested Antop Hill locality in Bombay and parts of Aravalli range in Rajasthan and Haryana. Most of these notifications were issued in response to specific environmental threats to each region.

#### **5.4. SECTIONS 3 AND 5 OF THE Act**

Section 3 (1) confers very wide powers on the Central Government 'to take all such measures as it deems necessary or expedient for the purpose of protecting and improving the quality of the environment and preventing, controlling and abating environmental pollution'. Sub-section (2) illustrates the types of measures that the centre may adopt under sub-section (1). Amongst those is the power to restrict areas in which industries may be set up, which enabled the Coastal Regulations, the EIA Regulations and the notifications to protect special areas like the Doon valley and Dahanu. Commenting on the genesis of the Coastal regulations in the CRZ

Notification Case, 108 the Supreme Court observed that the principal notification of 1991 was issued under section 3 (1) and 3 (2) (v) of the EPA 'presumably after a lot of study [was] undertaken by the government. Normally, such notifications are issued after a detailed study and examination of all relevant issues.'

Section 3 (3) permits the Central Government to constitute one or more authorities to implement the Act. Under section 5 of the Act, such an authority may issue binding directions in writing to any person, officer or authority. Section 5 clarifies that the power to issue directions includes the power to close, prohibit or regulate any industry, operation or process as well as the power to stop supply of energy, water or other service.

Section 5 clothes the Central Government (or its delegates) with the power to issue directions for achieving the objects of the Act. Read with the wide definition of 'environment' in Section 2 (a), section 3 and 5 clothe then central Government with all such powers as are 'necessary or expedient for the purpose of protecting and improving the quality of the environment'. The Central Government is empowered to take all measure and issue all such directions as are called for the above purpose. In the present case, the said powers will include giving directions for the removal of sludge, for undertaking remedial measures and also the power to impose the cost of remedial measures on the offending industry and utilize the amount so recovered for carrying out remedial measures. This Court can certainly give directions to the Central Government/its delegates to take all such measures if in a given case this Court finds that such directions are warranted.

Environmentalists, non-governmental organizations and academics have long commended the idea of an autonomous agency along the lines of the US Environment Protection Agency, to oversee the enforcement of the EPA. Although the Central Government may create a specialist agency under section 3 (3), thus far, the Centre has chosen to leave implementation of the EPA to the Union Ministry of Environment and Forests. The executive's reluctance, however, hasn't deterred the Supreme Court from directing the Centre to set up an authority under section 3 (3) of the EPA when the court considered it necessary.

## **5.5. VIOLATIONS AND PENALTIES UNDER THE ACT**

The EPA was the first environment statute to give the Central Government authority to issue direct written orders, including orders to close, prohibit, or regulate any industry, operation or process or to stop or regulate the supply of electricity, water or any other service. Other powers granted to the Central Government to ensure compliance with the Act include the power of entry for examination, testing of equipment and other purposes and the power to take samples of air, water, soil or any other substance from any place for analysis.

The Act explicitly prohibits discharges of environmental pollutants in excess of prescribed regulatory standards. There is also a specific prohibition against handling hazardous substances except in compliance with regulatory procedures and standards. Persons responsible

for discharges of pollutants in excess of prescribed standards must prevent or mitigate the pollution and must report the discharge to governmental authorities.

The Act provides for fairly severe penalties. Any person who fails to comply with or contravenes any of the provisions of the Act, or the rules, orders, or directions issued under the Act shall be punished, for each failure or contravention, with a prison term of up to five years or a fine of up to Rs. 100,000 or both. The Act imposes an additional fine of up to Rs. 5,000 for every day of continuing violation. If a failure or contravention occurs for more than one year after the date of conviction an offender may be punished with a prison term which may extend to seven years.

Corporate officials directly in charge of a company's business are liable for offences under the Act, unless the official can establish that the offence was committed without his or her knowledge or that he or she exercised all due diligence to prevent the commission of the offence. In addition, if an offence is committed with the consent or connivance of, or is attributable to any neglect on the part of any director manager, secretary or other officer, that person shall also be liable for the offence. Similar provisions extend liability to the heads of departments of government and other department officers.

Section 24 provides that if any act or omissions constitutes an offence punishable under the EPA as well as any other law, the offender shall be liable to be punished under the other law and not under the EPA.

## **5.6. ENFORCEMENT OF THE ACT**

The established environmental rules and regulations are enforced by the concerned administrative authorities. In addition, they act upon the directions of the courts and Pollution Control Boards (PCBs). Thus, both the ex-post and ex-ante approaches are playing an active role in improvement of environmental quality in the country. The PCBs, in particular, tries to prevent environmental degradation through formulation of standards, issuance of consents for establishment and operation, closure orders to rogue industries.

Water Boards were established under the provisions of the Water Act of 1974 in order to prevent water pollution. The Boards later received the additional responsibility to control air pollution under the provisions of the Air Act of 1981. The Water Boards were then renamed as Pollution Control Boards under the provisions of the Environmental Protection Act of 1986. The responsibilities of PCBs increased with the adoption of environmental protection rules in the context of prevention of water pollution, supervision of hazardous wastes, implementation of court directions, etc.

## **5.7. THE NATIONAL ENVIRONMENTAL APPELLATE AUTHORITY**

### **ACT OF 1997**

This Act (NEAA) requires the Union Government to establish a body known as the National Environment Appellate Authority to hear appeals against orders granting environmental clearance in designated areas where industrial activity is proscribed or restricted by regulations framed under the EPA. The Appellate Authority is chaired by a retired judge of the Supreme Court or a Chief Justice of a High Court and has its head office at Delhi.

Restrictions on industrial activity may be imposed by the Centre under section 3 (1) and 3 (2) (v) of the EPA, and as we have seen this power has been exercised by the Union Government to regulate activity along the coast as well as in

Ecologically sensitive like the Doon valley, Dahanu and Murud-Janjira in Maharashtra and parts of the Aravalli Range. Likewise, the Environment Impact Assessment Regulations of January, 1994 were introduced in exercise of the Centre's power under these provisions.

Section 11 of the NEAA requires an appeal to be filed within 30 days of the impugned order granting conditional or unconditional environmental clearance or where the delay is explained, within 90 days. The appellate jurisdiction is restricted to cases where environmental clearance is granted and does not extend to cases where clearance is refused. The categories of 'aggrieved persons' who are conferred a right of appeal are enumerated in section 11 (2). They include a person likely to be affected by the environmental clearance and an association of persons ;likely to be affected by such order and functioning in the field of environment'. The Appellate Authority is required to dispose of the appeal within 90 days of its filing. Section 15 of the NEAA bars a civil court or other authority from entertaining any appeal in matters falling within the jurisdiction of the appellate Authority.

### **5.8 SUMMARY**

EPA 1986 is a holistic Act to address all issues of environmental pollution control in India. The Act has empowered the central government to make rules and statutes as and when required for pollution control. The Pollution Control Board in the centre and the State pollution Control Boards function for the implementation of the Act. Subordinate legislation framed under the EPA by the Department of Environment, Forests and Wildlife of the Central Ministry of Environment and Forests falls under four broad categories: pollution control; hazardous substance regulation; environment impact assessment; and the protection of the coast and other ecologically fragile areas.

The Act is considered the 'umbrella' Act for pollution control in India.

## **SELF ASSESSMENT QUESTIONS:**

I. Answer in short.

1. Under provisions of which Article of the Constitution of India EPA 1986 was enacted?
2. Explain how the EPA 1986 empowered the central government.
3. Explain the scope of EPA 1986.

II. Explain the scope and role of subordinate legislation framed under the EPA 1986.

Activity:

Visit the ministry of environment and forest, GOI website and download the EPA 1986. Also try to find similar Acts enacted in the SAARC countries in their respective websites and see how pollution control measures are taken in these countries.

# **DEM 201-ENVIRONMENTAL LAWS AND POLICIES**

## **UNIT-6: ENVIRONMENTAL IMPACT ASSESSMENT**

### **UNIT STRUCTURE**

- 6.1 INTRODUCTION, ORIGIN AND DEVELOPMENT OF EIA
- 6.2 OBJECTIVES OF EIA
- 6.3 INDIAN GUIDELINES AND NOTIFICATION
- 6.4 THE EIA PROCESS
- 6.5 PUBLIC CONSULTATION AND HEARING
- 6.6 MITIGATION AND MANAGEMENT PLAN
- 6.7 ENVIRONMENTAL IMPACT STATEMENT (EIS)
- 6.8 POST DECISION MAKING MONITORING AND AUDIT

### **6.1 INTRODUCTION, ORIGIN AND DEVELOPMENT OF EIA**

EIA is 'a process having the ultimate objective of providing decision-makers with an indication of the likely consequences of their actions' (Wathern 1988).

Prior to 1970, project and policy appraisals were based largely on technical and cost-benefit analyses. In January 1970, the US Environmental Policy Act (NEPA) introduced the first requirement and procedure for EIA. Some 30 years later, EIA is undertaken in more than 100 countries (Sadler & Weaver 1999) – some key international benchmarks are summarised in Box 1. During this period, there has not only been widespread adoption of EIA, but also a number of adaptations. Notable adaptations include a shift from the focus on biophysical aspects, to the inclusion of social and economic issues; the inclusion of implementation aspects (e.g. environmental management plans); attempts to address sustainability issues such as biodiversity loss and cumulative effects; and application to higher levels of decision-making such as plans, policies and programmes.

### **6.2 OBJECTIVES OF EIA**

- To ensure that environmental considerations are explicitly addressed and incorporated into the development decision making process;
- To anticipate and avoid, minimize or offset the adverse significant biophysical, social and other relevant effects of development proposals;
- To protect the productivity and capacity of natural systems and the ecological processes which maintain their functions; and
- To promote development that is sustainable and optimizes resource use and management opportunities.

### **6.3 INDIAN GUIDELINES AND NOTIFICATION**

The Ministry of Environment and Forests (MoEF) of India have been in a great effort in Environmental Impact Assessment in India. The main laws in nation are Water Act(1974), The Indian Wildlife (Protection) Act (1972), The Air (Prevention and Control of Pollution) Act (1981) and The Environment (Protection) Act (1986). The responsible body for this is Central Pollution Control Board. EIA studies need a significant amount of primary and secondary environmental data. The primary data are those which need to be collected in the field to define the status of environment (like air quality data, water quality data etc.). The secondary data are those data which have been collected over the years and can be used to understand the existing environmental scenario of the study area. The EIA studies are conducted over a short period of time and therefore the understanding the environmental trends based on few months of primary

The 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 is involved in collection of environmental data. However, there is no single organization in India which tracks the data available amongst these agencies and makes it available in one place, in a form and manner required by practitioners in the field of environmental impact assessment in India. Further, the environmental data is not available in value added forms that can enhance the quality of the EIA. This in turn adversely affects the time and efforts required for conducting the EIAs by project proponents and also timely environmental clearances by the regulators. With this background, 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.

