Environment and Development in India

A background report for Norway's environmental co-operation with India

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Norway's co-operation with India

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CONTENTS

Appendices

Acronyms

ADB- Asian Development Bank
AUSAID- Australian Agency for International Development
CBD-The Convention on Biological Diversity
CEE- Centre for Environmental Education (India)
CIDA- Canadian International Development Agency
CII- Commission for Indian Industry
CPCB- Central Pollution Control Board (India)
CSE- Centre for Science and Environment (India)
DANIDA- Danish International Development Assistance
DFID- Department for International Development
DOD-Department of Ocean Development
EDP- Eco-development project
EoF- Embassy of France
EU-European Union
USAID- United States Agency for International Development
GMO- Genetically Modified Organisms
GoI- Government of India
GTZ- Gesellschaft für Technische Zusammenarbeit
HP- Himachal Pradesh
IES- Indian Environment Society
IND 040- Institutional co-operation programme
IND 045- NGO support programme in India
IND 056- Indo-Norwegian Environmental Programme in HP
IND 063- Indo-Norwegian Environmental Programme
IREDA- Department under MNES
JBIC- Japan Bank for International Cooperation
Jordforsk-The Centre for Soil and Environmental Research (Norway)
KfW- Kreditanstalt für Wiederaufbau
MNES- Ministry of Non-Conventional Energy Sources
MoE- Ministry of Environment (Norway)
MoEF- Ministry of Environment and Forestry (India)
MoFA- Ministry of Foreign affairs (Norway)
MTR- Mid-term review
NAEB- National afforestation and Eco-development Board
NBSAP- National Biodiversity Strategy and Action Plan
NIBR-The Norwegian Institute for Urban and Regional Research
NILU-The Norwegian Institute for Air Research
NINA/NIKU-The Foundation for Nature Research and Cultural Heritage Research
NIOT- National Institute for Ocean Development
NIVA -The Norwegian Institute for Water Research
NLH-Agricultural University of Norway
NORAD- Norwegian Agency for Development Cooperation
NORAGRIC- Centre for International Environment and Development Studies, NLH (Norway)
NRCD-National River Conservation Directorate
POP-The Stockholm Convention on Persistent Organic Pollutants
PTA- computer based planning programme used by NORAD
RNE- Royal Netherlands Embassy
SIDA- Swedish International Development Cooperation Agency
SPCB- State Pollution Control Board
SWISSAID/SDC- Swiss Agency for Development and Cooperation
TERI- Tata Energy Research Institute
UNDP- United Nations Development Programme
UNEP- United Nations Environmental Programme
UNFCCC - The United Nations Framework Convention on Climate Change
UNIDO- United Nations Industrial Development Organization
UP- Uttar Pradesh
USAID-EP- United States Agency for International Development-environment programme
WB- The World Bank
WTO- World Trade Organisation

List of Figures and Tables

1. INTRODUCTION

This section gives a background for this report. It outlines the different sections of the report and the scope of work laid down.

1.1 Background

India has over the last decades experienced a rapid economic development, an intensive growth of industry, substantial growth in transport and energy consumption, rapid increase in urban population and a population growth of more than 2%/year. This exerts serious pressures on the natural environment and on water resources, soils, vegetation and air. The biological diversity is negatively affected and India's rich cultural heritage is also threatened by various development activities.

Poor people, women and people low down in the caste system are in particular affected by this degradation of the environment.

India's environmental challenges are thus substantial. With its population of 1 billion people concentrated on a continent of around 3.2 mill.sq.km (slightly more than Algeria or Sudan), the consequences of its deteriorating resource base are substantial.

In absolute size, India's economy is one of the biggest in the world. In certain fields of the environment, Indian authorities are able to display good results, in other areas much is left to be desired. The Indian policy formulation and implementation processes are featured by the fact that there are quite strong competing claims over resource use, where ethnicity, class, caste and religion come into play. The role of donors is rather limited in this vast economy and development assistance means little to the Indian economy at a macro-economic level. It constitutes at present around 0.4% of GDP.

The Norwegian contribution is less than 1% of development assistance to India. Norway has spent in the range of NOK 60-100 mill./year over the last 10 years. The role for development assistance in India is thus quite limited. Any plans for involvement in India should reflect this fact. The involvement of government bodies and other Indian bodies in donor supported development efforts is thus important. This also forms a special reason for looking carefully at what could be a sensible Norwegian contribution.

Development co-operation from Norway in the environmental field to India has mainly been provided through three funding channels: bilateral programmes for Orissa, Himachal Pradesh and Karnataka; to the civil society through various NGO programmes; and through various multilateral support, the latter managed by MoFA in Norway. Some programmes containing environmental elements, as the hydro-meteorological and environmental buoys programme and a utility mapping programme have also been supported.

The Ministry of Foreign Affairs of Norway has prepared a new strategy paper for the co-operation between Norway and India (2001). The environmental field is planned to be one of the main areas of co-operation. This draft strategy is enclosed in Appendix 4.

Climate change, biological diversity and toxic waste management have been outlined as key international processes to be given priority by the Norwegian Government in the international environmental scene (see St. meld 58, June 1997 on Sustainable Development and the last White Paper on the Norwegian Government's Environmental Policies (#24–February 2001).

1.2 OUTLINE OF THE REPORT

In NORAD's activity plan for 2001 and in the MoFA strategy for India, there are plans for an Environmental Position Paper for the co-operation with India. The last report on this issue was produced 1996. In the meantime, much of the ongoing development activities were put under sanctions following India's nuclear bomb testing in 1998. Many programmes were phased out and no new programmes have been launched up to now.

This report is meant to serve as a background document for the development of a new Norwegian environmental co-operation strategy with India.

As this report is stated to be an Embassy internal document, the multilateral work in the environmental sector in India, which MoFA in Norway is in charge of, is not much discussed. This priority is also reflected in the given TOR. It is, however, seen as a point to include ideas as to how the level of interaction between the Embassy and MoFA can be improved in the future on multi-lateral activities with relevance to India. The also applies for some regional supports presently supported by NORAD directly from Norway.

This report starts with some conceptual clarifications. In chapter 3 Norwegian development assistance policies are presented, with special focus on environmental policies and bearings on the development assistance to India. The report then outlines main issues in the Indian environmental scene and presents elements of an analysis of the field in chapter 4.

Based on existing reviews and evaluations, chapter 5 provides a brief assessment of the past and present Norwegian environmental co-operation programmes with India.

The report then outlines India's challenges and positions related to global environmental policy and processes in chapter 6.

Chapter 7 offers a short presentation of Norwegian competence, with a focus on selected environmental topics.

Based on these assessments of the present co-operation, and on the guidelines for environment cooperation as described in The Ministry of Foreign Affairs of Norway's strategy paper for the co-operation between Norway and India, the report provides recommendations on follow up on programmes and on forums for environmental dialogues.

The report suggests recommendations on strategies/overall guiding references for both development assistance, regional and multilateral efforts and issues related to international environmental matters in specific fields. It gives some suggestions for the next phase of IND 063 Environmental Programme of the environmental co-operation programme with Karnataka and Himachal Pradesh.

1.3 SCOPE OF THE WORK

The team consisted of Dr. Paul Vedeld, NORAGRIC, NLH and Atle Fretheim, MoE, Norway. Berit Mørkved and Jan Borring from MoE, Norway has also given valuable inputs.

A total of 14 man-weeks is put into the report, in addition to the help rendered from NORAD and the Royal Norwegian Embassy in New Delhi. Chapters 6 and 7 are written by MoE, in addition to parts of Appendix 3 and Appendix 5.

2. CONCEPTUAL CLARIFICATIONS

This chapter briefly clarifies certain concepts and relationships between environmental issues and other policy relevant items used in later sections of the report.

2.1 WHAT IS "THE ENVIRONMENT"?

There is no uniform definition or common understanding of what "the environment" is. A practical way to approach this question is through how the concept is defined in relation to the use in question. In MoFA's Strategy for Environment in Development Co-operation (1997-2005) "sound management of the global environment and biological diversity" is defined through four priority areas:

- Development of sustainable production systems
- Conservation and sustainable use of biological diversity
- Reduced pollution of soil, air and water
- Preservation of cultural heritage and management of the natural environment's cultural values

This categorization, also found in St. Meld.19 (1995-96) is also used in this report. Within each of these fields, we can furthermore talk about governance structures, policy-making processes and separate needs for institution-building, capacity and competence enhancement.

In more general terms, environment can be defined as the natural/ physical environment and environmental management as the "multi-layered process by which different types of environmental managers interact with the environment and with each other to pursue a livelihood" (Wilson et al, 1997:5).

2.2 ENVIRONMENTAL MANAGEMENT AS A MULTI-LAYERED STRUCTURE AND PROCESS

One should thus not see environmental management as a purely natural science based activity, but as processes that involve complex political, economic and social interactions. The involved actors are many, often with conflicting ideas and interests. They are also actors with different competences - both formally trained actors and with experienced based knowledge, competences and proficiencies.

The *management* aspect involves the use of resources, including natural resources as inputs and the natural environment as sinks for production and consumption processes. Management of resources also involves planning of activities, as well as the implementation and will be carried out at different levels in society and by different actors. This means that when talking about environmental management, it becomes important to specify field, actors and levels in a precise way.

At a governance level one talks in political science about organizational fields in order to describe how "organizations that, in the aggregate, constitute a recognized area of institutional life: key suppliers, resource and product consumers, regulatory agencies and other organizations that produce similar service or products" (Di Maggio and Powell, 1983: 148). We can talk about an environmental organizational field in this context. Over time, such fields are structurised through regular interaction between the field and its surroundings, and this

interaction will be featured by a common understanding of problems, norms and ways to solve problems (Scott, 1995).

The environmental field is one such field. However, it is characterized by its particular complexity. Any economic activity involves the use of resources and potential hazards to the environment. It means that environmental issues, problems, conflicts will occur in any sector, segment or organizational field in society. The environment thus has a sector dimension, but also a sector overarching dimension. Governance structures often reflect an awareness of this, but it still means that working with the environmental requires specific approaches concerning the structures and processes of management. This includes the distribution of political and bureaucratic powers, division in lines of authority and responsibilities, development of organizational structures and of planning and implementation processes both at central and at lower levels of decision-making in society.

The government and its governance structures provide legal, economic and political frameworks within which people may or may not adapt. Still, it is important to stress that most environmental managers in fact are farmers, livestock owners, and private sector actors. It is these that actually carry out or implement policies. A useful distinction in this context is between identification of *measures* (ex. making terraces to reduce erosion) that can reduce environmental problems and *policy instruments* (ex. subsidies /meter terrace) that are needed to make actors carry out desired measures.

What is outlined above implies that the most important decisions concerning frameworks for natural resource use and environmental management may be taken in the Ministry of Finance, Ministry of Agriculture, Ministry of Industry, Ministry of Forestry or the Ministry of Foreign Affairs and most likely not in the Ministry of Environment. Furthermore, people outside the realm of government structures do the actual environmental management. Development co-operation should reflect an understanding of such issues, also when it comes to initiatives on selection of relevant or key institutions, on institution-building, capacity building and competence development.

It also means that in identifying key arenas for work in the "environmental field", it may not only be the Ministry of Environment and Forestry that is of interest, but also other areas can be crucial. (In Norwegian development assistance one makes a distinction between environment specific support and environmental integrated support (see Deloitte and Touche, 1999) that in some respects caters for such perspectives).

2.3 ENVIRONMENTAL MANAGEMENT AND SCIENCE

Science is increasingly becoming a major source for legitimising political decisions over resource use. Environmental problems are particular in this respect as environmental management cannot be seen as a particular science It is rather a scientific field, where participants join from different sciences in research and development activities around topics relating to natural resource use and implications of human interventions on the environment.

In this report's context, the kind of research environments that would be of interest to establish links with would be linked to the understanding of which research is relevant for the environmental issues in question.

2.4 SUSTAINABLE DEVELOPMENT

The sustainable development debate can be described as the convergence of two distinct discourses: the discourse over developmental issues and the discourse over environmental issues (Shanmugaratnam, 1989). Economic growth and development in a broader social context depends critically on the use of natural resources and on the services rendered by the natural environment. There is a thus physical link between development and environment. It is impossible to isolate environmental issues from the broader economic, social/cultural and political contexts. In fact, even a decision to conserve a particular area is a decision on the use of natural resources that in principle excludes particular alternative uses. For our purpose, there is in any society a trade-off between environment and development priorities. It can be argued that they are complimentary in that sound environmental policies constitute a firm base for development, especially in the long run. However, in real life and in the short run, there will usually be some trade-offs to be made. There are many actors involved in such decision-making processes; from the electorate, to politicians, bureaucrats, donors and the concerned masses. The decisions made do, to some, reflect the balance of power between such actors.

3. NORWEGIAN ENVIRONMENTAL POLICY IN DEVELOPMENT CO-OPERATION

The chapter gives an overview of main Norwegian development policies and steering systems. It gives an overview of particular policies on environment and development strategies and a specific section on strategies for environmental co-operation with India. This section is brief, as most users of this report will have prior knowledge about these issues.

3.1 GENERAL POLICIES, RESOURCE USE AND STEERING SYSTEMS

The overall aim for Norwegian development co-operation is to contribute to lasting improvements in economic, social and political conditions for the populations of developing countries. Development assistance should in particular benefit poor and deprived people. Least developed countries are given particular emphasis. Development assistance should be designed so that it seeks to avoid dependence upon continued assistance and enhances a genuine recipient responsibility for the various supports embarked upon.

Norwegian development co-operation aims at strengthening the developing countries' own ability and willingness to reduce their poverty problems. It also aims at promoting economically and environmentally sustainable development and to enhance good governance through institutional capacity building in planning and management activities. Important target areas for Norwegian development assistance include the strengthening of sectors such as food production, health, natural resource management, education and the promotion of employment opportunities; in order to ensure that development processes benefit also poor people. Such strategies must be developed and adapted separately for the individual developing country.

Cross-cutting themes with major bearings for Norwegian assistance thus include concerns for the environment, for women, children and economic/social development, peace, democracy and human rights, institutional capacity building and improving the economy in assisted countries.

The main thrust of Norwegian development co-operation is long term assistance provided in the form of grants. The assistance is in principle untied, i.e. granted without particular conditions requiring that funds be used for the purchase of goods and services from the donor country. A smaller portion is used for short-term emergency relief. In addition, Norway provides special assistance to business trade and industry. The latter deviates from principles of untied assistance.

Development assistance is administered with the intention of achieving a reasonable distribution between bilateral assistance, which goes directly to developing countries, and multilateral assistance channelled through the UN-system and the development banks.

Norway ranks high among the OECD countries that provide development assistance compared to its own GDP. Norwegian development aid amounted to 0,91 % of Norway's GDP in 1998 (NOK 10,8 bill.). Around 50% of Norwegian assistance is channelled through bilateral assistance and around 50% through multilateral assistance (including multi-bilateral). Policies are manifested in particular planning documents and implemented by means of certain steering structures and processes. A short outline of this is given below.

- General policies on development co-operation are laid down in the Government's Annual Budget Plans and their long-term plans. In addition is the Parliament Report St. Melding.19 (1995-96) still spells out the present main focus for Norwegian Development efforts.

- General policies on the environment are laid down in the Strategy for Environment in Development Co-operation (1997-2005) from the Ministry of Foreign Affairs.

- There are Annual Reports on Development Co-operation from the Ministry of Foreign Affairs, with separate sections on the environment.

- The Ministry of Foreign Affairs sends an annual allocation letter to NORAD in the fall, where instructions are given for inputs on the environment. For 2001, it is especially mentioned that support should be given to developing countries on their follow-up of action plans to conventions such as climate, biodiversity, desertification and cultural heritage.

- In conjunction with the lift of measures against India following the nuclear testing in 1998, a new Strategy for India (MoFA, 2001) has been approved, with separate sections on the environment.

- In 1996-1999 NORAD and the Environmental Authorities in Norway launched and developed "Miljøprosjektet", a project that was to improve NORAD's internal competence in the environmental field, develop and introduce good internal management models and to increase the involvement of Norwegian institutions and competence in the environmental field. Among the measures emanating from this project was (MoFA1998:7):

  - To develop NORAD guidelines on particular development areas
  - To produce a handbook for EIA
  - To develop a educational programme for NORAD staff
  - To introduce regular reviews of the Embassy's environmental portfolios
  - To introduce PTA to improve reporting
  - To systematically use NORAD's environmental competence in multilateral activities.

- These parties approved a report on the "Organization and Use of Norwegian Environmental Competence in Development Co-operation" in 1998. (MoFA, 1998).

- NORAD, as a directorate has developed separate policies and guidelines for environmental policies. This also includes an organisational structure, particular sets of delegated authority, rights and duties, and procedures on how environmental concerns are to be built into policies, programmes and projects. It also includes the recruitment of internal and external expertise in relevant areas. External expertise has furthermore been identified.

- Instruments are also in place to secure prioritisation of the environment at the level one plans for. These plans are basically suggested by the Embassy in their Annual Activity Plans. After being sent home, the plans are scrutinized and country specific Allocation Letters are sent to the Embassies with political signals as to the level of environmental efforts for the coming year along with detailed instructions for the use of funds. In addition to the use of general development allocations to environmental specific and environmental integrated supports, the Embassy is also provided with earmarked funds ("the environment and natural resource management grant- 03.20.155" and the NGO-grant 03.20.154). Substantial support

is also given through multilateral programmes. The effects of efforts are documented through reporting systems; PTA and the DAC/NORAD codes) and through the Annual Activity Planning system and Annual Reporting Systems.

- NORAD has also developed a set of environmental guidelines. A "Handbook for Environmental Impact Assessment" is about to be published.

There are thus clear guidelines and general policies on the environment and a bureaucratic system with structures and processes is in place to secure that environmental concerns and issues are made an integral part of Norwegian development efforts. What are priority areas within the environmental field?

3.2 ENVIRONMENTAL POLICY CONTENT

In the Parliament Report 19 (1995-96) and in MoFA's Strategy for Environment in Development Co-operation (1997-2005) four priority areas are mentioned:

1) Development of sustainable production systems/management of natural resources

- Should be more focus on this than on classical protection (1997:7)
- Contribute to institution- building and enhancement of capacity for environmental management
- Promote sustainable agriculture
- Contribute to improved forest management systems
- Support integrated coastal zone management and integrated water use plans
- Living marine resources
- Environmentally sound energy management, efficient energy use and environmentally sound types of energy.
- Support R&D activities in the field

2) Conservation and sustainable use of biological diversity

- Follow-up on and support to recipient country's commitment under the Convention on Biological Diversity and other international nature conservation agreements
- Contribute to the preservation of genetic resources
- Support for measures to improve protection of biodiversity
- Support for measures to improve local participation and indigenous people's right to access resources
- Support monitoring and control of GMOs
- Support R&D activities in the field

3) Reduced pollution of soil, air and water

- Support preparation of action plans for the implementation of international and regional agreements
- Strengthening and development of the environmental protection administration, including the preparation of pollution laws and accompanying regulations, environmental standards, licensing systems, control routines, the development of strategies, action plans and use of instruments
- Support the implementation of integrated pest management (IPM) in agriculture
- Support for international and global issues related to climate/ greenhouse gases

- Support measures to combat industrial pollution in areas where Norway has special qualifications; purer technology and increased energy efficiency
- Support to urban poor people with emphasis on health related issues
- Support to combat oil pollution

4) Preservation of cultural heritage and management of the natural environment's cultural values

- Support to implement and follow-up the Convention for the Protection of World Cultural and Natural Heritage (1972)
- Contribute to enhance institutional and professional capacities
- Help to ensure that important sectors accept independent responsibility for the management of cultural and natural heritage
- Contribute to integration of cultural heritage in national action plans
- Contribute to sustainable tourist models in prioritised areas
- Contribute to the sustainable use and development of historical cities and areas of cultural heritage
- Support sustainable production and consumption systems through knowledge about traditional building customs, use of material and crafts.

How is this to be done? In development co-operation work the following emphasis should be given (MOFA, 1998: 2)):

- Contribute to strengthen the recipient country's institutional and technical/economic capacity within the environmental field for improved planning and management
- Contribute to strengthen research and competence building efforts that can contribute to solving practical environmental challenges
- Contribute to integrating environmental considerations in the recipient country's own development activities and secure good sector co-ordination and integration
- Support development of national plans and strategies
- Support the country's efforts concerning planning and implementation of international environmental obligations
- See to that environmental considerations are incorporated in strategies for development fields/areas and in country strategies
- Identify prioritised areas for environmental co-operation and establish environmental specific programmes
- Involve Norwegian actors and promote institutional co-operation
- Secure sufficient competent staff in NORAD
- Secure a quality control of the environmental dimension in development co-operation.

3.3 RESOURCE USE ON ENVIRONMENT DEVELOPMENT CO-OPERATION

It is assessed that around 12-14% of total development grants were spent on environmental programmes by Norway from 1995-1999 (MoFA, 2001: 19, pv157).
Environmental specific programmes received 60% and environmental integrated elements 40% of the total grants.

Table 3.1 Norwegian Development Co-operation grants 1995-1999 (in NOK)

Year	1995	1996	1997	1998	1999
Environment assistance	1200	1389	1435	1304	1247
Environment specific supports (India)			605 (34.7)		695 (31.6)
Environment integrated support (India)			432 (4.5)		553 (11.7)
Total dev. grant	**7924**	**8492**	**9261**	**10 018**	**10720**

Source; MoFA 2001: 19, pv157 and MoFA, 2000, Annual Report))

Around 50% is spent on bilateral co-operation, whereas the sum of administration and multilateral development co-operation constitutes the same.

For India, some NOK 43.3 million were spent on environmental programmes out of a total expenditure of around NOK 76.8 million in 1999. The share of environmental efforts is thus substantially higher in India than in general for Norwegian development assistance. The support to India in this respect is still in line with the present policy guidelines.

3.4 DEVELOPMENT CO-OPERATION POLICY BEARINGS FOR INDIA

There are some particular documents of importance for the development co-operation work at the Embassy:
- There is a dormant MoU from 1983 between India and Norway in the Environmental field. This could be considered either revised or revived.
- There is an approved Annual Activity plan for the Embassy for 2001. In this plan there is a separate section for the environment.
- In 2000, the Norwegian Government decided to lift the measures or sanctions imposed after the nuclear testing. A new strategy has now been developed for India (Appendix 4).

3.4.1 The Annual Activity Plan 2001

The main goals are related to the development of a new environmental strategy for the Embassy and it is to start up a new phase of the IND 63 INDO-Norwegian Environment Programme, which is a co-operation between Norway and the two states of Karnataka and Himachal Pradesh. It is furthermore to adjust the NGO-support in line with the new strategy and to keep a dialogue with relevant partners on co-ordination of development assistance in the environmental field. Furthermore, it is to facilitate the contacts between Norwegian and Indian environments under the IND 040 Institutional co-operation programme and to identify partners relevant for international environmental questions. A last point concerns Embassy staff training and development activities.

3.4.2 "The MoFA strategy for India"

The strategy takes as a point of departure notice of the fact that India has become a crucial strategic, political and economic actor in the world. Following this, Norway's dialogue with India should be further developed both concerning foreign policies and in terms of "expanding our bilateral co-operation in a number of fields". The strategy also stresses the possibilities for increased research co-operation as well as increased commercial interactions.

The strategy expresses a need for "a closer dialogue and institutionalised consultations in the capital and with the delegations in multilateral questions".

Concerning development assistance, the strategy is in line with the Annual Activity Plan for 2001. It focuses on strategic use of development assistance relative to political and catalytic issues, but that it still must be in line with Indian priorities. Emphasis should still be placed on pilot and demonstration activities. One should promote increased research co-operation. The following is stated concerning environmental specific bearings:

Goal: To further develop the bilateral and multilateral environmental co-operation with India with emphasis on poverty orientation, competence development and institution- building efforts. One should draw on and further develop the links between development assistance and dialogue on international environmental questions in the field and in relation to creating institutional contacts with relevant environments. One should create a co-operation on renewable energy.

Instruments: Have an approved plan in place and whatever follow-up that is necessary. Clarify authority and responsibility lines, especially concerning multi-lateral assistance. One should utilize development funds in this field and in relation to creating institutional contacts with relevant environments. One should establish formal and informal meeting arenas.

Measures:

- Concentrate on co-operation within clean air and technology for abatement, natural resource management and environmental friendly energy, including hydropower.
- Establish a dialogue with India on renewable energy resources, with a focus on bio-energy.
- Develop regional programmes within the environmental field, where several of the Norwegian supported developing partner countries in South Asia are involved.
- Use the environmental support strategically to improve the dialogue with Indian authorities, both bilaterally and in global fora.
- Achieve a closer follow-up of the Norwegian supported multilateral environmental projects with an aim to create links to the bilateral environmental supports.
- Try to establish institutional co-operation between Norwegian and Indian environmental management bodies.
- Develop a plan for the environmental activities, including a revised IND 063.
- In addition, the strategy takes up the need to develop support to cultural heritage work in India.

3.4.3 Short summary

There are few discrepancies between the new strategy and the approved Annual Activity Plan for 2001. There seems to be no contradictions or conflicts in the environmental field. A main problem is that the new MoFA strategy may seem rather ambitious, in terms of manpower needs both at the Embassy and at home, and relative to that it may not be likely that more funds will be available. These issues should be assessed by others than the consultant.

There is a dormant environmental agreement between India and Norway dating back to 1983. This could be considered revised as part of a new strategic effort towards India.

4. INDIAN ENVIRONMENTAL POLICIES

This chapter provides brief overviews of India's environmental challenges, the public management sector, the civil society and the environment, donor activities and also addresses a few cross-cutting themes on the environment Lastly, some notes are made on the renewable energy scene in India. The chapter serves a dual purpose. First it gives a brief insight into environmental management in India in general. Secondly, it identifies some key directions for co-operation efforts between India and Norway.