## 6.4 THE EIA PROCESS

```

graph TD
    A[Proposal Identification] --> B[Screening]
    B --> C[EIA Required]
    B --> D[Initial environmental examination]
    B --> E[No EIA]
    D --> C
    D --> F[*Public involvement]
    C --> G[Scoping]
    F --> G
    F --> H[*Public involvement]
    G --> I[Impact analysis]
    I --> J[Mitigation and impact management]
    J --> K[EIA Report]
    K --> L[Review]
    H --> L
    L --> M[Decision-making]
    M --> N[Not approved]
    M --> O[Approved]
    N --> P[Resubmit]
    P --> Q[Redesign]
    Q --> M
    O --> R[Implementation and follow up]
    R --> S[Information from this process contributes to effective future EIA]
    S --> F
    S --> H
    S --> T[Feedback to Screening]
  
```

The flowchart illustrates the EIA process, starting with 'Proposal Identification' and 'Screening'. It branches into 'EIA Required' and 'Initial environmental examination', which leads to 'No EIA' or 'Scoping'. 'Scoping' leads to 'Impact analysis', 'Mitigation and impact management', 'EIA Report', and 'Review'. 'Review' leads to 'Decision-making', which can result in 'Not approved' (leading to 'Resubmit' and 'Redesign') or 'Approved' (leading to 'Implementation and follow up'). 'Implementation and follow up' leads to a feedback loop that contributes to future EIA processes, feeding back into 'Screening' and 'Public involvement' stages.

Figure 6.1 : Generalized EIA process flowchart



## **Key Terms**

An explanation of key terms used in the EIA process is as follows (for more details see UNEP 2002 or CSIR 2003):

- **Screening**

Screening is the process of determining whether or not an individual project proposal requires a full-scale EIA and what the level of assessment should be. In some countries, an initial assessment is used when there is uncertainty regarding the scale of study required or where there is a small amount of information required to take the decision. Most countries have lists of activities for which EIAs are required (e.g. mining or major construction works). In addition, some countries have identified sensitive environments (e.g. estuaries or cultural heritage sites) for which EIAs are needed.

- **Scoping**

Scoping determines the nature and extent of the required impact assessment. This phase entails the identification of issues that are likely to be important during the EIA and eliminates those that are not. Scoping usually involves interaction between the public, government departments and proponents who assist in the identification of key issues for investigation. The scoping report forms the basis for the terms of reference for the impact assessment (or analysis) phase.

- **Impact assessment**

The objective of this phase is to identify how the activities of the proposed development will impact on the various components of the environment. The impact assessment entails the identification and analysis of impacts, as well as a prediction of the significance of the impacts. Both negative and positive impacts are assessed.

- **Mitigation**

Mitigation entails the identification of ways in which negative impacts can be avoided or minimised to limit costs, and ways in which positive impacts can be enhanced to ensure maximum benefit.

- **Reporting**

A single EIA report is produced and contains the integrated findings of the impact assessment and mitigation studies. This report is used by the authorities in decision-making.

- **Reviewing**

In all jurisdictions, the authorities must officially review the EIA report and decide whether it is of an acceptable standard or not. To improve rigour and ensure that relevant information is captured and reflected, the process often includes review by the public and independent specialists prior to finalisation and decision-making. The Southern African Institute for Environmental Assessment (SAIEA) is the only institution dedicated specifically to providing a professional external review service in the region.

- **Decision-making**

Decision-making refers to the final approval or authorisation of the proposal. It usually includes a series of conditions under which development may proceed. The conditions are often translated into the management plan for the project.

- **Implementation**

If the development is approved, the developer might be required to implement an environmental management plan (EMP) for construction, operation and, in some instances, decommissioning of

the project. The EMP is the tool used to ensure that the mitigation actions and the monitoring requirements recommended in the EIA are systematically implemented throughout all phases of the project. This often-neglected aspect of EIA ensures delivery on promises.

## Various Methods of EIA

There are various methods available to carry out EIAs, some are industry specific and some general methods:

- **Industrial products** - Product environmental life cycle analysis (LCA) is used for identifying and measuring the impact on the environment of industrial products. These EIAs consider technological activities used for various stages of the product: extraction of raw material for the product and for ancillary materials and equipment, through the production and use of the product, right up to the disposal of the product, the ancillary equipment and material.
- **Genetically modified plants** - There are specific methods available to perform EIAs of genetically modified plants. Some of the methods are GMP-RAM, INOVA etc.
- **Fuzzy Arithmetic** - EIA methods need specific parameters and variables to be measured to estimate values of impact indicators. However many of the environment impact properties cannot be measured on a scale e.g. landscape quality, lifestyle quality, social acceptance etc. and moreover these indicators are very subjective. Thus to assess the impacts we may need to take the help of information from similar EIAs, expert criteria, sensitivity of affected population etc. To treat this information, which is generally inaccurate, systematically, fuzzy arithmetic and approximate reasoning methods can be utilised. This is called as a fuzzy logic approach.

EIA methods range from simple to complex, requiring different kinds of data, different data formats, and varying levels of expertise and technological sophistication for their interpretation. The analyses they produce have differing levels of precision and certainty. All of these factors should be considered when selecting a method.

## Appropriateness of Methods for Developing Countries

Table 6.1 lists criteria for selecting methods at several stages of the assessment process. No single method will meet all the necessary criteria. The objective is to select an array of methods that collectively will meet assessment needs.

**Table 6.1:** Objective criteria for selecting an EIA method

Key Area of the Assessment Process	Criteria	Criteria Description
Cost /Time Effectiveness Criteria	Expertise Requirements	Simple enough to allow the available manpower with limited background knowledge to grasp and apply the method without difficulty.
	Data Requirements	Does not require primary data collection and can be used with readily available data.
	Time Requirements	Can be completed well within the time requirements for the EIA review.

	Flexibility	Flexible enough to allow for modifications and changes during the course of the study, especially if more detailed study is required.
	Personnel Level of Effort	Can be performed with limited manpower and budgets.
Impact Identification	Comprehensiveness	Comprehensive enough to contain all possible options and alternatives; able to give sufficient information about the impacts to enable effective decision-making.
	Indicator-based	Able to identify specific parameters with which to measure significant impacts.
	Discriminative	Requires and suggests methods for identifying project impacts as distinguished from future environmental changes produced by other causes.
	Time Dimension	Can identify impacts on a temporal scale.
	Spatial Dimension	Can identify impacts on spatial scales.
Impact Measurement	Commensurate	Uses a commensurate set of units so that comparison can be made between alternatives.
	Quantitative	Suggests specific and measurable indicators to be used to quantify relevant impacts.
	Measures Changes	Provides for the measurement of impact magnitude as distinct from impact significance.
	Objective	Is based on explicitly stated objective criteria.
Impact Assessment	Credibility	Provides sufficient depth of analysis and instills confidence into the users and the general public.
	Replicability	Analysis can be replicated by other EIA practitioners.
	Significance-based	Can explicitly assess the significance of measured impacts on a local, regional, and national scale.
		Explicitly states criteria and assumptions employed to determine impact significance.
	Aggregation	Aggregates the vast amounts of information and raw data.
	Uncertainty	Accommodates a degree of uncertainty.
		Identifies impacts that have low probability of occurrence but a high potential for damage and loss.
	Alternative	Provides for a comparison of impacts of project alternatives.
Comparison	Clearly portrays the impacts on the environment with and without the project.	
Communication	Communicability	Provides a sufficiently detailed and complete comparison of the various project alternatives available.
		Requires and suggests a mechanism for public involvement in interpreting the impacts and their significance
		Provides a mechanism for linking and assessing impacts on affected geographical or social groups.
		Provides a description of the project setting to help users adequately understand the whole picture.
75		

	Summary Format	Summarizes the results of the impact analysis in a format that will give the users, who range from the public to the decision-makers, sufficient detail to understand and develop confidence in the assessment.
		Provides a format for highlighting the key issues and impacts identified in the assessment.

### Ad Hoc Method

Ad hoc methods are not really methods as they do not structure the problem so it is more amenable to systematic analysis. A good example of an ad hoc method is a team of experts assembled for a short time to conduct an EIA. Each expert's conclusions are based on a unique combination of experience, training and intuition. These conclusions are assembled into a report.

Table 6.2 gives the results of using the ad hoc method to compare alternative reservoir arrangements. Broad qualitative information about factors useful in the comparative evaluation of alternative development actions is presented. The information is stated in simple terms that are readily understood by the lay person. No information about the cause-effect relationship between project actions and environmental components is provided. The actual impacts on specific environmental components likely to be affected by the project or those that may require further investigation are not identified. The method merely presents the pertinent information without resorting to any relative weighting of importance.

Table 6.2: Illustration of the ad hoc method for comparing alternative reservoir arrangements (source: Lohani and Kan, 1983)

Items	Alternatives		
	A	B	C
Number of reservoirs on river system	4	1	0
Combined surface area, ha	8500	1300	-
Total reservoir shoreline, km	190	65	-
New irrigation areas, ha	40000	12000	-
Reduced open space because of project and associated population increases, ha	10000	2000	-
Inundated archaeological sites, nos.	11	3	-
Reduced soil erosion, relative magnitude	4x	1x	Nil
Enhanced fisheries, relative magnitude	4x	1x	Nil
Provision of flood control measures	Yes	Yes	No

New potential malarial areas, relative magnitude	4x	1x	Nil
Additional employment potential, number of persons	1000	200	-

This method is very easy to use, but does have a few drawbacks (Lohani and Kan, 1983):

- it may not encompass all the relevant impacts;
- because the criteria used to evaluate impacts are not comparable, the relative weights of various impacts cannot be compared;
- it is inherently inefficient as it requires sizeable effort to identify and assemble an appropriate panel of experts for each assessment; and
- it provides minimal guidance for impact analysis while suggesting broad areas of possible impacts.

Table 6.3 provides the evaluation of Ad hoc method.

Table 6.3: Evaluation of ad hoc method

Key Area of the Assessment Process	Criteria	L denotes Criteria Completely Satisfied P denotes Criteria Partially Satisfied N denotes Criteria Not Satisfied
Cost / Time Effectiveness Criteria	1. Expertise Requirements	L
	2. Data Requirements	L
	3. Time Requirements	L
	4. Flexibility	L
	5. Personnel Level of Effort	P
Impact Identification	6. Comprehensiveness	N
	7. Indicator-based	N
	8. Discriminative	N
	9. Time Dimension	N
	10. Spatial Dimension	N
Impact Measurement	11. Commensurate	N
	12. Quantitative	N
	13. Measures Changes	N
	14. Objective	N
Impact Assessment	15. Credibility	P
	16. Replicability	N
	17. Significance-based	N
	18. Aggregation	N
	19. Uncertainty	N
	20. Alternative Comparison	P
Communication	21. Communicability	P
	22. Summary Format	N

### Methods for Organizing and Presenting Information

Checklists and matrices are commonly used to organize and present information. Many of the more sophisticated methods and techniques often use checklists and matrices as a starting point for analysis.

- **Information Presented in Checklists and Matrices**

All checklists and matrices have boxes or cells that must be filled with information about the nature of the impact. Depending on the method, this information can be descriptive or evaluative (Table 6.4). The simplest methods merely determine the possibility or potential existence of an impact, while others, like weighting-scaling checklists, make judgements about the magnitude and importance of the impact.