4.1 INDIA'S DEVELOPMENT STRATEGIES

4.1.1 India's main development strategies and resource use

India's long-term development strategies are manifested through systems of Annual Plans and 5-year Development Plans. The present 9'th Five Year Plan (1996- 2001) has quite ambitious growth and investment aims; A general aim for 6% growth in GDP/year, including sector aims for GDP-growth/year for agriculture of 4%, mining for 7.2%, manufacturing for 8.2% and transport 7.4%. Even if the main growth is in service areas, much of the rather high growth figures imply increased resource use. The planned revised annual investment level is around 8.7%. Linked to an anticipated population growth of around 2.1 %, and an expected increase in exports, there are substantial reasons for expecting increased pressures on land, forests, water and air resources in the years to come. Looking at Gross Budgetary support for the fiscal year 2000-2001 the following is planned:

Table 4.1 Gross Budgetary support for the fiscal year 2000-2001

Budget item/ministry	Amount 2000-2001(crore irs)*
Agriculture	2879
Coal	873
Commerce	388
Environment/ forestry	850
Foreign affairs	575
Finance	715
Health/Family welfare	4897
Human resources	7286
Industry	1379
Non-conventional energy	439
Planning	180
Power	2640
Rural areas/employment	6760
Land resources	900
Drinking water supply	2100
Surface transport	5181
Science and technology	832
Tourism	135
Urban development	900
Water resources	475
Social justice/ empowerment	1350
Tribal affairs	210
Atomic energy	1554
Space	1700
Railways	3291
Other ministries	2786
Total GBS to Central Plan	51275
Total GBS to states and UT	36824
Aggregate GBS	88157

*(1 crore~ NOK 20 mill. By comparison, the Norwegian state budget is around NOK 200 bill. or 20,000 crore)

Ministries and sectors that require heavy investments and accompanying increased resource use and pressures on the environment constitute substantial parts of total budget allocation. Getting a good picture of national environmental priorities from this is obviously quite complex due to transfer systems, and due to some ministries having substantial incomes whereas others do not, and that environmental sector plans and initiatives may fall under specific ministries etc. The Ministry of Environment and Forest has a budget of 850 crores for 200-2001, which is 0.75% of the total GBS. Of this, 240 crore is planned for the environmental ministry, 210 for NRCD, 253 for forest and wildlife, and 144 for NAEB. When we compare this to other ministries, we see for instance that India allocates twice the amount of funds for its Space Ministry and its Atomic Energy Ministry than to MoEF.

4.1.2 Main State development strategies and resource use

The states produce their own development plans. From Table 4.1, we see that around 35% of GBS goes to the states, whereas 65% is retained by the Central Government. In the Constitution, there are provisions made for what are to be seen as central responsibilities and what are defined as the responsibilities of the states (part XI). Article 246 divides the legislation into three lists: the Union List, the State List and the Concurrent List. We will return to this later.

Unlike the USA for instance, India's central state did not emerge as a result of autonomous states coming together and "reluctantly letting local autonomy go for a greater common good", but rather the other way around. Some power has gradually been transferred from central to local levels of governance, but still the central state controls substantial issues, also in the environmental sector. Any notification or de-notification of conservation areas, for instance, has to be approved by central authorities, upon request from local states (see section 4.3).

4.1.3 Macro-economic performance

As indicated, India has a substantial economic growth and by most macro-economic performance indicators, the fiscal management seems reasonably solid. The distribution and equity issues are still problematic in India. There are approximately 350 to 450 million people living below the poverty line and 75% of these live in rural areas (WB, 1997). Some 50% of all poor people in the world live in India. By any standards, the economic growth thus does not reach all segments of society, despite substantial efforts to reduce poverty both by the government and various donors.

4.2 MAJOR ENVIRONMENTAL CHALLENGES IN INDIA

Some environmental problems emanate from "underdevelopment processes" such as unhygienic conditions due to poverty, lack of water availability. Other problems could be said to be results of "development activities" in itself such as chemical pollution, acid rain, noise pollution pesticide pollution, deforestation and air pollution. There is also a distinction between typical urban and typical rural environmental problems. Urban issues often relate to rapid urbanisation and industrialisation such as pollution, solid waste, unhygienic conditions etc. - "brown environmental problems". The rural problems relate more to deforestation, land degradation, biodiversity loss etc. - "green environmental issues". According to Gupta (1999-pv 79) "each growth strategy leaves its unique "footprint" on the environment". The environmental situation in India is by most indicators deteriorating quite rapidly.

4.2.1 Water pollution challenges in India

Water pollution is considered to be the most important environmental problem by Indian authorities. 70% of all available water in India is polluted, more than 1 million children die every year from polluted water and around 73 million workdays are lost every year due to pollution-health related issues. 60% of all deaths in urban areas in India are, according to Gupta (1999) due to water related diseases such as cholera, dysentery and gastroenteritis. There are two main problems; water is not utilized efficiently and the waste water disposal "systems" pollutes remaining water sources. Agarawal et al (1999) give some more examples of the problems:

- Around 50 million children have died of diarrhoea since Independence,
- Only 3% of the total population has access to sewerage treatment systems
- Only 27% of the large and medium sized industry had full or partial treatment systems
- Only around 30% of the population has access to safe water
- All but three states suffered drought in 1987, whereas these three suffered floods.

The three main sources of water pollution are untreated industrial effluents, sewerage from households and fertilizer and pesticide pollution of especially groundwater. The pollution of India's great rivers creates enormous health hazard problems because the population density is so high close to water that is contaminated beyond repair. It is completely unfit for human consumption. Withdrawal of water for agriculture and industry enhances the pollution problem substantially as the dilution effects of water on pollutants are diminished. The problems of disposal of solid waste is also closely linked to water pollution especially in densely populated areas. Water pollution is thus a health problem, but it also imposes enormous costs to society in water purification efforts. There are also substantial losses in biodiversity in rivers and waterways.

4.2.2 Air pollution challenges in India

The second main problem from an environmental point of view is air pollution. Many claim that it became a public debate issue in India after it was discovered damages to Taj Mahal following the establishment of an oil refinery near Mathura in UP. Some examples:

- Most Indian cities are far above WHO standards concerning SO2, NO2 and suspended particulate matter (PM)
- Six out of ten largest cities in India have PM 3 times above WHO-standards
- Delhi is among the 4 most polluted mega cities in the world; 64% of pollution there is from cars
- The quantity of sulphur dioxide has tripled in major Indian cities over the last 15 years
- Of the 48 thermal power stations surveyed in 1984, 31 had taken no pollution control measures at all
- There is no monitoring of deadly gases such as benzene and ozone
- The amount of respiratory diseases went up by 200% from 1980-1990
- 40,000 people die prematurely from air pollution in India's 36 largest cities

The main sources for air pollution is thermal power in India's coal driven economy, it is vehicular pollution and it is also substantial amount of pollution from industries such as iron and steel mills, petrochemical and fertilizer complexes, synthetic fibre factories etc. In rural areas, the contribution to air pollution and especially hazardous in-door air pollution comes from wood fuel and low quality stoves. Gupta (1999) stresses that one should not look only at

ambient concentration of pollutant as is revealed in monitoring figures, but rather look at the real exposure by individuals.

4.2.3 Loss of biodiversity and land degradation

The third main environmental problem is land and forest degradation. This relates to losses in direct production, losses in biodiversity and it also relates to problems of conservation of species. There are disagreements between scientific environments around the present situation. Most agree to that the rate of deforestation has been reduced to some extent. The Forest Survey in India estimates that the forest cover now is around 19% against an aim of 33% in the National Forest Policy from 1988.

A major problem lies with the natural forests, despite serious efforts from the Government and state government to reverse these trends.

CSE estimates (Agarawal, 1999) that of the present 328 mill. ha of land in India, some 130 mill. ha is or has become wasteland (35%). Of this wasteland, 36 mill. ha is degraded forest land, 7 mill. ha is saline land, 13 mill. ha are wind-eroded lands and as much as 74 mill. ha is water-eroded areas.

Forests in India do play an important environmental role at the same time as it is the main source of livelihood for more than 100 mill. forest dwellers (GoI, 2001). (Mid term appraisal of 9th five-year plan). Forests are thus also important mediums in alleviating poverty. Research tell us that forestland and communal land is particular important for the poorest people residing in rural areas, who get up to 20-30% of their total income from these areas.

India as a continent stretches from the Himalayan region (37' N) in the north to tropical areas in the south (8' N). India has a unique biodiversity. It is defined as 1 of 12 mega diversity countries in the world. The above degradation processes and pollution issues obviously threatens such resources, in addition to widespread poaching and corruption problems.

Gupta (1999) states major causes of deforestation to be large-scale conversion of forest land to agricultural land. Land is also lost due to large-scale development projects such as mining and dams such as the Narmada Dam project (40 000 ha only in MP) and the proposed Tipaimukh Dam in North East India (more than 200 000 ha). At micro-level, fuel wood, overgrazing and small-scale illegal cuttings pose problems on the quality of remaining forests.

Degradation of marine resources is an important environmental challenge in India. It includes mangrove and coral reef destruction and degradation, general problems of over-fishing, inundation of substantial low-lying areas every year and sewerage pollution of coastal waters close to large cities.

4.2.4 Loss of cultural heritage

India's cultural heritage is unique in the world. Relative to trade-offs and conflicts with development activities, much of the existing heritage is under threat from development activities.

4.2.5 Summing up India's environmental challenges

In the State of the Environment Report from 1999 (GoI, 1999, pv 87), a short list is made of the main environmental problems and cost estimates of these.

Table 4.2 Main environmental problems and costs in India, 1999

Problem	Impacts on health	Average cost in mill.USD
Water pollution	Urban and rural health problems, esp. diarrhoea diseases	5.710
Soil degradation	Losses in agricultural output	1.642
Urban air pollution	Urban health impacts	1.310
Rangeland degradation	Loss of livestock carrying capacity	328
Deforestation	Loss of sustainable timber supply	214
Tourism	Decl. revenue through deteriorated env.	213
Total cost env. degradation		9.715
% of GDP		4. 53%

Source: GoI, 1999, pv 87)

The major environmental challenges seem to be water pollution, soil degradation and air pollution. Of course these figures reflect abatement costs and one would need a cost-benefit assessment in order to make a proper economic optimal prioritisation. The cost figures still tell us something about the major challenges.

4.3 THE PUBLIC ENVIRONMENTAL SECTOR IN INDIA[1]

4.3.1 Introduction

India's explicit environmental policies do not go back very long. After Independence heavy emphasis was put on reaching development goals in line with Nehru's "controlled liberalism". This encompassed a rather strict public control over production and infrastructure development, but with a much freer policy on the production of consumption related commodities. There is little mention of environmental policies in India's five-year plans before the 4th.plan (1969-1974) and even there it was according to Khator (1991:11) "minimal and non-committal". This has changed in the face of changes in the Indian society. The gravity of the problems has increased, the bureaucracy in India has to some extent become more active and there have been pressures: from international conventions/negotiations processes, from other countries and donors and from within the country from other sectors and from the affected public at large. This has paved the way for explicit policy goal formulations, for institution building, for formulation of particular policy measures and instruments and to some extent also to the implementation of the policies at central and state levels.

4.3.2 The environmental legislative system in India

1) Division of power and responsibility

The division of power and responsibility between *different tiers of government* is defined by the Constitution. This vertical distribution of power, the sharing of policy formulation and implementation powers between central, state and local government in India on environment is thus defined through the constitution. It furthermore reflects the division of power in the Indian scene between centre and state governments in that much of the powers are placed in the centre. Environmental concerns were not baked into the original Constitution, but it has later been included as the environmental issues gained political momentum Gupta (1999: 29).

[1] *There are not many reports giving good descriptions and analyses of the total environmental field in India. We recommend Shreekant Guptas report "Country Environment Review"(1999) made for ADB on policy frameworks and policy instrument use and Renu Khator's book on Environment, Development and Politics in India, 1991, on an assessment of problems in the public environmental management sector in India.*

The Indian Constitution provides for a federal structure within a parliamentary form of government. Ultimate authority is vested with the central government. The centre can create states, alter the boundaries of existing states and in special cases even take over their governance (Gupta 1999). The division of power and responsibility is defined quite clearly in part XI of the Constitution: "Relations between the Union and the States". Subject areas for legislation are split into three list; the Union, the State and the Concurrent list.

The Union list has 97 subjects for which the Parliament has exclusive powers to make laws. This also include environmental areas such as interstate rivers and river valleys, mines and minerals, oil fields, atomic energy, air traffic etc.

The State List gives 66 subjects for which the state governments has exclusive jurisdiction over. This includes areas such as such as public health and sanitation, agriculture, land improvement and water. The last point includes water supplies, irrigation and canals, drainage and embankments, water storage and supply.

The Concurrent List has 47 entries, where both central and state legislatures can enact laws on issues like forests and wildlife to factories and electricity.

Any subject not covered in the lists gives the centre a residual power to legislate. In addition, any central law will prevail over a state law on the concurrent list. The centre can also legislate in the national interest on any subject on the state list and it can also pass laws on state subjects if two or more state legislatures consent to such legislation (see Gupta, 1999: 29-30).

Furthermore, the centre has now also been empowered with the right to make laws necessary to implement not only treaties, but also decisions made at international conferences.

Concerning the division of powers and responsibility between MoEF and other ministries, the horizontal distribution of power, it is the Planning Commission that is in charge of sector ministries developing sector environmental plans.

2) The environmental legislation

The UN Conference on Human Environment in Stockholm gave rise to separate environmental policies in India. After the conference the following Acts were passed in the environmental field (MoEF, 2001):

Water Acts:

The Water (Prevention and Control of Pollution) Act, 1974,
The Water (Prevention and Control of Pollution) Rules, 1975
The Water (Prevention and Control of Pollution) Cess Act, 1977
The Water (Prevention and Control of Pollution) Cess Rules, 1978

The Water Act prohibits the discharge of pollutants into water bodies beyond a given standard and lays down penalties for non-compliance. The enforcement responsibility lies with the State Pollution Control Board and includes the following: set effluent standards for sewage and trade effluents, set standards for the quality of water bodies into which effluents are discharged, set treatment standards for sewage and effluents and ensure that standards are met. The Boards assess by approving, rejecting or modifying applications from actors for consent to discharge effluents.

The Central Pollution Control Board advice state governments coordinate activities and provide technical assistance. They do not have any regulatory powers except in union territories. (This is general for all laws).

The Water Cess Act provides the key incomes for the Boards since Municipalities sand industries have to pay a tax on water consumption and a fee on effluents.

Air Acts:
The Air (Prevention and Control of Pollution) Act, 1981
The Air (Prevention and Control of Pollution) Rules, 1982
The Air (Prevention and Control of Pollution) (Union Territories) Rules, 1983

The Act is quite similar to the Water Act. This also includes the function of the SPCB. All industries need consent from the state boards to operate within air pollution control areas delineated by the boards. The boards handle applications and undertake controls and monitoring.

Environment Protection Act and Rules:
The Environment (Protection) Act, 1986
The Environment (Protection) Rules, 1986
- Environmental Impact Assessment of Development Projects
- Hazardous Wastes (Management and Handling) Rules, 1989
- Manufacture, Storage and Import of Hazardous Chemical Rules, 1989
- Manufacture, Use, Import, Export and Storage of Hazardous Micro-Organisms
- Genetically Engineered Organisms or Cells rules, 1989
- Scheme of Labelling of Environment Friendly Products (ECO-MARKS)
- Bio-Medical Waste (Management and Handling) Rules, 1998
- The National Environment Tribunal Act, 1995
- The National Environmental Appellant Authority Act, 1997

The EPA was enacted in the aftermath of the Bhopal gas tragedy. According to Gupta (1999: 41) it "arms the centre with extensive powers to take measures as it deems necessary or expedient for the purpose of protecting and improving the quality of the environment and preventing, controlling and abating industrial pollution. The central ct government has set nationwide ambient air quality standards, standards for vehicle emissions and discharge of effluents". It was meant to be umbrella legislation, but it does focus attention to "brown issues".

There is also a provision for coastal zone protection made in 1991. It regulates activities up to 500 metres from the high tide line and up to 50 metres along banks of creeks, estuaries, backwaters and rivers subject to tidal fluctuations; "the coastal regulation zone". All 9 coastal states and 4 centrally administered union territories were required to prepare coastal zone management plans and submit to MoEF for approval.

Forest laws
Forest (Conservation) Act, 1980
Forest (Conservation) Rules, 1981
National Forest Policy, 1988

These laws date back to the Indian Forest Act from 1927. The laws have over the years shifted in focus and distribution of power between state and central powers, but regulate issues on forest management, use of forest resources including clearing of land, grazing, fuel wood etc and general land management. There are also important issues on levying of duties on timber and other forest products and it also address the handling of forest produce and regulating use, including fines and other types of punitive actions. In 1980, changes came in the legislation where powers were shifted to central government on important issues. In 1988, the Act was again revised and where some new features were introduced; 33% of total land of the country should be forested and 60% in the hilly areas, total protection of moist forests/tropical rain forests, controlled introduction of exotic species, involve tribal and local people in forest management (protection, regeneration and development of forests) to mention some.

Wildlife (Protection) Act
Wildlife (Protection) Act, 1972, Amendments, 1991

All endangered animal and plant species are prohibited from being hunted or harvested and picked. Both State and Centre are empowered to work with wildlife protection.

The National Biodiversity Bill, draft 2000
This Bill is meant to provide the legal framework in order to follow up the Convention on Biodiversity (NBA) from 1992. It also suggests the establishment of a National Biodiversity Authority and State Biodiversity Boards. As far as the team could find out, these issues are still pending.

Public Litigation Act
The Public Liability Insurance Act, 1991 and the Public Liability Insurance Rules, 1991.

Miscellaneous
The Eco Sensitive Zone-Pachmarhi, Notification, 1998
Re-cycled Plastics Manufacture and Usage Rules, 1999
Coastal Regulation Zone - Notifications
Environment (Siting for Industrial Projects) Rules, 1999 - Notification
Taj Trapezium Zone Pollution (Prevent and Control) Authority
Order Dumping and Disposal of Flyash - Notification
Noise Pollution (Regulation and Control) Rules, 2000
Municipal Solid Wastes (Management & Handling) Rules, 2000
Ozone Depleting Substances (Regulation) Rules, 2000
Batteries (Management & Handling) Rules, 2001
Manufacture, Storage and Import of Hazardous Chemical (Amendment) Rules, 2000
Draft New Biodiversity Bill - 2000
The Prevention and Control of Pollution (Uniform Consent Procedure) Rules, 1999
Protect and improve the environment in the Himalayas, October 2000 – Draft Notification

There is thus a whole host of environmental acts and rules, and as can be seen, the number has increased substantially over the years. We return with a short assessment later.

4.3.3 The institutional environmental framework in India

The National Committee on Environmental Planning was formed in 1972 in the Department of Science and Technology in order to prepare for the 1972 Stockholm Conference (Gupta,

1999). This committee comprised people from various environmental fields and it was to serve as an apex advisory body on all environmental matters. After this, the following bodies were established:

- The Central Board for the Prevention and Control of Water Pollution in 1974
- The Department of Environment was established in 1980
- The Ministry of Forestry and Environment was established in 1986

Concomitant with an effort to tighten the loopholes in existing policies, the Tiwari committee in 1980, suggested establishing a Department of Environment to consolidate bureaucratic powers in one agency. In 1986 it was given the status of Ministry of Environment and Forestry under R.Gandhi.

The Ministry of Environment has three core functions: the *custodial functions* or its primary responsibility areas relate to pollution monitoring and control, eco-regeneration, conservation and survey and assessment of flora and fauna, forest resource development, wildlife conservation, and the development of wastelands.

The *regulatory functions* include setting control standards for industries and conducting EIAs for development programmes and projects are crucial here.

The third function relates to *promotional activities* and information use and the ENVIS system (environmental information system). The Ministry also co-ordinates external assistance to environmental projects through its International Co-operation Division.

The organizational structure is outlined in Figure 4.1. MoEF is organised along divisions that look after various functions. The Secretary, Environment and Forests and the Inspector General of Forests purview these divisions. The former also has responsibilities for the National River Conservation Directorate and the National Afforestation and Eco-Development Board. Under each of these officers there are also a number of *subordinate offices* such as the Botanical Survey of India and Zoological Survey of India.

There are also a number of Autonomous *Boards* such as the:
Central Pollution Control Board, Delhi (CPCB)
G.B. Pant Institute of Himalayan Environment and Development, Almora
Centre for Environmental Education, Ahmedabad
C.P.R. Ayar Environmental Education Centre, Madras
Salim Ali Centre for Ornithology & Natural History, Coimbatore
Centre for Ecology Research & Training, Bangalore
Centre for Mining Environment, Dhanbad
Indian Institute of Forests Management, Bhopal (IIFM)
Indian Council of Forestry Research & Education, Dehradun (ICFRE)
Animal Welfare Board, Madras
Wildlife Institute of India, Dehradun (WII)

These institutions are used as scientific bodies for MoEF on particular issues. For example; in the Environmental Action Plan from 1993 there is a list of research environments identified to have particular responsibility areas in drawing up sectoral reports:

Table 4.3 Some important Indian environmental research institutions

Bombay Natural History Society, Bombay	Conservation of Wetlands, coral reefs, mangroves
Indian Institute of Forest Management, Bhopal	Forestry
Indian Institute of Public Administration	Inst. Structures for Environmental Management Environmental Education Biodiversity/wildlife Conservation
Indian Institute of Technology, Bombay	Environmental Impact Assessment
Indira Gandhi Institute of Development Research, Bombay	Natural Resource Accounting
Madras Institute of Development Studies	Urban Environmental Management Strategies for Improvement of Tank Irrigation
National Environmental Engineering Research Institute, Nagpur	Clean technologies Water Quality
Tata Energy Research Institute, New Delhi	Alternative Energy Action Plan

The MoEF is responsible for ensuring that environmental concerns within its domain are addressed in a co-ordinated manner. The Planning Commission is responsible for environmental concerns to be integrated into sector plans. They have a separate person in charge of environmental affairs.

At state level, most states have a Department of Environment under the Min. of Forestry. According to Gupta, by 1985, 22 states had a department. HP does not yet have this. The states are responsible for implementing the Water and Air Pollution Control Acts, by which they use SPCB. They are also responsible for co-ordinating environmental activities and initiatives of other state government departments and for giving advise on policy issues. The State Department depend almost entirely on budgetary support from the State Governments Some funds may be routed through the Planning Commission.

The Pollution Control Boards, at Central and State levels are statutory bodies with the responsibility to implement and enforce major laws such as Water and Air Pollution Control Acts, the Environmental Protection Act, the Hazardous Waste Rules (1989) and the Public Liability Insurance Act (1991). The CPCB co-ordinates state boards in addition to having the responsibility for centrally administered union territories. It is also in charge of central monitoring and for laying down ambient standards and emission standards.

4.3.4 The economic framework for environmental management in India

The Indian economic system has still many features from the days of state controlled economy and detailed planning. There are many tax and subsidy systems in place that has important environmental consequences. Subsidies on kerosene, on electricity and water to agriculture and industry, low stumpage prices for lease of forest land to industry, etc. leads to environmentally unsound practices.

This a vast canvas to cover and we cannot go in more detail on this in this report. The general point is that from an economic and environmental point of view, various government policies is leading to unsound environmental practices (see also Gupta, 1999).

4.3.5 Major environmental policy goals and instruments in India

Apart from the general development policies that are found in the Annual and 5-year development plans, India has developed a number of *policy goal documents* in the environmental field. Some of these are mentioned below. Important *policy instruments* in the environmental field in India include legal and institutional instruments in the frameworks described above. The use of economic instruments is still in its infancy in India. Gupta (1999) gives an overview of possible areas for the use of Market Based Instruments (MBI).

1) General policy documents

As a follow-up of the Earth Summit in Rio 1992, GoI produced a Policy Statement Paper on Environment and the Development, where ambitions are outlined in several sectors stressing needs for inter-sectoral policy integration and co-ordination such as agriculture, irrigation, animal husbandry, forestry, energy generation and use, industrial development, mining and quarries, tourism, transport and human settlements.

There is an Environmental Action Programme from 1993. This is a comprehensive document although it is now too old to carry important policy functions.

There are also Annual reports from the Ministry of Environment and Forestry that give insights in their "sector activities". There is also a section in the 5-year plan and in the Mid-term Appraisal of the 5-year plans on the environment.

2) Pollution control and climate change

The Central and State Pollution Control Boards are the main responsible bodies for pollution assessment and for pollution control.

Concerning pollution assessment, they work with air, water and soil pollution, solid waste and awareness raising issues relative to inventory, monitoring and surveying issues with focus on problem areas.

Concerning pollution control, they work with regulation and legislative issues, co-ordination of actions at different levels and between different sectors, planning and zoning, controlling, auditing, training and education.

There is a Policy Statement of the Abatement of Pollution from 1992 where CPCB is in charge of following up. Apart from this, there is no single overarching policy document that stakes out policies for pollution control and prevention in India. Some items are taken up in the Environmental Action Plan from 1993, but basically much of the present policies are

found through a variety of action plans and projects in different fields launched by the pollution control boards.

The Pollution Control Boards monitor air and water pollution all over India. Initiatives are taken to reduce **air pollution** by setting standards on vehicles and banning according to age and type of combustion technology. In major cities, one has now introduced Euro III norms for all new cars. Air pollution is still a major health hazards in many of India' s larger cities.

Relative to **water pollution issues**, in the 9 Five-Year Plan, three large-scale initiatives are mentioned: The Ganga Action Plan, the National River Conservation Plan and National Lake Conservation Plan.