Table 6.4: Information presented in checklists and matrices

<b>Impact Characteristic Identified or Evaluated</b>	<b>Descriptive or Evaluative Measure</b>	<b>Type of Scale</b>	<b>Determined By</b>	<b>Used By Method</b>
Existence	yes or no	Nominal	Expert Judgement	Simple Checklist
Duration	short term or long term	Nominal	Expert Judgement	Descriptive Checklist (Oregon Method) (Smardon et al., 1976)
Reversibility	reversible or irreversible	nominal	Expert Judgement	Descriptive Checklist (Oregon Method) (Smardon et al., 1976)
Magnitude	minor, moderate or major	ordinal	Expert Judgement	Descriptive Checklist (Oregon Method) (Smardon et al., 1976)
	1 to 10, with 1 representing small, 5 representing intermediate, 10 representing large	interval	Expert Judgement	Leopold Matrix (Leopold et al., 1971)
Causal relationship	direct, indirect, or synergistic	nominal	Expert Judgement	Descriptive Checklist (Oregon Method) (Smardon et al., 1976)
Importance	1 to 10, with 1 representing low, 10 representing high	Interval	Subjective Judgement	Leopold Matrix (Leopold et al., 1971)
	0 to 1000, where the sum of the importance weights is equal to 1000	Interval	Subjective Judgement	Battelle Environmental Evaluation System (Dee et al., 1972)
Environmental Impact Units (EIU)	0 to 1, with 0 representing poor quality, 1 representing very	Interval	Value Functions based on expert or subjective judgement	Battelle Environmental Evaluation System (Dee et al., 1972)

	good quality			
Benefit/Cost	+ for benefit - for cost	nominal	Subjective Judgement	Fisher and Davis (1973)
Significance	no impact insignificant impact significant impact mitigated impact unknown impact	nominal	subjective and expert judgement	H.A. Simons (1992)

### Checklists

Checklists are standard lists of the types of impacts associated with a particular type of project. They are a more formalized version of ad hoc approaches in that specific areas of impact are listed and instructions are supplied for impact identification and evaluation. Sophisticated checklists include: 1) scaling checklists in which the listed impacts are ranked in order of magnitude or severity, and 2) weighting-scaling checklists, in which numerous environmental parameters are weighted (using expert judgement), and an index is then calculated to serve as a measure for comparing project alternatives.

There are four general types of checklists:

1. **Simple Checklist:** a list of environmental parameters with no guidelines on how they are to be measured and interpreted. Table 6.5 illustrates a simple checklist that identifies the potential impacts of the Huasai-Thale Noi Road Project in Thailand.
2. **Descriptive Checklist:** includes an identification of environmental parameters and guidelines on how to measure data on particular parameters.
3. **Scaling Checklist:** similar to a descriptive checklist, but with additional information on subjective scaling of the parameters.
4. **Scaling Weighting Checklist:** similar to a scaling checklist, with additional information for the subjective evaluation of each parameter with respect to all the other parameters.

Table 6.5: Simple checklist developed for the Huasai-Thale Noi Road Project (*source:* National Environment Board, 1980)

Items	Nature of Likely Impacts									
	Adverse						Beneficial			
	ST	LT	R	IR	L	W	ST	LT	SI	N
Aquatic Ecosystems		X		X	X					
Fisheries		X		X	X					
Forests		X		X	X					
Terrestrial Wildlife		X		X		X				
Rare & Endangered Species		X		X		X				
Surface Water Hydrology		X		X		X				
Surface Water Quality		X								
Groundwater	*	*	*	*	*	*	*	*	*	*
Soils										

Air Quality	x				x					
Navigation		x			x					
Land Transportation								x	x	
Agriculture							x			x
Socioeconomic								x		x
Aesthetic		x			x					
Legend: x indicates potential for type of impact      ST denotes Short Term LT denotes Long Term      R denotes Reversible IR denotes Irreversible      L denotes Local W denotes Wide      SI denotes Significant N denotes Normal      * denotes Negligible										

There are several major reasons for using checklists:

- they are useful in summarizing information to make it accessible to specialists from other fields, or to decision makers who may have a limited amount of technical knowledge;
- scaling checklists provide a preliminary level of analysis; and
- weighting is a mechanism for incorporating information about ecosystem functions.

Westman (1985) listed some of the problems with checklists when used as an impact assessment method:

- they are too general or incomplete;
- they do not illustrate interactions between effects;
- the number of categories to be reviewed can be immense, thus distracting from the most significant impacts; and
- the identification of effects is qualitative and subjective.

### Scales and Weights

It is necessary to define the basic steps of methods for evaluating alternatives:

1. determine an appropriate set of environmental factors to be considered (for example, wildlife habitat);
2. determine the environmental impact index for each factor;
  - a) define the units of measurement for each environmental factor (e.g., hectares preserved),
  - b) collect the data on the environmental factor (e.g., 10000 hectares preserved),
  - c) decide on a common interval scale for each environmental factor index (e.g., 0 to 1),
  - d) convert the data for the environmental factor to environmental factor index (this is usually done by normalizing all values over a maximum or minimum value);
3. determine a weight for each environmental factor; and
4. decide on the method of aggregation across all factors (usually additive).

Consider the two factors and two alternatives example in Table 6.6. The two factors are wildlife habitat (measured in hectares preserved) and employment increase (measured in jobs). In the hypothetical example for two alternatives, data has been provided. In the example, the environmental factor data has been scaled to an index (0 is worst and 1 is best). Scaling was done by dividing the factor data by the maximum values for both alternatives. The example shows two methods of aggregation:

1. Simple addition of factor indices, which assumes all factors are equally weighted. In this case



alternative two is preferred.

2. Weights of .20 on wildlife habitat and .80 on employment, respectively. In this case, alternative one is preferred to alternative two.

Table 6.6: Two alternative examples to illustrate weighting and scaling techniques

Factors	Weights	Alternative One			Alternative Two		
		Raw Data	Scaled	Weighted	Raw Data	Scaled	Weighted
Wildlife Habitat Preserved (ha.)		5000			10000		
Employment Increase (jobs)		5000			3000		
Wildlife Habitat Index	1		0.5			1	
Employment Increase Index	1		1			0.6	
Wildlife Habitat Weighted Index	0.2			0.1			0.2
Employment Increase Weighted Index	0.8			0.8			0.48
Grand Index		n/a	1.5	0.9	n/a	1.6	0.68

The four most common types of scales encountered in EIA methods are (Westman, 1985): 1) nominal, 2) ordinal, 3) interval, and 4) ratio (Table 6.7). Most descriptive information is categorical data measured on nominal scales. Evaluative information is normally measured on ordinal, interval, or ratio scales.

Table 6.7: Types of scales commonly used in EIA methods (*source*: Westman, 1985)

Scale	Nature of Scale	Examples	Permissible Mathematical Transformation	Measure of Location	Permissible Statistical Analysis
Nominal	Classifies Objects	Species Classification, coding soil types	One-to-one substitution	Mode	Information Statistics
Ordinal	Ranks Objects	orderings: - minimum to maximum - worst to best - minor to major	equivalence to non-monotonic functions	median	Non parametric
Interval	Rates objects in units of equal difference	time (hours), temperature (degrees)	linear transformation	arithmetic mean	Parametric
Ratio	rates objects in equal difference and equal ratio	height, weight	multiplication or division by a constant or other ratio scale value	geometric mean	Parametric

## Matrices

Matrix methods identify interactions between various project actions and environmental parameters and components. They incorporate a list of project activities with a checklist of environmental components that might be affected by these activities. A matrix of potential interactions is produced by combining these two lists (placing one on the vertical axis and the other on the horizontal axis). One of the earliest matrix methods was developed by Leopold et al. (1971). In a Leopold matrix and its variants, the columns of the matrix correspond to project actions (for example, flow alteration) while the rows represent environmental conditions (for example, water temperature). The impact associated with the action columns and the environmental condition row is described in terms of its magnitude and significance. There are two general types of matrices: 1) simple interaction matrices; and 2) significance or importance-rated matrices. Simple matrix methods simply identify the potential for interaction (Table 6.8).

Table 6.8: Simple environmental impact matrix for the Phoenix Pulp Mill (*source*: Lohani and Halim, 1983).

Environmental Components	Project Activities								
	Plant Construction	Farming of Kenaf	Use of Pesticide Fertilizer	Transport of Raw Materials	Water Intake	Solid Waste	Effluent Discharge	Emissions	Employment
Surface Water Quality			X			X	X		X
Surface Water Hydrology					X				
Air Quality				X				X	
Fisheries			X				X		
Terrestrial Wildlife Habitat	X								
Terrestrial Wildlife	X								
Land Use Pattern		X							
Highways/Railways				X					
Water Supply			X				X		
Agriculture		X							
Housing									X
Health						X	X	X	
Socioeconomic									X

### Leopold Matrix

Leopold et al. (1971) designed a matrix with a hundred specified actions and 88 environmental components (Table 6.9). Each action and its potential for impacting each environmental item is considered. The magnitude of the interaction (extensiveness or scale) is described by assigning a value ranging from 1 (for small magnitudes) to 10 (for large magnitudes). The assignment of numerical values is based on an evaluation of available facts and data. Similarly, the scale of importance also ranges from 1 (very low interaction) to 10 (very important interaction). Assignment of numerical values for importance is based on the subjective judgement of the interdisciplinary team working on the EIA study.

Table 6.9: Actions and environmental items

Actions		Environmental Items	
Category	Description	Category	Description
A. Modification of regime	a) Exotic fauna introduction	A. Physical & chemical characteristics	
	b) Biological controls		
	c) Modification of habitat		
	d) Alteration of ground cover		
	e) Alteration of groundwater hydrology		
	f) Alteration of drainage		
	g) River control & flow modification		
	h) Canalization		
	i) Irrigation		
	j) Weather modification		
	k) Burning		
	l) Surface or paving		
	m) Noise & vibration		
B. Land transformation & construction	a) Urbanization	1. Earth	a) Mineral resources
	b) Industrial sites & buildings		b) Construction material
	c) Airports		c) Soils
	d) Highways & bridges		d) Land form
	e) Roads & trails		e) Force fields & background radiation
	f) Railroads		f) Unique physical features
	g) Cables & lifts	2. Water	a) Surface
	h) Transmission lines, pipelines & corridors		b) Ocean
	i) Barriers including fencing		c) Underground
	j) Channel dredging & straightening		d) Quality
	k) Channel retaining walls		e) Temperature
	l) Canals		f) Recharge
	m) Dams & impoundments		g) Snow, ice & permafrost
	n) Piers, seawalls, marinas & sea terminals	3. Atmosphere	a) Quality (gases, particulates)
	o) Offshore structures		b) Climate (micro, macro)
	p) Recreational structures		c) Temperature
C. Resource extraction	q) Blasting & drilling	4. Processes	a) Floods
	r) Cut & fill		b) Erosions
	s) Tunnels & underground structures		c) Deposition (sedimentation, precipitation)
			d) Solution
			e) Sorption (ion exchange, complexing)
			f) Compaction & settling
			g) Stability (slides, slumps)
			h) Stress-strain (earthquakes)
			i) Air movements
		B. Biological conditions	
D. Processing	a) Blasting and drilling	1. Flora	a) Trees
	b) Surface excavation		b) Shrubs
	c) Subsurface excavation & retorting		c) Grass
	d) Well dredging & fluid		d) Crops
	e) Dredging		e) Micro flora
	f) Clear cutting & other lumbering		f) Aquatic plants
	g) Commercial fishing & hunting		g) Endangered species
			h) Barriers
			i) Corridors
		2. Fauna	a) Birds
			b) Land animals including reptiles
			c) Fish & shellfish
			d) Benthic organisms
			e) Insects
			f) Microfauna
			g) Endangered species
			h) Barriers

in the Leopold Matrix (*source*: Canter, 1977)

	o) Production storage		
E. Land alteration	a) Erosion control and terracing b) Mine sealing and waste control c) Strip mining rehabilitation d) Landscaping e) Harbor dredging f) Marsh fill and drainage	C. Cultural factors	
		1. Land use	a) Wilderness and open spaces b) Wetlands c) Forestry d) Grazing e) Agriculture f) Residential g) Commercial h) Industry l) Mining and quarrying
F. Resource renewal	a) Reforestation b) Wildlife stocking and management c) Groundwater recharge d) Fertilization application e) Waste recycling		
G. Changes in traffic	a) Railway b) Automobile c) Trucking d) Shipping e) Aircraft f) River and canal traffic g) Pleasure boating h) Trails l) Cables and lifts j) Communication k) Pipeline	2. Recreation	a) Hunting b) Fishing c) Boating d) Swimming e) Camping and hiking f) Picnicking g) Resorts
H. Waste replacement & treatment	a) Ocean dumping b) Landfill c) Emplacement of tailings, spoils and overburden d) Underground storage e) Junk disposal f) Oil well flooding g) Deep well emplacement h) Cooling water discharge l) Municipal waste discharge j) Liquid effluent discharge k) Stabilization and oxidation ponds l) Septic tanks, commercial and domestic m) Stack and exhaust emission n) Spent lubricants	3. Aesthetic & human interest	a) Scenic views and vistas b) Wilderness qualities c) Open-space qualities d) Landscape design e) Unique physical features f) Parks and reserves g) Monuments h) Rare and unique species or eco-systems l) Historical or archaeological sites and objects j) Presence of misfits
		4. Cultural status	a) Cultural patterns (lifestyle) b) Health and safety c) Employment d) Population density
I. Chemical treatment	a) Fertilization b) Chemical deicing of highways, etc. c) Chemical stabilization of soil d) Weed control e) Insect control (pesticides)	5. Manufactured facilities and activities	a) Structures b) Transportation network (movement, access) c) Utility networks d) Waste disposal e) Barriers f) Corridors
J. Accidents	a) Explosions b) Spills and leaks c) Operational failure		a) Salinisation of water resources b) Eutrophication c) Disease-insect vectors d) Food chains e) Salinisation of surficial material f) Brush encroachment g) Other
K. Others		D. Ecological relationships	
		E. Others	

At the end of the project, an EIA should be followed by an audit. An EIA audit evaluates the performance of an EIA by comparing actual impacts to those that were predicted. The main objective of these audits is to make future EIAs more valid and effective. The two main considerations are:

- scientific - to check the accuracy of predictions and explain errors.
- management- to assess the success of mitigation in reducing impacts.

## **6.5 PUBLIC CONSULTATION AND HEARING**

Public Consultation refers to the process by which the concerns of local affected persons and others who have plausible stake in the environmental impacts of the project or activity are ascertained to take into account all the material concerns in the project or activity design as appropriate.

The Public Consultation shall have two components comprising of

- a 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 plausible stake in the environmental aspects of the project or activity.

For the public consultation process regulatory authority shall invite responses from such concerned persons by placing on their website the Summary EIA report along with a copy of the application, within few days of the receipt of a written request for arranging the public hearing. Confidential information including non-disclosable or legally privileged information involving Intellectual Property Right, source specified in the application shall not be placed on the web site. 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. 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 addressing all the concerns expressed during the public consultation.

## **6.6 MITIGATION AND MANAGEMENT PLAN**

Mitigation is the stage of the EIA process when measures are identified to avoid, minimize or remedy impacts. These measures are implemented as part of the process of impact management, together with any necessary adjustments to respond to unforeseen impacts. Both elements are integral to ensuring that the EIA process leads to practical action to offset the adverse environmental impacts of proposed developments.

Preparation of environmental management plan (EMP) is required for formulation, implementation and monitoring of environmental protection measures during and after commissioning of projects. The plans should indicate the details as to how various measures have been or are proposed to be taken including cost components as may be required. Cost of measures for environmental safeguards should be treated as an integral component of the project cost and environmental aspects should be taken into account at various stages of the projects:

- Conceptualization: preliminary environmental assessment
- Planning: detailed studies of environmental impacts and design of safeguards
- Execution: implementation of environmental safety measures
- Operation: monitoring of effectiveness of built-in safeguards

The management plans should be necessarily based on considerations of resource conservation and pollution abatement, some of which are:

- Liquid Effluents
- Air Pollution
- Solid Wastes
- Noise and Vibration
- Occupational Safety and Health
- Prevention, maintenance and operation of Environment Control Systems
- House – Keeping
- Human Settlements
- Transport Systems
- Recovery - reuse of waste products
- Vegetal Cover
- Disaster Planning
- Environment Management Cell

## **6.7 ENVIRONMENTAL IMPACT STATEMENT (EIS)**

Once the EIA has been carried out the information should be systematically presented in the environmental statement. The information to be included in the EIS is as follows:

### **Description of the development, including in particular:**

- description of the physical characteristics of the whole development and the land-use requirements during the construction and operational phases;
- a description of the main characteristics of the production processes, for instance, nature and quantity of the materials used;
- an estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc) resulting from the operation of the proposed development.

A description of the aspects of the environment likely to be significantly affected by the proposed development, including in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the above factors.

A description of the likely significant effects of the proposed development on the environment should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development, resulting from:

- the existence of the development;
- the use of the natural resources;
- the emission of pollutants, the creation of nuisances and the elimination of waste and the description by the applicant of the forecasting methods used to assess the effects on the environment.

A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment. A non-technical summary, of the information provided above.

An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information. There is no statutory or prescribed format for the arrangement of this information. This will depend upon the scale of the development project, and the complexity of the Issues that have been investigated. The EIS can be a lengthy document with separate technical annexes.

At present, for an environmental statement of any significance it would be usual to provide the information on a CD-Rom.

## **An EIS is often packaged in three parts**

### **1. The planning application**

- Planning application form
- Certificate
- Schedule of plans and drawings

### **2. The environmental statement**

#### **Non-technical summary**

This is the summary of the contents and conclusions of the EIA. It is the part of the EIS which may be published separately for circulation on a non-statutory, basis to local residents or interested parties. Beware of the often generalised nature of non technical summaries. If you really want to get grips with an application you need the full EIS.

#### **Environmental statement**

This sets out the information about the development in more detail than the non-technical summary. The ES draws together the threads which have been explored through the technical reports. These issues can be summarised under various headings, depending upon the nature of the development proposed, and having regard to the various items identified in the Regulations. It is necessary, to define the 'baseline' that has been adopted in order to demonstrate the effects, if any, of the development upon each key issue that has been identified by the scoping exercise. Also, where an issue has not been investigated in detail, this should be clearly explained in order to avoid any third party questioning the adequacy of the EIA.

The mitigation measures should be described either in relation to each item or collated in a separate section of the ES which may also constitute the suggested environmental management and monitoring scheme to be followed during and after the development has been completed and is operational.

The ES should set out an outline of the main alternatives studied by the applicant and an indication of the main reasons for his/her choice, taking into account the environmental effects.

#### **Main alternatives may include**

- physical location of sites;
- type of processes (where relevant);
- physical appearance, design of buildings and site layout, including materials to be used;
- means of access including principal mode of transport to be used to gain access to the development

This component of an ES is often dealt with in a very summary way. It should not be ignored as it could give rise to third-party objections about the adequacy of the ES.

### **3. Technical reports**

The individual technical reports prepared for the various effects on the environment together with the data supporting the conclusions should be included in Part III. This enables the local planning authority to verify the contents of the ES by reference to the source material, and also be satisfied that the EIA has been sufficiently rigorous and in accordance with the methodology agreed as part of the scoping exercise.

## **6.8 POST DECISION MAKING MONITORING AND AUDIT**

Post-decision monitoring is central to the paradox currently present in EIA, as the lack of monitoring prevents EIA from developing into a continual assessment of impacts (Shepherd, 1998).

Post-decision monitoring and auditing are widely recognised as important components of the EIA process. Post-decision monitoring is the systematic measuring and recording of physical, social and economic variables associated with development impacts. Auditing follows on from monitoring, as it is the comparison of the actual outcomes with predicted outcomes. Thus the processes of monitoring and auditing provide feedback into the pre-decision making stages of the process and enable practitioners to advance understanding and assist in the improvement or extension of environmental design in future projects.

The presence of post-decision monitoring and auditing in EIA is widely considered best practice, yet it is rarely undertaken for most developments, including river restoration or rehabilitation projects. Consequently, post-decision monitoring has become central to the paradox currently present in EIA practice. The paradox of EIA is that it traditionally focuses on the pre-decision stages of the project life cycle while remarkably little attention is paid to the environmental impacts actually resulting from the project or action making the process more linear. Frost (1997) summarizes the issue by saying: "It is almost as if those involved with EIA would rather concentrate on the procedures than dare to look at the end results." This general lack of monitoring prevents EIA from becoming a continual assessment of impacts rather than a pre-project document.

### **References**

- Canter, L. 1996. Environmental Impact Assessment. 2nd edition. McGraw-Hill Book Company, New York, NY
- CSIR. 2003. 'CSIR Project Management Manual: Practical guide to managing the EIA process'. CSIR Report, ENV-S-I 2001-20.
- Fisher, D. and G.S. Davis. 1973. An approach to assessing environmental impacts, J. Environ. Manage. 1: 207- 227.
- Frost, R. 1997. Chapter 7 EIA monitoring and audit pp 141 - 175 in Weston, J (ed) Planning and Environmental Impact Assessment in Practice. Longman, Harlow
- H.A. Simons Ltd. Consulting Engineers. 1992. Pulp and Paper Mill Feasibility Study: Phase I: Wood Supply, Environmental Screening, Site Assessment. Prepared for Advance Agro Group, Thailand.
- Lohani, B.N. and N. Halim. 1983. Recommended Methodologies for Rapid Environmental Impact Assessment in Developing Countries: Experiences Derived from Case Studies in Thailand, Workshop on Environmental Impact Assessment, Guangzhou, People's Republic of China.
- Lohani, B.N. and S.A. Kan. 1983. Environmental evaluation for water resources in Thailand. Wat. Resource. Develop.1(3): 185-195.
- Sadler, B and AvB Weaver. 1999. 'Impact assessment and sustainable development: A framework for change and an agenda for research and action'. Plenary paper presented at the 19th Annual Meeting of the International Association for Impact Assessment, June 1999, Glasgow, Scotland.



Shepherd. 1998. Chapter 14 Monitoring and auditing of impacts p241 in Wood, C (2003) Environmental Impact Assessment. A comparative review. Second Edition. Pearson Education Ltd, Harlow.

Smardon, R.C., J.R. Pease, and P. Donheffner. 1976. Environmental Assessment Form, Environmental Impact Assessment: A Framework or Local.

UNEP (United Nations Environment Programme). 2002. The environmental impact assessment training resource manual. Nairobi: United Nations.

Wathern, P. 1988. Environmental impact assessment. London: Unwin Hyman.

Westman, W.E. 1985. Ecology, Impact Assessment and Environmental Planning. John Wiley & Sons, Toronto, Ont.