Concerning **industrial pollution**, the CPCB has identified 1551 large industrial plants in different categories and formulated directives to have these install requisite pollution control systems. Subsidy systems for common effluent treatment plants have also been introduced.

On **waste treatment,** there is a Municipal Solid Waste Handbook issued by the Ministry. Around 11 000 plants have been identified where hazardous waste is being produced.

There was a major competence-building programme (155 mill. USD) supported by the World Bank from 1991-1999 in four states (Maharastra, Gujarat, Tamil Nadu and Uttar Pradesh called "The Industrial Pollution Control project". It took on to improve legislation, enhance industry's capacity to comply and supply them credit, to support the CPCB and SPCB and increase efforts in R&D activities (World Bank, 1999, PV 117).

Concerning documentation of activities on pollution assessment and control, there are Annual reports from the Central Pollution Control Board give good insight in their work. Most State Pollution Control Boards issue their own Annual Reports.

Climate change issues are raised in chapter 6.

3) Biodiversity and sustainable use

The responsibility for biodiversity conservation falls at present under several bodies and institutions. The MoEF has Forest Department, a wildlife wing and a separate Environmental department that all have pieces of responsibility within the field. MoA is responsible for conservation of domesticated biodiversity, fishery, soil conservation and watershed management. At state levels there is no joint body like an Environmental Protection Agency; but it is the SPCB, it is State Wildlife Advisory Boards, State Committees on Biosphere protection, State Dept. on Science, technology and the environment on R&D activities etc. that take charge of different aspects of biodiversity issues.

There is a National Conservation Strategy from 1992. As part of the work with the new Biodiversity Strategy and Action Plan (NBSAP) work (2000-2001), one plans to get developed local, regional, state, national strategies and action plans for "conserving biodiversity, sustainably using biological resources and achieving equity and fair benefit-sharing in such use" MOE 2000, PV 100). At present there is no clear state nodal organization to carry out such work. There is a Biodiversity Conservation Prioritisation Project that the newly started NBASAP will build on.

The Plans for a National Biodiversity Authority and State Biodiversity Boards under the new Biodiversity Bill are interesting but it still not clear what these institutions will be and how they will match with the SPCB.

There is a National **Forest** Policy from 1988, and a National Forestry Action Plan (NFAP) with the aim to restore India's remaining forest areas and where a National Afforestation and Eco-development Board is in charge. The amount of land under forest cover has gone down over the last decades from an estimated 46 % in 1970 till around 36% at present according to GoI (2001). These figures are disputed- the National Forestry Survey puts the figure to around 20%. The decline comes despite a number of projects and programmes introduced to reverse this trend. Some of these include allowing forest product imports, banning the felling of green trees, and introducing farm forestry schemes.

The States are responsible for forest management primarily with state funds and often with some external donor support. 18 states have started Joint Forest Management Programmes where local people are involved in management of forest resources. There is a set of revised guidelines for the implementation of such schemes.

The **Wildlife** Protection Act prohibits all hunting and harvesting of endangered animal and plant species. Both centre and state are empowered to institute and employ various functionaries to carry out the tasks of wildlife conservation.

There is a National Wildlife Action Plan that lays down strategies for conservation of wildlife. India has a unique wildlife resource. At present there are 83 national parks and 447 sanctuaries totalling more than 15 mill.ha. (4.3% of total area).

An "Eco-development Project" (EDP) has been launched to improve Protected Area management and the links to local people.

4) Cultural heritage

Cultural heritage is placed under the Ministry of Culture and Tourism, and the underlying Department of Architecture. The Government handles particular protected monuments, symbols, statues etc. that is placed on a particular conservation list. There is also a directorate for Archaeological Surveys.

The Indian National Trust for Art and Culture (INTACH) is an NGO with aim to promote the natural and cultural heritage of India. They publish newsletters, books, reports etc. and they arrange seminars, workshops, awareness programmes etc. They also work with restoration of pictures, buildings, monuments etc. They also work with natural heritage. They also have a legal cell that advocates work with fighting legal battles to conserve and protect various items. Their total sources of funds for 1999-2000 are around 130 mill. irs. (NOK 16 mill.). They have activities both in Karnataka and in Himachal Pradesh.

4.3.6 Sector-wise assessment of the public environmental management system

Through most interviews, through reviews of reports and literature a picture emerges where the environmental conditions in India in most cases are getting worse. In this section, we give an assessment of sector-wise performance. In 4.3.7 we give some assessments of why one despite substantial efforts does not see more improvements than is the case.

1) Pollution assessment and control

The pollution problems in India constitute a major environmental problem; both from a health hazard point of view and from a long run general sustainable environment point of view. It is quite clear that present trends of increases in pollution cannot continue indefinitely. Gupta (1999) takes up the following points on pollution management challenges in India:

1) The legal framework needs improvement. It now puts emphasis on end of pipe treatment of pollution and not on pollution prevention through production process changes. Furthermore, present subsidies actually promote end-of-pipe solutions through concession systems. The discharge standards are concentration based and not load-based standards. This means that the discharge standards can be met simply by diluting the effluent instead of cleaning. There is no link between source-specific standards and ambient water or air quality standards. The laws do furthermore not distinguish between the extent of violation of standards. In totality; Gupta (1999) stresses that it is not correct, what many claim, that the environmental laws on pollution are well adapted and in place; there are deficiencies in the present laws creating non-optimal adaptations and lack of or slow policy implementation.

2) The implementation of pollution policies is inadequate. On the one hand, much of planned work is not carried out. On waste treatment for example**,** around 11,000 plants have been identified where hazardous waste is being produced. There are 76 sites for handling this, but only 12 of them have been notified all over the country.

   Even if things are being planned and decisions taken, one may still experience delays. Gupta states that 38% of the cases brought forward by the Boards on the Water and Air Pollution Acts are turned down in court, and more than 50% of all cases filed are still pending in the legal system.

   The Pollution Control Boards have too little resources. Many of them are also partly quite corrupt, according to our informants. It is also a problem that the monitoring procedures are quite cumbersome. The Pollution Control Boards have to take the burden of the proof of the violation of standards, which makes it more difficult to control and arrest violators.

There have been attempts to improve the functioning of the boards. Below are some main conclusions drawn in the Completion Report from the World Bank sponsored "Industrial Pollution Control Project (1991-1999)":

- MoEF and CPCB had deep flaws in their performance especially on procurement processes and approval of demonstration sites creating substantial delays in implementation
- The support went basically to large scale industries whereas the small and medium scald industry got very little
- There was an over focus on the investment and physical outputs rather than the physical outcomes of the programmed
- There was hardly any control, monitoring and performance measurement systems in place
- There seems to be little or no replication of the pilot projects
- Staff development and training difficult because staff is transferred all the time

One recommendation made is to decentralize more power, resources and authority to state level bodies and make them produce their own action plans to be followed up. One should also work with improving performance indicator use and monitoring systems.

It seems sensible for case officers in the Embassy working with SPCB to study this report carefully and discuss with relevant WB-staff prior to approval of programmes in this field.

2) Biodiversity and sustainable resource use

The loss in biodiversity and general land degradation processes in India constitute a major environmental problem. It is also a threat to people's, especially poor people's immediate livelihoods.

1) The legal framework suffers from a lack of provision of in particular local participation and lack of securing local people's rights both in the Wildlife Protection Act and the Forest Conservation Act. Gupta (1999) again stresses that it is not correct that the laws on biodiversity and sustainable resource use are well adapted and in place; there are deficiencies in the present laws creating non-optimal adaptations and slow policy implementation.

2) The institutional framework in most states includes a department of environment. These receive, however, very small allocations. According to Gupta (1999), the allocation for environment and ecology receive as little as 1-5% of total budgets for MoEF at state levels.

Many important functions, such as land use planning, biodiversity conservation, wildlife policies etc. are not placed under the Ministry of Environment but are found scattered in different ministries and departments. There is for example no directorate for Biodiversity or Environmental Protection Agency at present, although it is being considered under the new Biodiversity Act to be placed before notification in not too distant future.

Forest management in India has been under severe attacks for many years. The management system is riddled with corruption. But it is also a major problem with the lack of involvement by local people. The system lacks legitimacy. Attempts with Social Forestry and Joint Forest management have been tried out, but good models are yet to be found.

The Environmental Impact Assessment system is not functioning well. There are many delays in case handling and it is a considerable source of tension between environmental and other authorities.

The Rio plan has not been followed up. The same goes for plans to include annual resource depletion registration in the national accounting system. There is no provision at present for producing Annual State of the Environment Reports at central or state levels. Some states still produce such reports, but at quite irregular intervals.

Less than 405 of the parks and only 16% of the Wildlife Sanctuaries have at present been legally cleared according to GoI (2001). With India's scarcity of land and common land resources, there is a substantial pressure on encroachment in such areas and many conflicts arise.

Again, we may conclude that policies in many of the key areas on biodiversity and sustainable resource use are weak. In addition, there is a general lack of enforcement of the policies that are in place.

4.3.7 The Enforcement Gap problem

There are problems related to that the institutional, legal and economic frameworks are not altogether in place, and where they are and there are problems related to that the policies are not well implemented.

The Enforcement Gap refers to this problem of that the de facto operation of the system leaves much to desire; "The environment bureaucracy has been successful in creating a new awareness for environmental protection, and it has also met its goal of establishing various monitoring and implementing networks. However, it has so far been unable to translate these achievements into direct policy outcomes. The rate of deforestation has not been reduced; the level of pollution in the water has not been decreased; and the quality of air has not been improved in any significant way."

Khator (1991:104-129) discusses five major reasons for this lack of results that relate both to general issues of the operation of the Indian bureaucracy and also to particular problems related to the environmental system relative to more established political fields and actors in India.

i) Costs of enforcement

In politics, also in environmental politics, decisions are frequently taken at higher levels, often without consultations at lower levels of division and implementation. This creates low legitimacy and loyalty of decisions made and has implications for lower level officials' willingness to implement policies. The local bureaucrats and other actors that are to enforce decisions or standards thus meet the enforcement costs without being "responsible" for their formulation in the first place.

According to Khator, there is also so little devolution of powers that local officials formally cannot negotiate with local polluters and strike deals; they are accountable to the procedures given to them and not the results. The legal framework and some laws, especially on pollution control, is that they were formulated according to Khator in a "no-pressure" situation, "they relied on voluntary compliance, and established no time schedules or emission standards, and left no scope for litigation"… "The laws were non-specific and ample room was left for bureaucratic discretion". In real terms, the legal framework opened for misuse and pressures from actors not interested in complying with the intention of the legal framework.

There is also a problem of not wanting to follow decisions. Local bureaucrats often tend to join hands with local elites. A culture of corruption often leads to officials who want to follow the rules being transferred to remote areas. These officials find that their carriers will suffer if they enforce too strict policies onto important local actors.

These factors lead to inefficient, slow and low levels of enforcement.

ii) The costs of compliance

The regulator (local officials) is often not able to make the industry or even the public sector comply, neither by coercion nor through persuasion and dialogue. In the Indian scene, the industry has basically had a strategy of defiance. The industry does not trust the officials.

Secondly, the industry regards officials as vulnerable and that they can be bought off, which is easier and cheaper for the industry than complying. Thirdly, the style of Indian policy-making promotes back-door policies. Decisions are taken, not in public, but in other places.

The industry has thus played a passive role in policy formulation and in making commitments, but they are active when it comes to (avoiding) implementation. It is a cheaper solution. This also goes for paying fines rather than installing treatment facilities. Fourthly, environmental clearances in India are quite lengthy processes with several clearances and layers of processes, and if taken seriously, can cause substantial delays for the industry in question.

iii) Implementation within federal boundaries

India is featured by a dominant centre/weak state-federalism. The development has, according to Khator (1999:112), been a process of increased state responsibilities in most fields combined with decreased state ability leading to widespread enforcement gaps. The state authorities also have a widespread tendency to support their performance "through an emphasis on statistics rather than on real impact on society". The policy formulation in areas like water and forests are basically now on the federal state whereas the implementation and the provision of funds are on state hands. This situation has given a double-shield protection for the governments; central government blame state governments for failure to implement laws and regulations, whereas state governments blame central government for failures to provide funds.