# **DEM 201-ENVIRONMENTAL LAWS AND POLICIES**

## **UNIT-7: INTERNATIONAL LAWS**

### **UNIT STRUCTURE**

#### **7.0 OBJECTIVES**

##### **7.1 INTRODUCTION:**

##### **7.2. INDIA'S INTERNATIONAL OBLIGATIONS**

##### **7.3. ESTABLISHED NORMS OF INTERNATIONAL ENVIRONMENTAL LAW**

##### **7.4. CONFLICTS BETWEEN THE ENVIRONMENT AND FREE TRADE**

##### **7.5. HUMAN RIGHTS, INDIGENOUS PEOPLE AND THE ENVIRONMENT**

##### **7.5.1 THE RIO DECLARATION ON ENVIRONMENT AND DEVELOPMENT**

##### **7.6. PROTECTING THE GLOBAL COMMONS**

##### **7.6.1 1982 UNITED NATIONS CONVENTION ON THE LAW OF THE SEA**

### **7.0 OBJECTIVES**

It is an attempt to make the students familiar with the international laws with respect to the environment between nations. In the text of this chapter very common examples are taken without any hard jargons so that draw interest of the students. Indian international obligations are presented to the students to develop understanding.

### **7.1 INTRODUCTION:**

In international law, a distinction is often made between hard and soft law. Hard international law generally refers to agreements or principles that are directly enforceable by a national or international body. Soft international law refers to agreements or principles that are meant to influence individual nations to respect certain norms or incorporate them into national law. Although these agreements sometimes oblige countries to adopt implementing legislation, they are not usually enforceable on their own in a court.

If a treaty or convention does not specify an international forum that has subject matter jurisdiction, often the only place to bring a suit with respect to that treaty is in the member state's domestic court system. This presents at least two additional hurdles. If the member state being sued does not have domestic implementing legislation in place to hear the dispute, there will be no forum available. Even in the event that the domestic legislation provides for such suits, since the judges who decide the case are residents of the country against which it is brought, potential conflicts of interest arise.

Only nations are bound by treaties and conventions. In international forums, such as the International Court of Justice (ICJ), Countries must consent to being sued. Thus, it is often impossible to sue a country. The final question in the jurisdictional arena is who may bring a

suit. Often, only countries may sue countries. Individual citizens and non – governmental harm must be large and notorious for a country to notice. Second, for a country to have a stake in the outcome of the subject matter, some harm may have to cross the borders of the violating country into the country that is suing. Finally, even if transboundary harm does exist, the issue of causation, especially in the environmental field, is often impossible to prove with any certainty.

The enforcement issue is one where advocates for a safer environment often find themselves stymied. Even if a treaty or convention provides for specific substantive measures to be taken by a country (many treaties merely provide ‘frameworks’), specifies a forum for dispute resolution and authorizes sanctions for non-compliance, international law remains largely unenforceable. A country cannot be forced to do what it is not willing to do. One can sanction the country, order damages, restrict trade, or most frequently, publicize non-compliance. But beyond that, if a country will not comply, there is very little to be done

International institutions are generally not responsible for directly implementing and enforcing international environmental law, but they often play important monitoring, informational and diplomatic roles. For example, the 1992 Convention on the Conservation of Biological Diversity(Biodiversity Convention)<sup>1</sup> created a new international body, the Committee on sustainable Development (CSD). The CSD lacks the power to bring enforcement actions against either governments or private parties, but it plays a role in implementing the Biodiversity Convention. The CSD helps monitor national compliance efforts by requiring member nations to submit annual reports . Through its meeting and publications, the CSD also provides a forum to discuss and debate issues associated with global protection of biological diversity and forests.

## **7.2. INDIA’S INTERNATIONAL OBLIGATIONS**

India has obligations under numerous international treaties and agreements that relate to environmental issues. As a contracting party, India must have ratified a treaty, that is , by adopting it as national law before it came into force, or by acceding to it after it has come into force. For a treaty into force, the requisite number of countries must ratify the treaty, which then has the force of international law.

Specific obligations under any treaty vary, depending on the treaty itself. The nature and degree of compliance and implementation depend on a number of factors,among them<sup>⊗</sup>1) the capabilities and staff of an international institution charged with coordinating national compliance efforts;(2) the willingness of other state parties to enforce or comply with the treaty;93) the political agenda of the government and popular support; (40 trade and diplomatic

pressures brought to bear by other countries; and (5) sometimes, judicial or NGO involvement through court cases and publicity.

### **Some of India's Treaty Obligations**

1. The Antarctic Treaty (Washington, 1959) 402 UNTS 71. Entered into force 23 June 1961. India ratified with qualifications, 19 August 1983.
2. Convention on Wetlands of international Importance , Especially as Waterfowl habitat (Ramsar. 1971). 11 I.L.M.963 (1972). Entered into force 21 December 1975. India signed, 16 November 1981.
3. Convention Concerning the Protection of the World Cultural and Natural heritage (Paris, 1972). 11 ...1358 (1972). Entered into force 17 December 1975. India signed, 16 November 1972
4. Convention on International Trade in Endangered species of Wild Fauna and Flora (Washington, 1973 ) 12 I.L.M. 1055 (1973). Entered into force 1 July . India signed, 9 July 1974; ratified 20 July 1976.
5. Protocol of 1978 Relating to the International Convention for the prevention of pollution from Ships, 1973) (MARPOL) (London,1978). Entered into force 2 October 1983. India Ratified with qualifications, 24 September 1986.
6. Convention on the Conservation of Migratory Species of wild Animals (Bonn, 1979) 19 I.L.M. 15 (1980). Entered into force 1 November 1983. India signed, 23 June 1979; ratified 4 may 1982.
7. Convention on the Conservation of Antarctic Marine Living resources (Canberra, 1980). 19 I.L.M 841(1980).Entered into force 7 April 1982. India ratified, 17 June 1985.
8. United Nations Convention on the Law of the Sea (Monte go Bay, 1982).21 I.L.M. 1261 (1982). Entered into force 16 November 1994. India signed, 10 December 1982.
9. Convention for the Protection of the Ozone Layer (Vienna,1985).26 I.L.M. 1529 (1987). Entered into force 22 September 1988. India ratified, 18 March 1991.
10. Protocol on Substances That Deplete the Ozone Layer (Montreal,1987) 26 I.L>M. 1550 (1987). Entered into force 1 January 1989. India acceded, 19 June 1992.
11. Amendments the Montreal Protocol on Substances That Deplete the Ozone layer (London, 1990). 30 I.L.M. 541 (1991). Entered into force 10 August 1992. India acceded, 19 June 1992.
12. Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel,1989). 28 I.L.M. 657 (1989). Entered into force 5 May 1992. India signed, 5 March 1990; ratified 24 June 1992.
13. United nations Framework Convention on Climate Change (Rio de Janeiro, (1992). 31 I.L.M. 849 (1992). Entered into force 21 March 1994. India signed, 10 June 1992; ratified 1 November 1993.
14. Convention on Biological Diversity (Rio de Janeiro, 1992). 31 I.L.M. 818 (1992). Entered into force 29 December 1993. India Signed, 5 June 1992; ratified 18 February 1994.
15. Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/ or Desertification, Particularly in Africa (Paris, 1994). 33 I.L.M. 1332 (1994). Entered into force, 26 December 1995; India signed, 14 October 1994; ratified 17 December 1996.
16. International tropical Timber Agreement (Geneva,1994). 33 I.L.M. 1016 (1994). Entered into force 1 January 1997. India signed, 17 September 1996. India ratified 17 October 1996.
17. Protocol on Environmental Protection to the Antarctica Treaty (Madrid, 1991). Entered into force 15 January 1998.

### **7.3. ESTABLISHED NORMS OF INTERNATIONAL ENVIRONMENTAL**

#### **LAW**

Norms are general legal principles that are widely accepted. This acceptance is evidenced in a number of ways, such as international agreements, national legislation, domestic and international judicial decisions, and scholarly writings. The leading norms in the field of international environmental law are addressed below:

(1) Foremost among these norms is Principle 21 of the 1972 Stockholm declaration on the Human Environment. Principle 21 maintains that ‘States have, in accordance with the charter of the United Nations and the Principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction’.

(2) Another widely shared norm is the duty of a state to notify and consult with other states when it undertakes an operation that is likely to harm neighbouring countries’ environments, such as the construction of a power plant, which may impair air or water quality in downwind or downstream states.

(3) Over and above the duty to notify and consult, a relatively new norm has emerged whereby states are expected to monitor and assess specific environmental conditions domestically, and disclose these conditions in a report to an international agency or international executive body created by an international agreement, and authorized by the parties to the agreement to collect and publicize such information.

(4) Another emerging norm is the guarantee in the domestic constitutions, laws or executive pronouncements of several states, including India, Malaysia, Thailand, Indonesia, Singapore and the Philippines, that all citizens have a right to a decent and healthful environment. In the United States, this fundamental right has been guaranteed by a handful of states but not by the federal government.

(5) Most Industrialized countries subscribe to the polluter pays principle. This means polluters should internalize the costs of their pollution. Control it at its source, and pay for its effects, including remedial or cleanup costs, rather than forcing other states or future generations to bear such costs. This principle has been recognized by the Indian Supreme Court as a ‘universal’ rule to be applied to domestic polluters as well. Moreover, it has been accepted as a fundamental objective of government policy to abate pollution.

(6) Another new norm of international environment law is the precautionary principle. This is basically a duty to foresee and assess environmental risks, to warn potential victims of

such risks and to behave in ways that prevent or mitigate such risks. In the context of municipal law, justice Kuldip Singh of the Supreme Court has explained the meaning of this principle in the vellore Citizens' Welfare Forum Case, Which is excerpted later in this section.

(7) Environmental impact assessment is another widely accepted norm of international environmental law. Typically, such an assessment balances economic benefits with environmental costs. The logic of such an assessment dictates that before a project is undertaken, its economic benefits must substantially exceed its environmental costs. India has adopted this norm for select project which are covered under the Environmental Impact Assessment (EIA) regulations introduced in January, 1994.<sup>7</sup>

(8) Another recent norm is to invite the input of non – governmental organizations (NGOs), especially those representing community-based grassroots environmental activities. This NGOs participation ensures that the people who are likely to be most directly affected by environmental accord. This principle is mirrored in the Indian government's domestic pollution control policy and the national conservation policy and is given statutory recognition in the EIA regulations of 1994. The Supreme Court has urged the government to draw upon the resources of NGOs to prevent environmental degradation. In October 1982, the United Nations General assembly adopted the World Charter for nature and Principles of Sustainable Development. The agreement expressly recognized the principle of sustainable development, defined as using living resources in a manner that 'does not exceed their natural capacity for regeneration' and using 'natural resources in a manner which ensures the preservation of the species and ecosystems for the benefit of future generations.' The Principle of sustainable development was also acknowledge in the 1987 report Our common Future, published by the United nations World Commission as 'humanity's ability.. to ensure that [development] meets the need of the present generation without compromising the ability of future generations to meet the need.' The Supreme Court as well as the Indian government has recognized the principle of sustainable development as a basis for balancing ecological imperatives with developmental goals.

(10) Intergenerational equity is among the newest norms of international environmental law. It can best be understood not so much as a principle, but rather as an argument in favour of sustainable economic development and natural resource use. If present generations continue to consume and deplete resources at unsustainable rates, future generations will suffer the environmental 9and economic) consequences. It is our children and grandchildren who will be left without forests (and their carbon retention capacities), without

vital and productive agricultural land and without water suitable for drinking or for future generations an environment as intact the one we inherited from the previous generation.

Proponents of intergenerational equity maintain that the present generation has a moral obligation to manage the earth in a manner that will not jeopardize the aesthetic and economic welfare of the generations that follow. From this moral premise flow certain ecological commandments: 'Do not cut down trees faster than they grow back. Do not farm land at levels, or in a manner, that reduce the land's regenerative capacity. Do not pollute water at levels that exceed its natural purification capacity.'

In *State of Himachal Pradesh v Ganesh Wood Products* the Supreme Court recognized the significance of inter-generational equity and held a government department's approval to establish forest – based industry to be invalid because 'it is contrary to public interest involved in preserving forest wealth, maintenance of environment and ecology and considerations of sustainable growth and intergenerational equity. After all, the present generation has no right to deplete all the existing forests and leave nothing for the next and future generations.'

(11) At the 1982 United Nations Conference on the Law of the Sea (UNCLOS), developing countries, led by India, articulated the norm that certain resources, such as the deep seabed, are part of the common heritage of mankind and must be shared by all nations.

(12) The 1992 Rio de Janeiro Earth Summit articulated the norm of common but different responsibilities. With regard to global environmental concerns such as global climate change or stratospheric ozone layer depletion, all nations have a shared responsibility, but richer nations are better able than poorer nations to take the financial and technological measures necessary to shoulder the responsibility

#### **7.4. CONFLICTS BETWEEN THE ENVIRONMENT AND FREE TRADE**

To help promote responsible environmental practices at home and abroad, many countries have enacted legislation that contains certain trade restrictions that prevent the free flow of goods across borders. Such environmental restrictions often conflict with the terms of international free trade agreements, primarily with the General Agreement on Tariffs and Trade (GATT), which seeks to discourage or prohibit the use of import restrictions.

GATT was formed in 1947 in the aftermath of World War II, primarily to encourage global economic development by limiting the use of tariffs and import restrictions. The agreement is the initial 1947 document and its periodic 'rounds' of amendment. The World Trade Organization (WTO) is the administrative body that sits in Geneva, Switzerland whose purpose is to implement the terms and requirements of the GATT. One way that WTO achieves

this end is through dispute resolution panels where member states can reconcile conflicting interpretations of GATT's provisions.

GATT allows nations to restrict the import of products from other member nations, so long as these restrictions do not discriminate between foreign and domestic products. For instance, under GATT the US may ban the importation of a dangerous pesticide so long as the use of the pesticide is also banned in the US. Article 20 lists the exceptions that justify a deviation from GATT's general free trade requirements. Among these exceptions are trade restrictions 'necessary to protect human, animal or plant life and health, and those 'relating to the conservation of exhaustible natural resources.' Most of the controversy regarding the agreement's impact on environmental protection has centered on the WTO dispute panels' interpretations of the Article 20 exceptions. No trade restriction based on Article 20 9b) or (g) has as yet been upheld by these dispute panels.

## **7.5. HUMAN RIGHTS, INDIGENOUS PEOPLE AND THE ENVIRONMENT**

Although environmental protection and human rights are often treated as separate legal topics, there are many situations where the two fields overlap. First, many governments and international bodies have recognized the right of citizens to live in a clean and healthful environment. Second, environmental and natural resources policies may disproportionately affect poor and minority communities.

The rights of indigenous people are a 'cross-over' issue in that they may be protected under both international human rights law and international environmental law. (Any environmental right can theoretically be couched in terms of a human right, so this is not the only area where the two bodies of law dovetail.)

The rights of indigenous people may be seen in two basic lights: (1) the right to protect and manage natural resources located on traditional indigenous lands; (2) the right of citizens to live in a healthful environment. Many environmentally destructive development practices severely impact the traditional lands and lifestyles of indigenous communities. Therefore, their rights often provide another tool in the fight against such projects.

With respect to the protection of indigenous people as a means to conserve biodiversity, international environmental law can play an important role. Many native and indigenous people have opposed government policies that permit resource exploitation on traditional lands. Because this exploitation threatens to undermine the economic and spiritual fabric of their cultures, and often results in forced migration and resettlement, the struggle to protect the environment is often a part of the struggle to protect the cultures of indigenous people.



### **7.5.1 THE RIO DECLARATION ON ENVIRONMENT AND DEVELOPMENT**

Out of the Earth Summit in 1992, three documents emerged, one of which was the Rio Declaration on Environment and Development. In Principle 22, the Declaration states that ‘[indigenous people and their communities and other local communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.]’

The same principle is echoed in the Biodiversity Convention in Article 8 (j). However as discussed below in the section on Protecting Endangered Species, both the Declaration and the Convention lack substantive obligations and enforcement mechanisms. Thus, both are regarded as ‘framework’ conventions upon which truly binding rights and responsibilities can only be built through further agreements.

The combination of human rights and environmental obligations can provide a powerful tool to protect land and ecosystems where indigenous people reside. This protection is evidenced by the reservation of lands for indigenous peoples, such as the Yanomani lands in Brazil, that incidentally also contain some of the world’s precious rainforests. As the conservation expertise of indigenous people becomes more widely acknowledged, indigenous rights are likely to play an increased role in national and international environmental protection efforts.

## **7.6. PROTECTING THE GLOBAL COMMONS**

There are some areas of sea, land ,and air that do not fall within recognized national boundaries. These areas are referred to as the ‘global commons.’ A primary example of global commons is international waters at sea – waters located outside each country’s 200 mile exclusive economic zone.

### **7.6.1 1982 UNITED NATIONS CONVENTION ON THE LAW OF THE SEA**

The United Nations Law of the Sea Convention (UNCLOS) established several duties regarding the marine environment. These obligations include the duty of nations to (1) ‘protect and preserve the marine environment’; (2) ‘take, individually or jointly as appropriate, all measures that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practical means at their disposal and in accordance with their capabilities’; (3) ‘take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution.’

UNCLOS also obliges nations to (1) cooperate on a global and regional basis with international organizations to formulate 'international rules, standards and recommended practices and procedures for the protection and preservation of the marine environment'; (2) 'cooperate in the promotion of scientific research and data exchange programme regarding marine pollution'; (3) cooperate 'in eliminating the effects of pollution and preventing or minimizing the damage'; and (4) establish appropriate scientific criteria for the formulation of international environmental 'rules, standards and recommended practices and procedures for the prevention, reduction and control of marine pollution.'

Implementation and enforcement of UNCLOS is left to individual member nations. One national strategy to ensure compliance is to prohibit dumping or destructive fishing techniques by all vessels registered in a particular country. Another strategy is to deny port privileges to vessels from nations that have failed to adopt national legislation implementing UNCLOS. Both of these strategies are means of controlling activity in international waters located outside national boundaries.

A major legacy of the Law of the sea treaty process is the assertion by the so – called group of 77 developing nations that the deep seabed, and minerals contained there, are the 'common heritage of mankind.' It logically follows that the profits from any mining of the deep seabed must be shared with all countries. Thus far, it has not proved cost effective to mine the deep seabed, the United States has not accepted the 'common heritage of mankind' principle as applied to the deep seabed. Obviously, this is an area of international environmental law that is still evolving

### **SELF ASSESSMENT QUESTIONS:**

I. Explain the following:

- a) Hard international law
- b) Soft international law
- c) Global commons

II. Explain briefly:

- 1. Explain India's international obligations.
- 2. Explain the conflicts between the environment and free trade.

# **DEM 201-ENVIRONMENTAL LAWS AND POLICIES**

## **UNIT-8: ENVIRONMENTAL LAWS AND POLICIES**

### **UNIT STRUCTURE**

- 8.1. OLGA TELLIS V BOMBAY MUNICIPAL CORPORATION
- 8.2. THE TAJ TRAPEZIUM CASE (MC MEHTA V UNION OF INDIA)
- 8.3. THE BHOPAL GAS LEAK CASE
- 8.4. THE SARISKA CASE
- 8.5. THE NARMADA VALLEY PROJECT:

In this chapter some of the landmark case studies are presented for greater understanding of the process with respect to environmental litigations in India. New interpretation of the constitution of India has come out of some of these litigations. For example, Article 21 of the constitution has been associated with the right to livelihood since the *Olga Tellis v Bombay Municipal Corporation* case. You are expected to take note of the context of the cases and identify the conflicting areas with the Indian laws.

### **8.1. OLGA TELLIS V BOMBAY MUNICIPAL CORPORATION**

Olga Tellis of 1985 was one of the first and most important housing rights cases to go up to the Supreme Court in India. This case, for the first time, held that the Right to livelihood and shelter as being an important component of the Right to Life. This public interest litigation was filed on behalf of the pavement dwellers of Bombay city in the Bombay High Court. The judgment given by the Supreme Court in this case, for the first time, expanded the Right to Life guaranteed under Article 21 of the Indian Constitution to be wide enough to include within its scope, the right to livelihood which was translated in this context to mean the right to be allowed to remain on the pavements.

On July 13, 1981, it was reported that the State of Maharashtra and Bombay Municipal Corporation under section 312(- Prohibition of structures of fixtures which cause obstruction in streets.); section 313 (Prohibition of deposit, etc. of things in streets); section 314(- Power to remove without notice anything erected deposited or hawked in contravention of Section 312, 313 or 313 A) of the Bombay Municipal Corporation Act, 1888, intended to launch an immense "Pavement Clearance" program in order to remove approximately 100,000 of the Mumbai's pavement dwellers outside the city's limits. The Chief Minister justified this program by concluding that the pavement dwellers live a "very inhuman existence. These structures are flimsy and open to the elements. During the monsoon there is no way these people can live

comfortably." Ten days later i.e. on July 23, 1981, one of the worst days of the monsoon, "the Government began deporting the pavement dwellers without any prior notice. According to the People's Union for Civil Liberties (PUCL), "the pavement dwellers' huts were destroyed, families were separated, young children and old people died and a woman even delivered a child on one of the buses."

On the same day, the PUCL moved the Bombay High Court to issue an injunction to stop the deportation. The PUCL's intent was to "advocate the adoption and implementation of policies which would ensure an adequate supply of basic shelter in a planned manner which would then preclude the possibility of vast numbers of people having to devise solutions to their shelter problem which run counter to good city management." The court granted PUCL's injunction to stop the demolition of the hutments until the end of the monsoon, and the PUCL subsequently petitioned the Supreme Court which it felt was the only forum capable of deciding such "wide-ranging and important issues." At the same time, Olga Tellis, a journalist, filed a separate petition to the Supreme Court arguing that the pavement dwellers had a fundamental right to live on the pavement.

The Writ Petitions portray the plight of lakhs of persons who live on pavements and in slums in the city of Bombay. They constitute nearly half the population of the city. The petitioners in the writ petitions Nos. 4610-12/81 live on pavements and in slums in the city of Bombay. Some of the petitioners in the second batch of writ petitions Nos. 5068-79 of 1981, are residents of Kamaraj Nagar, a basti or habitation which is alleged to have come into existence in about 1960-61, near the Western Express Highway, Bombay, while others are residing in the Tulsi Pipe Road, Mahim, Bombay. The PUCL, Committee for the Protection of Democratic Rights and two journalists have also joined in the writ petitions.