There are also tensions related to the system for EIA approvals, where delays are often caused by central government. This leads over time to that problems are overseen at state levels so as to not create problems in the central approval process for state development projects. It is thus not one state in India, but there are at least two states collectives, at different levels of governance and with partly different motives and interests.

iv) Bureaucratic power and rivalry

The environmental segment being new, has lacked resources to compete with more established actors in finding their place in the bureaucratic and political pecking order. Such resources relate to information, to clientele and to legal support. Information is power, and not having access to precise sector data, for instance on the level of deterioration or degradation and costs of abatement at various levels, leaves the Ministry of Environment with less power. Concerning clientele, the environmental bureaucracy does not have strong organized groups or public segments to back their policies and their enemies or opponents are many, especially in an industrialized country like India. The legal support is low for the environmental field, especially in areas related to co-ordination between departments and ministries and to secure that co-ordination takes place whenever necessary from an environmental point of view. The MoE is not given any particular authority to co-ordinate but it rather depends on willingness- and ability - to co-operate from other segments.

v) The politicisation of the bureaucracy

There has been a tendency that donors and other lending agencies have preferred to deal with a rather stable bureaucracy rather than the shifting political regimes. Furthermore, the interaction between politicians and bureaucrats in India has also been strong. For example, previous bureaucratic appointments like members of SPCB increasingly now are previous politicians. This has over time led to an increased situation of the bureaucrats becoming the

"real politicians". The environmental bureaucracy is according to Khator (1999:121) "allowed to survive, but not permitted to regulate".

vi) Lack of long-term commitments
The Indian Administrative Service system, where basically all leaders of government and public bodies come from, are transferred on regular basis and with an average function time now of less than 6 months. This creates a particular problem for long term planning and management – something that the environmental field in particular needs. This must be seen as a major obstacle for sound, long run sustainable environmental policy making and implementation.

vii) Summary
There are thus several and quite complex reasons behind the lack of enforcement of policies. Some the reasons are particular to the environmental field, some are more general reasons related to the Indian society at large.

Khator states on the assessment of the bureaucracy, "the failure of the environmental bureaucracy is due less to the weakness of the bureaucracy itself, than it is due to the general policy context that exists in India; lack of rationality and neutrality in officials, absence of the public trust in the bureaucracy; presence of corruption and the acceptance of this corruption by the society, existence of the alliance between the elite and the ruling party; non-accountability of technicians; and finally, the domination of political patronage in policy processes".

4.3.8 Not all bad?
There are thus reasons to expect lack of clear goals, lack of approved instruments and a lack of willingness/ability to enforce decisions made. However, there are some elements that create pressures for improvements in the system.

- There is a general increased aggression, especially among young people against the corruption culture.

- The Supreme Court (and to some extent also the state high Courts) has over the last few years in India started a process of ordering the closing down of polluting industries. They have also hauled up civic bodies and officials of environment departments and the pollution control boards. One has referred to environmental degradation as a "violation of the right to life"- a fundamental right under the Constitution (Article 21). It will be interesting to see how the political and economic elites over time will respond to these challenges. Gupta (199:46) comments this in the following way "the judicial activism has been triggered by public interest litigation (PIL), which in turn may reflect frustration with the bureaucracy and lack of faith in it for managing the environment. While judicial activism adds another set of players in the making of environmental policy in India, it cannot be a long-term solution for effective environmental management".

- The media and the public are pushing forwards to promote particular environmental policy goals especially related to health hazards, to biodiversity conservation etc.

- It is also a fact that even if the environmental bureaucracy may be weak, it has still increased the level of environmental awareness in India at different levels and across sectors in

development projects and programmes. It is also so, according to Dr.Gautam (WWF, personal message) that MoE has more conflicts with external actors than they have internally.

4.3.9 Implication for Norwegian efforts

Reviewing external and internal assessments of the Indian environmental competence a picture is drawn where the environmental bureaucracy emerges out as inefficient, lacking appropriate powers, does not have custodian control over important issues such as land use planning and management and has a general problem of enforcing policies. It has the deep mistrust of people, especially in local settings and do not have either willingness or ability to work in participatory manners. The system of frequent transfer of most top-rank officials is also quite detrimental to long-term environmental management and planning.

If one identifies competence enhancement and institution- building as important areas for Norwegian efforts, the above-discussed issues must be thoroughly thought through and incorporated in a reflected plan for any institution-building effort.

It may seem as if an important problem lies not necessarily in the level of competence and potential capacities, but in real-world adaptation; in implementation and utilization of the system and the manpower in place.

Discussing competence building and institutional support; technical support and training in science related issues is of course one aspect of improved planning and management, but it may thus be as important to focus on implementation, monitoring and control competence and proficiency, and on creating systems for good governance and for increasing transparency and dialogue with the society and the general public at large.

Identifying institutions like the State Pollution Control Boards, the Ministries of Environment at State levels and the possible new State Biodiversity Boards, one could think of institutional co-operation with relevant Norwegian environments along the lines discussed above.

4.4 THE CIVIL SOCIETY AND THE ENVIRONMENT IN INDIA

4.4.1 Who sets the environmental agenda in India?

The severity of an environmental problem does influence if a problem is put on the public agenda or not. It does not determine this. Internal and external political processes and power games (e.g. actions of local people), the role of science and scientific communities and the role of the media are all elements that impact on if a problem becomes a topic on the national agenda. Any environmental problem also has to be brought to the attention of the public in some way by particular actors.

The links especially between environment and health hazards has over the last 10-15 years actively contributed to a rather active public environmental agenda in India. It is a quite striking difference between Norwegian and Indian debates in this respect. The Indian environmental discourse is much more anthropogenic and linked to health hazards and how environmental degradation threatens or undermines the environment as a basis for development. In the Norwegian debate, a substantial part of the legitimisation of environmental issues is linked to ideational issues like the intrinsic value of nature, conservation of biodiversity, animal rights etc.

i) The political and the bureaucratic system

It is said that no person has ever been elected based on environmental issues in India. As has been outlined before, the political and the bureaucratic system has not had a strong willingness to enforce policies. However, the establishment of a bureaucratic system and responsible bodies, although very new and quite weak in the Indian scene, did put some issues on the political and bureaucratic agenda. General awareness raising supported by MoE is widespread in India on areas such as waste management, air pollution, tree protection etc.

ii) External actors/donors

An element in the agenda creation is what Khator (1991: 5) calls "issue-diffusion" with both vertical and horizontal pressures. International agendas and processes, such as the Stockholm conference or the Biodiversity Convention, exert vertical pressures. Horizontal pressures may come from other nations such as donors driving particular issues. Such pressures depend less on national groups and national priorities and have a different life in the national system depending on to what extent they are internalised or not. We believe this is important in the Indian scene, as a long-run sustainable agenda here has to have or achieve local support quite fast. However, it would be of interest to look into how much of the international commitments that are really followed up.

iii) Grass root movements

In India, there are high levels of political awareness, even in a continent with widespread social inequality and mass poverty. The existence of caste and class conflicts most likely fuels or at least maintains high levels of mass action and demonstrations. The actions are often quite aggressive, vocal and politicised. The rural poor often express discontent through mass actions, and continue to do so, even if the efficacy of such actions can be discussed. The Narmada Dam development programme is an example, where local opposition has been strong and vocal, but the project was still, after almost 25-30 years of struggle, finally approved. Norsk Hydro's project in Orissa is another example.

iv) NGOs

National NGOs play an important role in the Indian agenda creation processes scene. They have proved difficult for the government to control. The NGOs have also become quite good at finding partners in local conflicts. There is an in-built tension in the Indian society between the elite that occupies key positions in the political and bureaucratic systems and on the other hand a rather recent trend of mass mobilization that threatens the stability of the old order.

In this context, NGOs play an important role for change and creating agendas. NGOs like CSE, CES, CEE etc. are quite clever in this respect. There are also local and semi-local NGOs that will help local people- for and for bad- in their struggle against "developers coming to take their land, their water, their forests etc." for the "greater common good" as Arundati Roy puts it (Roy, 1999). Most NGOs will of course not underestimate their own importance and one can sometimes question their abilities to actually influence on government decisions.

It is still not easy to assess the real impact of NGOs. They tend to stress their own importance, whereas government officials and others tend to state that the role of NGOs is strongly overrated. It seems fair to state that Indian NGOs are more important as agenda creators than as serious and effective advisors to the government. According to Professor Rao, who has worked with research on international negotiations, maybe as much as 80% of all decisions are taken by the public without NGOs being involved in any way.

v) The media
The media holds a rather autonomous role in the Indian society and does put environmental issues on the agenda to some extent. The main areas of focus for the media are, according to Khator (1990:170-175), related to large development projects where people are displaced or loose vital resources, it is pollution topics and deforestation related issues. Much of the issues constituted reporting on government activities and policies, and less was found to be on critical assessment of planned initiatives by government or other actors.

vi) Other actors
The Indian scene has also a special feature of old, often retired, IAS officers, senior citizens etc. that in a Gandhian or Brahminian tradition seek to do good for mankind in the evening of their day. They will often try to get funds for environmental projects and programmes and they will also be quite clever in placing items quite high on the environmental agenda. As such, in specific contexts, finding and developing such contacts can be an asset or an important input in building institutions, contacts etc. Professor V. Rao, JNU (personal message) states the example of the former environmental secretary, Rajmani, who works from Hyderabad on issues like Biodiversity, benefit sharing and sacred groves and Dr. Sharma who works from Chennai on issues related to climate change and ozone.

Labour unions do not seem to impact much on environmental issues and agendas in India. They are not present in the environmental debate- not even on health and work related issues.

The religious leaders and temple authorities are also quite invisible in the environmental scene in India.

4.4.2 What *is* the environmental agenda in India?
Pollution control and hazards related to air and water pollution on to human health is at focus. In addition come impacts of major development projects such as dams and mines where many people are displaced. Some emphasis is also on land degradation, both in terms of soil erosion and in terms of deforestation.

4.4.3 Summing up
The civil society and its various outlets is important, not only relative to media and creating political agendas but also more directly in terms of starting up initiatives and displaying pilot programmes in areas where government is not present or is not managing to deliver. It means that there are particular areas where inputs and supports to NGOs and the civil society at large in particular are important.

4.5 DONOR ACTIVITIES IN INDIA ON ENVIRONMENTAL ISSUES[2]

4.5.1 The main donors in India
The main Banks and donors involved in environmental activities in India comprise the following: WB, ADB, UNDP, UNIDO, ICEF (Indo-Canadian Environment Facility), IDRC, USAID/USAEP, DFID, SIDA; DANIDA, AUSAID, CIDA, EC (European Commission),

[2] *The World Bank commissioned CII in 1999 to make a report on the environmental programme supported by all multilateral and bilateral donors in India. A draft report was out in January 2000, and a final report was supposed to be ready shortly after. This report, which is not yet formally released, gives an overview of all programmes and projects by scale, topics and states in India.*

RNE (Royal Netherlands Embassy), EoF (Embassy of France) NORAD, SWISSAID, GTZ/KfW (German) and JBIC.

It would be too long to go into details on their activities. However, the CII-report gives a good overview of general issues and of the various programme supported all over India. There are also other reports; UNEP has a report on all donors in India, and DFID has made a report on water and environmental sanitation sector in India. We make a few brief general points and then mention some of the larger programmes found in the two states of Karnataka and Himachal Pradesh.

4.5.2 Main areas of support

The report clubbed together all types of assistance, including loans, soft loans, credits and grants. In the draft report overview, they estimate that there is around USD. 5688 mill. in "ongoing environmental programmes" in India in 1999 as a base year, but with two years before and three years to come as part of this.

Of this amount, the World Bank, including their loans, provides around 43% of the funds, JBIC 23%, DFID 11%, ADB 11%, USAID 4% and the others 8% (NORAD was not included in these statistics).

Looking at support by sector and donors we see the following:

Table 4.4 Distribution of External Support (loans and grants) by Current Environmental Projects, India 1999 (CII, 2000)

Donor/lender Sector	World Bank*	JBIC	DFID	ADB*	USAID	Others	Total
Urban/infrastructure	**618**	**456**	**48**	**356**	**0**	**101**	**1579 (28%)**
Industry and energy	**396**	**97**	**176**	**251**	**76**	**132**	**1128 (20%)**
Agriculture/nat. resources	**1458**	**753**	**269**	**0**	**0**	**174**	**2654 (46%)**
General-health/cap. building	**50**	**0**	**119**	**0**	**125**	**33**	**327 (6%)**
Total	**2522**	**1307**	**612**	**607**	**201**	**439**	**5688**
%	**43%**	**23%**	**11%**	**11%**	**4%**	**8%**	**100**

* Mostly loans- a bit unclear how CII has treated this in the presented statistics.

In urban infrastructure, many funds are allocated to water and sanitation projects. The "industry and energy support" is mainly within pollution control and on capacity building and on improving efficiency in energy use. Within natural resource management, support is mainly within eco-restoration, forest management, watershed management and biodiversity conservation. There are few projects within sustainable agriculture.

In Appendix 3, more detailed information is brought up for several of the donors. UNDP, who is in charge of the GEF programme supports and also for donor co-ordination holds an important role in the donor environment in India.

In the report on Norwegian support sent to CII, it was estimated that around USD 32 mill. in external assistance was spent over the last 6-7 years. The Norwegian portfolio is described in Chapter 5. Most funds are used for pollution control, solid waste and on natural resource management in terms of pilot projects and for institution building efforts.

4.5.3 Supports in Karnataka

In Karnataka, the main environmental donor supports is within afforestation initiatives and within urban development areas especially on water and sanitation programmes. There used to be a large SPCB institutional support programme from the World Bank, but this project was completed in 1999.

Table 4.5 Donor support to environmental programmes in Karnataka, 1999

Donor	Activity	Total sum
WB	Eco- development project also found in Karnataka. Protection of particular forest areas. 7 states	5.8 mill USD 28 mill. USD. New phase
RNE	Paper and Pulp Industry cleaner production	6 mill.USD
DFID	Karnataka Watershed Development project Western Ghats-Agr. and Natural Resource Capacity Building	24 mill. USD 38 mill. USD
Emb. France	Water treatment plant, Bangalore	8 mill. USD
GEF	Carbon Emission reduction through Biomass Energy for rural Karnataka, India India Eco-development project-conservation of biodiversity (WB)	0.2 mill. USD 20 mill. USD
ADB	Karnataka Urban infrastructure project Karnataka Coastal Environment Urban Development	150 mill. USD (loan) 200 mill. USD (loan)
JBIC	Bangalore Water Supply and Sewerage project Eastern Karnataka Afforestation Project; biodiversity, tree planting, wildlife conservation	281 mill. USD 158 mill. USD
UNDP	Medicine plant sub-programme	0.5 mill. USD
UNIDO	Electronic cleaning programme – Ozone. Several states	1.1 mill. USD

Source; CII 2000 (pv35)

4.5.4 Himachal Pradesh

There are few donors in HP and not much funds are allocated. DFID has not yet finally decided on whether or how much to continue in the forest programme, according to V. Sharma (App.3).

Table 4.6 Donor support to environmental programmes in Himachal Pradesh, 1999

Donor	Activity	Total sum
WB	Planning watershed management programme in hilly areas in North	Under planning
DFID	Himachal Pradesh Forest project	10 mill.USD new phase 16 mill. USD.
GEF	Small Hydel project in Hilly Areas, incl. HP	7.1 mill. USD
AUSAID	India/Australia Capacity Building project human resource dev. in several environment related fields Planned Urban and rural water and sanitation in Shimla Hamirpur	8 mill. USD under planning
UNDP	Medicine plant sub-programme	0.5 mill. USD

Source; CII 2000 pv35)

4.5.5 Summary comments on donor activities

Many donors' programmes are not state specific, but are rather general for India. These programmes are not included here. Karnataka receives much more foreign donor support than HP. Such state biases from donors are well known, and Indian authorities very often raise this issue in donor co-ordination meetings. The bias can be explained in different ways, including that the effect of funds and programmes tend to vary between the states, relative to how local authorities plan, manage and control the use of funds.

In general: Donor activities are scattered in many states and over many sectors, also within the environmental field. This does not facilitate or enhance co-ordination activities. It can be seen from the tables over state activities that there are not many areas with geographical and topic-wise overlap between NORAD and other donors.

4.6 SOME CROSSCUTTING THEMES ON THE ENVIRONMENT IN INDIA

We raise some issues of general concern in working with environmental issues in India, linked to poverty, to human rights, to corruption, to population growth and to gender issues.

4.6.1 The relationship between the environmental situation and poverty in India

50% of the people in the world below the poverty live in India and most of these live in rural areas. Much havoc was raised around the claims from the WCED (1987) where it was stated that poverty causes environmental degradation. "Poor people are behind environmental degradation". A more reasonable assertion is that in a downward spiral of poverty, environmental degradation both causes poverty and is caused by poverty. If poverty is causing environmental degradation or vice versa, is situation specific.

Environment, development and the greater common good? Arundati Roy discusses in her book that a particular water development project may be profitable from an economic point of view, but that some groups of people benefit while other loose substantially on the same project. This has to do with how the processes are run and the particular compensation processes at work. In India, this lack of compensation to poor people has been a common phenomenon, according to social scientists and activists in India (see fi. Roy, 1999, Dreze et al, 2000). However, given due focus, water development projects can also directly benefit poor people and help poor people restore the environment and the resource base upon which they subsist. In the case of the Sadguru project, the incomes for poor people have been 4 doubled due to improved water access (see Vedeld and Rao, 2001).

There are many reasons why environmental resource degradation and pollution of soils, water and air takes place. Some of this is related to poverty and actions of poor people, but obviously factors relating to increased market integration of local economies, population growth, changes in land tenure and resource access systems, increased industrialization etc. are all factors or processes that increases pressures on the natural environment, and where poor people may be the cause, the effect or even the victims of various development related activities. It is also important to stress the linkages between rich and poor people, rural and urban systems etc. "As Gandhi once said;" If you want to help the poor, you have to study the rich people".

From a development perspective, it should also be noted that some Indian academics (Dr. Swaminathan and others) have suggested that poverty alleviation and environmental mitigation measures could be combined by utilizing underemployed people in activities like re-vegetation etc., activities which would again benefit long term productivity of degraded areas.

One should thus not make too general statements about poverty and the environment, but keep an open mind for that poor people often tend to be losers in projects where use of natural resources and environmental degradation is involved.

4.6.2 The environment and human rights issues

Human rights can be defined relative to economic social and cultural rights on the one hand and to civil and political rights on the other hand. The first includes basic rights or freedoms such as freedom from torture and slavery, freedom of movement, equality before the law, freedom of speech and thought, freedom of expression and freedom to organize for individuals and for groups and the right to take part in the conduct of public affairs.

The latter includes rights such as the right to work, the right to form and join trade unions, the rights to social security, the right to proper health care and education and the right to take part in cultural life (see NORAD, 2001 12-13 Handbook in Human Rights Assessment NORAD 2001).

Relative to the environment, human rights are central in several ways. On the one hand, one can from a "consumer perspective" or from a citizen point of view; stress the right to clean air, to clean water, to undestroyed nature etc. that can be and in fact is, is in many constitutions now defined as a basic human right. This has been discussed in terms of the PIL-initiative. This will often be central in questions pertaining to pollution abatement issues. On the other hand, rights to control or access resources; the right to own, to use, to manage and to access has become an important integral part of many programmes dealing with natural resource use and with local people's right to resources and to secure a livelihood. This is central in any of the programmes relating to watershed management and afforestation programmes in India.

At a global level, rights also include the wider biodiversity and genetic property rights issues.

The right to "clean" nature and the right to access natural resources is an important part of much development and environment related efforts in India. The rights of resource access, of property rights etc. and efforts on how to sensitise and enable especially illiterate tribal people on such issues forms important aspects of programmes in the field of sustainable use of natural resources and biodiversity issues- not least in India. Research indicates that poor rural people derive a relatively speaking high share of their income from communal areas where the rights are often rather unclear. This is also a politically very sensitive issue, where Indian authorities in general do not want foreign advise or inputs.

4.6.3 The environment and population growth

There is no doubt that population growth has a substantial impact on increasing environmental pressures on the natural environment in India and that it in many cases leads to environmental degradation and reduced livelihoods for large groups of people, both in rural and urban settings and in particular among poor people.

The particular rapid urban growth creates specific problems, and the growth in India's mega-cities in particular is of great concern in this context. It is now estimated (Gupta, 1999) that around 430 million people will live in urban areas in 2011. This creates enormous challenges on issues such as sanitation, water supply, electricity, housing and transport.

It is interesting to note the lack of explicit discussions and policies in the field of population control and control over settlement patterns. This relates to the extremely unpopular and hash population control policies carried out by Sanjay Gandhi in the 70's that led to the Congress fall. It remains a major challenge for India, and it has strong bearings on particular environmental issues.

4.6.4 Environment and corruption in India

Corruption is related to unethical behaviour and may be defined according to the World Bank as "the abuse of public power for private benefit" or" corruption is any transaction between private and public sector actors through which collective goods are illegitimately converted into private-regarding payoffs". In a broader sense, corruption can take place in any system, regardless of if it is private sector, civil society or in the public sector.

In the environmental field, there are many possible areas where corruption may take place. At a practical level, environmental corruption may have the following forms (NORAD, 2000):

Bribery: involves the direct or indirect offer or provision of any undue payment, gift or other advantage to an official, in violation of his/her legal duties, in order to obtain or retain business or obtain any other undue favour. Bribery is at the centre of any definition of corruption. It always consists of (at least) two parties.

Embezzlement: is theft of public resources by public officials and as such it is understood as another form of misappropriation of public funds. It may involve only one person.

Fraud: is crime that involves some kind of trickery, swindle or deceit, and it is broader legal and popular term that covers both bribery and embezzlement.

Extortion: is when money or other resources are extracted from somebody by the use of coercion, violence, or other threats to use force.

Favouritism: is a mechanism of power abuse implying "privatisation" and highly biased distribution of common resources, no matter how these resources have accumulated in the first place.

Nepotism: is a form of favouritism, where an office holder with the right to make appointments, prefers to nominate to positions his proper kinsfolk and family members, irrespective of their qualifications.

Grand corruption: occurs when the amounts are substantial and high-level officials are involved in embezzlement of public funds and bribes or kickback from large-scale public procurement and industrial investments. Petty corruption takes place at the other end of the scale, when civil servants or low-level officials take advantage of their position to take bribes, extort money from the public or embezzle small amounts of money.

All these types of misuse can be found in environmentally related development work in India. Let us take the case of a solid waste management project.

Embezzlement of funds could for instance mean that officers make agreements with land owners giving land to the solid waste site, in order to get part of the money involved. It could imply that operators *bribe* officials to get discharge clearances. It would also involve that officials *favour* particular NGOs for jobs or projects. It could also be that one systematically employs family for jobs or consultancies etc. If the project is furthermore planned and placed in a middleclass environment favouring friends and colleagues of the persons in charge of the project- instead of poor people in the slum, one can also call this effect of a for some kind *nepotism* that leads to an augmented poverty gap (see NORAD, 2000: 9-11; on Good Governance).

India is defined as one of the most corrupt countries in the world (72 out of 99 or the 27th most corrupt country), unfortunately. It means that the development work in India, must have a special focus on such issues, when defining how to organize programmes and projects, how funds are transferred to stakeholders, and to proper monitoring and controlling mechanisms. This is obviously a major problem working in India and it was also brought up in our discussions with various people met while in field, both people within government and people working with donor and private organisations.

4.6.5 The environment and gender issues

In rural societies, a substantial part the of the resource managers at large are women and much of the effects of a deteriorating environment are inflict upon women and children in terms of polluted air and water, in terms of a degraded environment with scarcity of fuel wood, grazing for animals etc. It means that gender targeted approaches both on causes for degradation and on how to reduce effects of environmental deterioration is warranted.

Compared to many other issues given priority by Norwegian authorities, it is not difficult, nor uncommon to get government proposals on projects where women are primary stakeholders in India.

4.7 BIOGAS AND OTHER RENEWABLE ENERGY TECHNOLOGIES

4.7.1 Energy and the environment

Production and consumption of energy have environmental dimensions. Pure energy production cannot be said to be an environmental issue as such, but certain side effects of the production are. Such effects ranges from direct positive environmental effects if the new "clean energy" substitutes directly for less clean energy and given that the total energy consumption remains unaltered. Increased energy consumption will always have a direct negative environmental impact in that energy use increases global warming and it can also give local pollution effects. An indirect negative effect of production of energy can be such as displacement of people that has to move to new and often more ecologically vulnerable areas. Another negative effect is increased air pollution in the case of thermal energy production. This last point is important, as India has an extreme dependency on coal, with thermal pollution as well as problems of fly ash in air, land and waterways.

Energy production and consumption are thus important environmental issues, both locally and globally, even if certain aspects of energy production itself could be said to be outside the "environmental field". It would be difficult to call a large scale hydro power plant development project for an environmental project and use environmentally earmarked funds for instance, but developing an integrated water use plan for a state including hydro power development, may still be defined within such an effort.

4.7.2 Overview of the energy sector in India[3]

[3] *There are numerous reports, books and plans describing the renewable energy field in India. A very recent report is submitted by UNDP in collaboration with the Centre for Environmental Education "Renewable Energy and the Environment" CEE, Ahmedabad, 2000. pv 146).*

i) Background

The energy use in India is increasing at a fast rate. The increase is closely correlated to the growth in GDP. Looking at the total energy use in India, we find that around 1/3 comes from non-conventional energy sources, primarily wood-fuel, cow-dung, agricultural wastes and other lignite products.

The commercial energy use has increased from around 29% in 1954 till 66 % in 1999 of total energy use. India now has a total commercial energy supply of around 279 MTOE (million ton oil equivalents), of which 128 MTOE is from coal, 33 from crude oil, 24 from natural gas, 7 from hydro power, 3 from nuclear power and 85 MTOE is imported. The Indian economy is thus extremely coal-driven.

For India as a developing nation it is of vital concern to reduce dependency on external sources of energy and in particular on oil and petroleum products where prices and other aspects of accessibility tend to fluctuate over time. It is anticipated that India's energy use will be doubled by 2010.

The interest for developing alternatives has varied with the price of oil (UNDP, 2000, pv 146). With the international processes and with the UN Framework Convention on Climate Change-the interest in alternative energy sources has now again increased, also in India.

ii) Institutional structure

The energy supply responsibilities in India are placed under 4 different ministries; Ministry of Power, Ministry of Petroleum and Natural Gas, Ministry of Coal and Ministry of Non-Conventional Energy. This split was carried out around 20 years ago, allegedly due to problems of size of the joint ministry (Ramana, UNDP, personal message). He further states that problems of co-ordination and of really putting emphasis on renewable energy sources are hampered by lack of clear lines of responsibility.