The Court specifically rejected the BMC's argument that the pavement dwellers were estopped from arguing that living on the pavement constitutes a fundamental right: "No individual can barter away the freedom conferred upon him by the Constitution. The Court concluded that the right to life is inextricably linked to a right to livelihood, concluding that "it is the most precious liberty, because it sustains and enables a man to live and the right to life is a precious freedom." In conclusion, the Court determined that the pavement dwellers eviction would lead to the deprivation of their livelihood and ultimately their life.

The Court initially stated that section 314 of the Act, which provides for the removal of encroachments on the pavements, was not unfair or unreasonable under Article 21. Section 314 provides that the Commissioner "may, without notice, take steps for the removal of encroachments in or upon any street, channel, drain, etc. But later the Court interpreted as "discretion to cause an encroachment to be removed with or without notice" which must be "exercised in a reasonable manner so as to comply with the constitutional mandate" of Article 21. The Court emphasized the importance of notice.

The Court then dismissed the BMC's arguments regarding the pavement dweller's trespass, stating that even if they were trespassing on public property, their trespass was involuntary and "the trespasser should be asked and given a reasonable opportunity to depart before force is used to expel him. The Court further rejected the BMC's contention that the pavement dwellers exhibited criminal tendencies, noting that they are a "peaceful lot" who were not inclined to lose their jobs or dwelling, regardless of how humble, by engaging in criminal activity.

Even with these findings, the court sided with the BMC, offering little way of relief to the petitioners. First, the court ordered that the pavement dwellers could not be evicted until one month after the monsoon season (i.e. 31 October, 1985). Second, the court directed that the Government should give the 'highest priority' to resettling misplaced pavement dwellers "by allotting them such land as it finds to be conveniently available. Thus, the Court stopped short of ordering any definitive government action in alleviating the problem of the homeless in Mumbai. Thus, four years after the BMC first demolished their hutments; the pavement dwellers of Mumbai were left with a right to livelihood-to live on the pavement - with no relief in sight from the Government other than a notice before their dwellings are destroyed.

Olga Tellis, the journalist, has stated: "Ironically,[the case] helped the propertied classes; lawyers often cite the case to justify eviction of tenants and slum dwellers. But it also helps the slum dwellers; the Government can't evict them summarily. The case also spawned a lot of interest in fighting for housing as a fundamental right ... but if you were a pavement dweller, it is just not enough." This case is widely quoted as exemplifying the use of civil and political rights to advance social rights but it is also viewed as problematic due to its failure to provide for the right to resettlement. It is also inconsistent with developments in other jurisdictions, where courts have found stronger rights to resettlement.

Indeed, this "antidote," in recent years, has been seemingly more effective than any assistance of the judiciary. With the help of various NGO's including the Society for Promotion of Area Resource Centers (SPARC), many homeless families in Mumbai have been able to move into new tenements or resettle to other, suitable locations within the city.

## **8.2. THE TAJ TRAPEZIUM CASE (MC MEHTA V UNION OF INDIA)**

In the Taj Trapezium Case, famous Environmental lawyer M.C. Mehta in 1984 filed a case to preserve the Taj Mahal, from the polluting industries located in the Taj Trapezium Zone (TTZ). The Taj Trapezium Zone referred to by court is a 10,400 sq.km trapezium-shaped area covering the five districts of the Agra region.

According to the petitioner, the foundries, chemical/hazardous industries and the refinery at Mathura are the major sources of damage to the Taj. The sulphur dioxide emitted by the Mathura Refinery and the industries when combined with oxygen-with the aid of moisture-in the atmosphere forms sulphuric acid called 'Acid Rain' which has a corroding effect on the gleaming white marble. Industrial/Refinery emissions, brick kilns, vehicular traffic and generator-sets are primarily responsible for polluting the ambient air around TTZ. The petition states that the white marble has yellowed and blackened in places. It is inside the Taj that the decay is more apparent. Yellow pallor pervades the entire monument. In places the yellow hue is magnified by ugly brown and black spots. Fungal deterioration is worst in the inner chamber where the original graves of Shah-Jahan and Mumtaz Mahal lie. According to the petitioner The petitioner has finally sought appropriate directions to the authorities concerned to take immediate steps to stop air pollution in the TTZ and save the Taj Mahal.

The court considered the affidavit filed by the board and directed the board to issue a public notice. Pursuant to the courts order, the board filed affidavit, wherein it stated that public notice was published in two national newspapers calling upon the industries to file their replies during the extended time. The affidavit also states that all listed industries were polluting industries and 507 out of them had not even installed any air pollution control device. The 212 industries that did not respond to the notice and failed to take any steps towards installing the pollution control devices and were closed by order dated 27th august 1993 with immediate effect.

The judgment records subsequent developments in the case between 1993 and 1996. The court was assisted in its efforts to improve air quality in the TTZ by the reports prepared by the National Environment Engineering Research Institute (NEERI); inputs from the Gas Authority

of India Ltd. (GAIL) on the supply of fuel gas to industries in the area; and the study conducted by Vardharajan Committee which was constituted in May, 1994 by the Union Ministry of Environment and Forests at the promoting of the court. On 3 August 1995 the court formed a tentative view that polluting industries in TTZ would have to be relocated and sought the assistance of Union Government to devise an appropriate solution. But there being no helpful response from the Government of India.

The objective behind this litigation is to stop the pollution while encouraging development of industry. The old concept that development and ecology cannot go together is no longer acceptable. Sustainable development is the answer. The development of industry is essential for the economy of the country, but at the same time the environment and the eco-systems have to be protected. The pollution created as a consequence of development must support the carrying capacity of our ecosystems.

Various orders passed by this Court from time to time clearly indicate that the relocation of industries from TTZ is to be resorted to only if the Natural Gas which has been brought at the doorstep of TTZ is not acceptable/available by/to the industries as a substitute for coke/coal. The GAIL has already invited the industries in TTZ to apply for gas connections. The industries operating in the TTZ which are given gas connections to run the industries need not relocate. The whole purpose is to stop air pollution by banishing coke/coal from TTZ. The court with order dated 10-5-1996 has stopped the operation of all the brick kilns in the TTZ with effect from 15-8-1996. This court by order dated 4-9-1996 has directed that the fly-ash produced in the process of the functioning of thermal power plants may be supplied to the brick kilns for the construction of bricks.

[On 31 August 1999 the court reviewed the progress in respect of gas supply to the Trapezium and directed 53 iron foundries which had not agreed to accept the gas to close down. Seventy eight iron foundries that used cupola-based technology were available to convert their units to gas. These foundries claimed that the new technology was in the last stages of development and that they would switch over to natural gas as soon as the technology became available. The Supreme Court declined to accept the plea for an indefinite extension. The court directed the district magistrate to ensure that no coal or coke was supplied to the cupola-based foundries after 15 September 1999. The foundries were permitted to operate after they converted to natural gas.

In May 1999, the Centre constituted the Taj Trapezium Pollution (Prevention and Control) Authority under section 3 of the Environment (Protection) Act of 1986. The Authority has wide powers to implement schemes for protecting the Taj Mahal and improving the environment including necessary measures to ensure compliance with emission standards by motor vehicles. The Authority is empowered to issue statutory directions under section 5 of the Act and initiate prosecutions under section 19.]

### **8.3. THE BHOPAL GAS LEAK CASE**

Bhopal gas leak case, commonly known as Bhopal disaster of 1984 is widely regarded as the world's most lethal industrial disaster. It took place at Union Carbide pesticide plant in the Indian city of Bhopal, Madhya Pradesh on the intervening night of December 2<sup>nd</sup> and 3<sup>rd</sup> 1984. Jayaprakash Nagar, Kazi Camp, Chola Kenchi and the Railway Colony were the most seriously affected areas. The plant was set up by Union Carbide Corporation in 1969.

At midnight on 2<sup>nd</sup> December, 1984, forty tons of highly toxic methyl isocyanate (MIC) which had been manufactured and stored in Union Carbide's chemical plant in Bhopal, escaped into the atmosphere from tank 610 when a large amount of water entered into it. MIC is a highly reactive volatile and flammable chemical used to produce carbamate pesticides. The Government of Madhya Pradesh officially puts the death toll as more than 3,000 in the first few days and more than 15,000 deaths by 2007. Other independent organizations estimate 8,000-10,000 deaths within 72 hours and 25,000 deaths till date. A total of 36 wards were marked by the authorities as being 'gas affected', affecting a population of 5, 20,000. Of these, 200000 were below 15 years of age, and 3,000 were pregnant women. Another 1, 00,000-2, 00,000 people are estimated to have permanent injuries of different degree.

The threat posed by Union Carbide's pesticide plant in Bhopal was known long before the night of the gas leak. Smaller leaks which had occurred between 1981 and 1984, killed or hospitalized workers and residents. The disaster took place as a result of legal, technological, organizational, and human errors.

On December 3, 1984, a criminal case was registered on the gas disaster. The Central Bureau of Investigation (CBI) pressed charges in the Bhopal District Court on 4 December, 1987 against Union Carbide Corporation and its Asian and Indian subsidiaries as well as nine senior officials. An interim compensation of 2500 million rupees was given. On 14 February 1989, Supreme Court by its order directed that there be an overall settlement of the claims in the suit for 470



million US dollars which Carbide would pay to the Indian government for all the Bhopal victims and termination of all civil and criminal proceedings. This evoked widespread protest. Several writ petitions were filed before the Supreme Court.

The Indian council of Agricultural research reported death of large number of cattle (about 4,000), dogs, cats and birds. In plants, yellowing of leaves and widespread defoliation was reported. The main concern was and still is the poisonous chemical waste lying around the abandoned premises of the pesticide plant.

In 2004, BBC reported that the Bhopal factory site still continues containing 'thousands' of metric tons of toxic chemicals, including benzene hexachloride and mercury. Drinking water sample from a well near the site had levels of contamination 500 times higher than the maximum limits recommended by the World Health Organization. In November 2009, the Centre for Science and Environment (CSE) stated that water inside the 80-acre site of Union Carbide, and in a radius up to three kilometers outside, contains pesticide far higher than the acceptable limits for human beings. It also reports the movement of methyl isocyanate towards the north from the south of the factory.

After the Bhopal gas leak, some laws came into force as a preventive measure for ensuring the safety of the environment and the living organisms. The Bhopal Act, 1985, The Public Liability Insurance Act 1991, Amendment in the Factories Act 1948 in 1987, Environment (Protection) Act 1986 came after the incidence.

After 25 years of the disaster, the Bhopal Gas verdict came out on June 7, 2010 which convicted 85-year old Keshub Mahindra (the non-executive former Chairman of UCIL) and seven others for 2 year jail sentence. There was no word about Warren Anderson (former Union Carbide chief). This decision sparked outrage and forced the government to approach the Supreme Court. Government announced Rs 1265.56-crore package and decided to file a curative petition in the Supreme Court besides pushing for extradition of Warren Anderson. The cabinet meeting, chaired by Prime Minister Manmohan Singh decided that ex-gratia of Rs 10 lakh to the kin of each killed in the incident, Rs 5 lakh to those who suffered permanent disability, Rs 2 lakh each to people who suffered cancer and total renal failure and Rs 1 lakh to those with temporary disability. Campaigners dismiss Bhopal compensation as insufficient and say that the 280 million compensation package is based on outdated numbers of the dead and the maimed.

Twenty five years have passed since the disaster. People are still protesting by undergoing hunger strikes for proper justice. Despite the years having passed by and the convictions,

Bhopal still remains a continuing tragedy because of the serious health problems that the gas victims are still suffering.

#### **8.4. THE SARISKA CASE**

The *Tarun Bharat Sangh* is a non-governmental organization engaged in rural development in Rajasthan. One of the critical needs in Rajasthan's villages is water. The Aravalli range and its forests trap rain water during the brief monsoons and release the water over the dry months, like a soaked sponge being gently squeezed.

Widespread open-cast mining for limestone and marble in the Alwar District was disturbing the aquifers, springs, and water holding capacity of the Aravalli. The dynamite had scarred and devastated the hills. Rajinder Singh, the secretary of the Tarun Bharat Sangh was troubled by the impact of unregulated mining on the water resources in the region. These common property and development concerns prompted him to launch the *Sariska Case*. The area now properly known as the 'Sariska Tiger Sanctuary' was an exclusive hunting reserve of the former Rulers of Alwar.

The voluntary organization, Tarun Bharat Sangh, interested in protection of environment, approached this Court complaining that widespread illegal mining activity was going on in the area declared as tiger reserve in Alwar district of Rajasthan. In the interest of ecology, environment and rule of law, it said, the activity should stop.

The petitioner's case is that the area wherein the illegal mining is going on has been declared as a tiger reserve under Rajasthan Wild Animal and Bird's Protection Act, 1951, as a Sanctuary and a National Park under Wild Life (Protection) Act, 1972, and as protected forest under the Rajasthan Forest Act, 1953. These various notifications, said the petitioner, prohibit all or any mining activity and yet the Government of Rajasthan had granted hundreds of licenses for mining marble, dolomite and other minerals in late 1980s, contrary to law.

Petitioner's case was that no mining lease/license can be granted within the protected forest except with the prior permission of the Government of India-Section 2 of the Forest (Conservation) Act, 1980 and Rule 4(6) of Rajasthan Minor Mineral Concession Rules- and that no such permission was obtained in fact. The Forest (Conservation) Act, 1980 was enacted by the centre to have a control over the states activities on the forest land.

In fact, for any non-forest activity the state governments need to get a prior approval from the centre, according to the Act.

By its order dated 26 November 1991, the court clarified that the order dated 11 October 1991 was not intended to permit the mine-owners to carry on their mining activity where such activity was prohibited by any Act, rule or notification having the force of law. In effect, the order said, it meant to prohibit-and not to permit-the mining activity.

As per a committee report, 215 mines fall completely within the areas declared as protected forest while 47 mines fall partly inside and partly outside the areas declared as protected forest. (These 262 mines are referred to hereinafter as 'listed mines').

The Central Government was directed to submit a report within 3 months on the state government's proposal to delete 5.02 sq.kms from the protected area. Mines situated outside the protected forests within the tiger reserve were permitted to continue for 4 months, within which period they were permitted to approach the Central Government for permission to continue their operations. If no permission was obtained, they were directed to cease mining activity.

### **8.5. THE NARMADA VALLEY PROJECT:**

The Narmada River springs from a holy pool amidst Hindu temples on the Amarkantak plateau in the forested Shahdol district of Madhya Pradesh and then winds westward along a 1,300-kilometer course through Gujarat, Maharashtra and Madhya Pradesh to drain into the Arabian Sea. The Narmada is one of the most sacred rivers in India. The Narmada basin drains an area of 98,796 sq.km and is home to 21 million people and nearly 80 percent live in villages.

Narmada Valley Project is the country's biggest irrigation scheme. According to many environmentalists, it is also its most controversial. The cost of the project is Rs. 135 billion (C\$10.4 billion). The project will displace more than a million people and submerge 350,000 hectares of forest and 200,000 hectares of cultivated land in exchange for providing irrigation, electricity and the economic opportunities both will bring.

Although Narmada Valley Project was conceived in 1946, final planning and work on it commenced only after the Narmada Water Disputes Tribunal passed its final orders in 1978. This tribunal was established in 1969 under India's Interstate Water Disputes Act of 1956 to distribute these river resources equitably among the riparian states of Madhya Pradesh, Gujarat and Maharashtra. The tribunal also laid down conditions regarding resettlement and rehabilitation of the people to be displaced by the submergence-the 'oustees'.

The Narmada Valley Project, if and when completed, will rank as the largest irrigation project ever planned and implemented as a single unit anywhere in the world. By the year 2040, the project proposes to complete 31 major dams (11 on Narmada and 20 on its tributaries), 135 medium dams and 3000 minor dams. Out of the 31 major dams, the controversial ones are the Sardar Sarovar Project (SSP) in Gujrat and the Narmada (Indira) Sagar Project (NSP) in Madhya Pradesh. The NSP is years behind SSP in construction and is one of the biggest artificial reservoir in India. The SSP is intended to bring drinking water to Kutch and other draught ridden regions in Gujrat. The dam will impound water in a 455 foot high reservoir, which eventually would submerge 37,000 hectares of land in the three states. It will also divert 9.5 million acre feet (MAF) of water into a canal and irrigation system. The aggregate length of the distribution network will be 75,000 kilometers and will require 150,000 hectares of land, which is four times as the land submerged by the reservoir. Narmada is plagued by many problems like funding setbacks, faulty construction, inadequate EIA's.

The Sardar Sarovar dam, under construction in Gujarat, will irrigate an estimated 1.8 million hectares and generate 300 MW of electricity in the initial phase, later dropping to 150 MW in the final phase. The Narmada Sagar dam, being erected in Madhya Pradesh, will be slightly smaller, irrigating 123,000 hectares and generating at first 220 MW, and then 150 MW.

Although international aid for the Narmada Valley Project came from many sources, the most controversial was the World Bank assistance, which was to account for 15 per cent of SSP. In 1985 the Bank lent the three state governments of Gujarat, Maharashtra and Madhya Pradesh US \$450 million to finance the SSP-both the dam and the canal. After appointing an independent panel to review the impacts of the project the Bank withdrew support in March 1993. The panel expressed much concern that the environmental and social impacts of the project had not been properly considered.

National press coverage and awareness of the anti-Sardar Sarovar campaign burgeoned in the late 1980s and support for the Narmada activists mounted among environmental, human rights, religious, landless and adivasi organizations around the country. In 1989, this growing network of local and international groups was formally named the Save the Narmada Movement, or Narmada Bachao Andolan (NBA). The NBA has built its widespread support and the primary focus of its protests around the displacement issue. Medha Patkar is a prominent leader of the group.

By 1991, full scale construction on the dam had been under way for four years. Submergence was clearly possible during the upcoming monsoon, which hits the Narmada Valley between June and September every year.

The Bank finally announced its withdrawal in March 1993. Without World Bank funds, work on the canal system soon all but ground to a halt. Large scale submergence began during the 1993 monsoon with the dam wall 44 meters high. The lands of hundreds of villagers were inundated and the homes and possession of 40 families washed away. Similar scenes were repeated during the 1994 and 1995 monsoons.

In total the SSP, when completed, will cause the displacement of 4,00,000 people and a further 6,00,000 will have their livelihoods seriously impacted. The World Bank's independent review discovered that those who had been resettled due to the SSP had tended to face a multitude of hardships including: (i) a lack of grazing lands, firewood, drinking water, and cremation facilities; (ii) poor quality, flood-prone cropland, land which is not irrigable and plots which are less than the 2 ha promised; (iii) disputes over ownership of resettlement plots and conflicts with host communities; and (iv) villages, hamlets and even families split up among many different resettlement sites. Meanwhile, the MP government has admitted that it does not have the available land to resettle the numbers of people that will be displaced by the SSP. According to government statistics, the SSP alone, when completed, will submerge 37,690 ha (86,088 acres) of land, which comprise 11,279 ha of agricultural land, 13,542 ha of forests, and 12,869 ha of river beds and waste lands. Once all of the dams are constructed, the entire valley will be submerged.

The construction of Narmada Sagar dam will submerge 40,332 hectares of forest land, not including the 1,500 hectares needed to build staff housing and other construction facilities.

With the submerging of forest land, a wealth of flora and fauna will simply disappear. There are no forest corridors enabling wildlife to cross over from the submerged areas to other forested regions since the patches of forest are surrounded by agricultural and barren land. Moreover, opponents of the dams point to other serious repercussions: the possibility of earthquakes, increased siltation, water logging and salinity, and a higher incidence of disease.

On the 18 October 2000, the three-judge bench of the Supreme Court delivered its verdict on the public interest litigation filed by the NBA against the Union of India and the state governments of Gujarat, MP and Maharashtra. The Court's majority judgment determined that environmental clearance was 'only an administrative requirement' and declared: "Pleas relating to height of the dam and the extent of the submergence, environmental studies and clearance,

hydrology, seismicity and other issues except implementation of relief and rehabilitation, cannot be raised at this belated stage”.

Environmentalists have calculated that if the height of the Sardar Sarovar dam were reduced from 140 to 129 metres, 90 per cent of the population would not need to be relocated and 80 per cent of the agricultural land would not be submerged. If the height of the Narmada Sagar dam were lowered from 265 to 250 metres, the number of oustees would drop to 20,000 and thousands of hectares of forest and agricultural land would be saved.

Reassessing the environmental and social impacts of the more than 3,000 dams slated for construction should be the first step the Indian government takes in solving the country's water management problems.

### **SELF ASSESSMENT QUESTIONS:**

Answer in short:

1. What is the chemical name Bhopal gas?
2. What happened on the ill fated day in Bhopal?
3. What does public liability mean?

### **Explain at length.**

1. Identify the areas of conflicts in the *Olga Tellis v Bombay Municipal Corporation case* and **The Narmada Valley Project** with Indian laws and rights of people.
2. Explain the issues involved in *the Sariska Case*.
3. In *the Taj Trapezium case*, many factory workers of the region lost their jobs as the factories were closed down. What are the other constitutional issues that arise from here? Explain.

**Activity:** Did it ever happen in your city/state that people lost their livelihood as in the case of pavement dwellers of Mumbai? Explore if there is any such case and try to find the legal implications.

.....

Suggested readings:

1. Divan S. & Rosencranz A., 2001. Environmental Law and Policy in India, Cases, Materials and Statutes (2<sup>nd</sup> Edition). Oxford University Press.

2. Routledge, P. Voices of the dammed: discursive resistance amidst erasure in the Narmada Valley, India, *Political Geography* 22, 243-270, 2003.
3. Gokhale, Veena. India's Narmada Valley Hydro project, *Ecodecision, Environment and Policy Magazine* 1, 1991.
4. Gehalwat, J.K. Bhopal disaster- a personal experience, *Journal of Loss Prevention in the Process Industries* 18, 261-263, 2005.
5. Bisarya, R.K., Puri, Swaraj. The Bhopal gas tragedy-A perspective, *Journal of Loss Prevention in the Process Industries* 18, 209-212, 2005.
6. Chouhan, T.R. The unfolding of Bhopal disaster, *Journal of Loss Prevention in the Process Industries* 18, 205-208, 2005.