The Ministry of Non-Conventional Energy is in charge of sources including wind, solar, hydro (unto 25MW), biomass, wastes and improved fuel stoves initiatives. India has a long-term goal of electrification for all citizens, but acknowledge in the Mid-term Appraisal (2001) that there is a role to play for non-conventional resources - especially for cooking and heating.

India is at present number 4 in the world concerning the commercial use of wind power.

iii) Policies

The Ministry of Non-Conventional Energy (MNES) was established in 1982. Their Development Agency (IREDA) was created in 1987 to secure project funding in order to carry out R&D activities. This includes generating demonstration programmes and supporting research on the development of alternative energy sources.

In the National Energy Plan, there is a special renewable energy effort. According to IREDA (2000) India is now implementing one of the world's largest programmes on renewable energy. It is a broad ranged initiative, where all energy sources mentioned below are included. According to the GoI (2001), the following situation can be outlined for non-conventional energy sources.

Table 4.7 Non-conventional energy sources- uses and potentials, India 1999

Source	Use 2000	Add. aim for next 2 years*	Estimated potential
Wind power (MW)	**1167**	**777**	**20 000 MW**
Small Hydro (MW)	**217**	**70**	**10 000 MW**
Biomass power(MW)	**222**	**80**	**17 000 MW**
Urban and industrial wastes (MW)	**15**	**37**	**1 000 MW**
Biogas Plants (mill numbers)	**2.9**	**0.5**	**12 mill.**
Improved chulhas (lakh numbers)	**38**	**80**	**120 mill. stove**
Solar energy	**43.5**		**20MW/s.km**
Ocean thermal power			**50 000 MW**
Sea wave power			**20 000 MW**
Tidal power			**10 000 MW**
Drought animal power			**30 000 MW**
Bimomass gasifier	**34**		**34 MW**
SUM	**1699**		

MNES: Annual Report 1999 (IREDA, 2000) * Mid-term evaluation of five year plan (2001)

At present (2001), around 1.5% of the total commercially installed power generation capacity in India comes from such energy sources. The potential seems to be high, especially in remote areas where it economically can compete with traditional sources that require elaborate grid systems (GoI, (2001, Mid-term evaluation).

IREDA has now sanctioned projects worth 800 mill. USD and disbursed loans for 300 mill. USD. (Garg, 2000 in IREDA 2000). Donors have also come forward to assist India in its efforts in this field (see Table 4.8)

Table 4. 8 Future donor supports to renewable energy programmes in India

Donor	Amounts received	Pipeline
Government of Netherlands	18 mill.NLG	
Asian Development Bank	100 mill.USD.	
World Bank (1 line credit)	145 mill.USD.	
DANIDA	15 mill.USD.	
World Bank (2 line credit)	130 mill.USD.	
GEF grant	5 mill.USD.	
GTZ Germany	120 mill. DM.	
OECF/JBIC Japan		85 mill.USD
Bank of America		100 mill.USD.

Source: IREDA 2000

One hopes to achieve a goal of some 8% to come from renewable energy resources of the total installed power generation capacity by 2015 (UNDP, 2000), which may be somewhat optimistic, given the trend up to now.

4.7.3 Research and development institutions

Research and development activities in the field of renewable energy are found in many institutions in India; in government agencies, in universities at national and state level and in various independent research environments and also in NGOs of various types. These work on topics from basic research, developing technology over to promotion and awareness raising issues.

During our brief visit, we were unfortunately not able to meet IREDA or MNES that hold key positions in the field.

We did visit TERI in Delhi and Centre for ASTRA, CAOS in Bangalore (see Appendix 3 for minutes).

Other relevant institutions include the National Solar Energy Centre, the National Centre for Wind Energy, the Sardar Swaran Singh National Institute of Renewable Energy. There are also several Biogas Training and Extension Centres.

There are also interesting university environments such as the Indian Institute of Science and the Indian Institute of Technology in various states and also several engineering colleges that hold high competence in particular fields of renewable energy.

4.7.4 Assessment of the sector

From an environmental point of view, the energy situation in India with a strong increase in fossil fuels and also increases in use of fuel wood and increased large scale hydropower development poses heavy threats to India's natural environment and indeed also the global environment. The development does not move in the "right direction". The anticipated extreme increase in use of fossil energy sources is problematic, both nationally and globally.

There are initiatives on the way in the renewable energy field and as the World Bank states in a report from 1996; the technology is proven and there are substantial scopes for reduced costs. However, a major problem is how to disseminate and make people and industry use the technology. As can be seen, the technology has not yet taken off in India, despite substantial efforts. There are, however, some good exemptions from this general statement;

- the biogas programme, second largest in the world, with more than 2.7 mill. family gas plants and with some 90% in operation
- within wind power there are now installed 1000MW plants with some 10-20% reported capacity utilization
- there are more than 28 mill. improved stoves disseminated and installed.

This gives hope for the future. Again, the problems with the enforcement gap created by lack of good institutions and good governance has up to inhibited renewable energy sources from really becoming a mainstream energy source in India.

India does have some good environments on research and development activities and Norwegian co-operation is already in place with TERI (CICERO).

4.8 MAIN SUMMARY POINTS AND KEY BEARINGS

India's major environmental problems are related to water and air pollution, to deforestation and land degradation, to loss of biodiversity and to various types of threats to cultural heritage. The development is negative in the sense that most environmental challenges are on the increase and there are not so many indications of that the key challenges will come under control in the foreseeable future.

The public environmental system has substantial room for improvements concerning policymaking, planning and management issues as raised in this chapter.

Training, enhanced competence in institution building, in planning and management and improving implementation and monitoring/controlling outcomes of efforts are key areas in this respect. There are also areas related to land use planning and to town and country planning with an explicit dimension on environment and public participation. Enhancing the Indian capacity on environmental education relative to these areas is also something to consider.

Important bottlenecks in the Indian scene area of bio energy based on our interviews, it seems that improved institutional performance could be a relevant focus area for support from Norway. Bio energy technology is also an area where Norwegian environment can benefit directly from co-operative measures.

In the next chapter, the present portfolio in India is discussed and assessed.

5. ENVIRONMENT AND DEVELOPMENT CO-OPERATION WITH INDIA

The chapter gives a brief historical overview of Norwegian development co-operation to India before present environmental support is presented. This includes state-to-state programmes, the NGO support, other bilateral efforts and some regional efforts. The general development policies have been presented in chapter 3.

5.1 GENERAL OVERVIEW

The Norwegian development assistance to India started in 1952 with technical and financial support to a fishery sector development programme in Kerala. This programme lasted for more than 20 years. It was the first Norwegian bilateral aid programme. In the 1970'ies, new types of supports where started in the health sector and through the direct chemical fertilizer support schemes. In the 1980'ies a diversification was seen, with support to health, women and to paper and pulp activities (Hansen, 1987: 57). In 1983, a MoU was signed with India on environmental issues, but this remained dormant until the start of the 1990'ies, when the first round of environmental programmes were embarked upon.

The scale of Norwegian development assistance to India has always been quite marginal compared to India's own economy. This has had bearings on Norwegian development assistance to India in that significant Norwegian direct investments have been out of the question. The development co-operation has thus focused more on pilot and demonstration activities to be assessed and possibly be adopted by public and private actors.

After 1995, India was no longer among Norway's main country programme partners. The co-operation has nevertheless continued albeit on a reduced scale. Priority sectors for Norwegian assistance to India, revised in 1996, were environment, basic education and efforts to eradicate of child labour, assistance to women and cultural co-operation. With India's nuclear missile tests in 1998, Norway followed suit with other donors and reduced the development assistance. Research and commercial sector co-operation was put under suspension as was more high-tech environmental programmes. Still, rather close political contact and cultural co-operation was maintained in this period.

Norwegian development funds have been channelled through the public sector, but also increasingly NGOs, private institutions and companies and various other organizations have received funds and attention and become operational channels for development assistance activities. At present around 50% of the funds goes through public channels.

The collaboration has over the last 2-3 years increasingly been geographically concentrated to the states of Himachal Pradesh and Karnataka.

Funds are now allocated for women's social and economic development, for the eradication of child labour and for programmes promoting a wiser use of natural resources and for the reduction of air and water polluting activities. Less emphasis has in later years been put on productive and commercial sector programmes and on direct health related programmes.

Table 5.1. Development assistance from Norway to India (1991-2000)

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Amount	137.8	123.5	97.4	88.2	52.0	86.5	97.7	83.4	79.1	70.7

(in NOK mill.; 1 USD^ 7.75 NOK)

From 1994 to 2000, Norwegian bilateral aid to India decreased from NOK 88,2 mill to NOK 70.7 mill. in nominal terms. The expenditures for 2000 were around NOK 70.7 mill. (NORAD, 2000).

In 2001, the measures taken as a result of the nuclear testing were lifted, and MoFA has recently approved a new strategy. This strategy has been presented in section 3.3.2 and is also enclosed in Appendix 4. A more detailed set of guidelines is presently being prepared for the Embassy.

5.2 BACKGROUND FOR THE ENVIRONMENTAL PROGRAMMES IN INDIA

India and Norway signed a general Memorandum of Understanding (MOU) in 1983 for an Indo-Norwegian Co-operation in the environmental field. NORAD has, after this, over the last 10 years supported a number of programmes and projects within the environmental field in India in different states.

These initiatives have both been part of agreements with the government and partly linked to direct NGO- support of various kinds. Over the last years, co-operation has, in line with policy guidelines, been directed towards four states: Karnataka, Orissa, Himachal Pradesh and Rajasthan. One was, never, however, able to launch a state-to-state co-operation with Rajasthan.

The areas of environmental co-operation have mainly been within urban environmental challenges such as initiatives to reduce air and water pollution, and in a rural context; to promote sustainable natural resource use. Less focus has been on biodiversity and conservation issues and on cultural heritage.

Projects have both been linked to government programmes, but have also been given as supports to different NGO's. The Embassy has followed a policy in India to support initiatives that has good pilot and demonstration properties and that can be sustained and replicated by other actors in new places.

In Appendix 5 most of the programmes are described in detail. Below are given elements of the main programmes, some of the main results achievements and assessments made in reviews.

5.3 IND 049 ORISSA ENVIRONMENT PROGRAMME

5.3.1 Description of main areas

Orissa was selected as one of the States for Indo-Norwegian cooperation and an agreement was signed 16.4.92. The programme was started in competition with Rajasthan and Madhya Pradesh. A Steering Committee was formed consisting of representatives from the Department of Forests and Environment, Orissa State Pollution Control Board, Orissa State

Planning Board and NORAD. The Department of Forest and Environment instituted an independent Orissa Environment Programme (OEP) Secretariat to launch and coordinate the programme. The OEP commenced in August 1992 with a planned time-horizon of five years. Due to delays in start-up and afterwards, the OEP was extended up to June 2000.

The overall development goal of the Programme was "to reduce environmental deterioration and improve the quality of the environment in order to support an ecologically sustainable, socially acceptable and economically sound development in Orissa". The Programme aimed at strengthening authorities responsible for enforcing environmental legislation and regulations in the State.

A Strategy Document prepared by a team of consultants for the Royal Norwegian Embassy/ NORAD-Delhi, identified the following potential projects (6):

- Strengthening of the Orissa State Pollution Control Board (OSPCB)
- Establishment of a Centre for Environmental studies (CES)
- Environmental assessment of Angul-Talcher area in terms of implementing an environmental management plan with special emphasis on industrial effluents, emissions and waste.
- A waste management plan for Angul-Talcher area
- Survey of chromate pollution from mines and industries in Orissa; Demonstration of management techniques in one mine and one industrial plant
- Demonstration of fly ash utilization

Most of the projects under the OEP were conceived on the basis of the above. The following institutions became involved in the Programme: OSPCB, OREDA, Department of Public Health Engineering, Department of Forestry and Environment, NALCO (National Aluminium Corporation), Department of Urban and Local Bodies, District Action Group (DAG)-NGO Samajik Seva Sedan, Puri Municipal Council.

Norway's contribution to the OEP was up to NOK 40 million (approx. INR 18 crores), of which NOK 28.895 million had been released. The balance remained unutilised and the Programme was concluded 30 June 2000.

A Solid Waste Management Project in Puri Town was also launched and the solid waste management plant for aerobic composting of municipal garbage is now in full operation.

Two reviews have been conducted of the programme (1995 and 1998). OEP has prepared a detailed completion report on its activities. A final completion review was carried out in 2000 (Shanmugaratnam et al, 2000).

5.3.2 Main assessments and lessons learnt

The completion review points at some key issues on the positive side;

- The programmed had important impacts on the general public environmental awareness in Orissa
- It helped build capacities in some critical institutions
- The Orissa State Pollution Control Board had a major improved performance of which much may be attributed to the IND 049 efforts both in terms of professional competence, capacity, increased interactions with industry etc.

- The Fly-Ash brick component became a success over time
- The District Awareness Groups worked well to inform and make local people and tribals aware of their rights relative to massive pollution of their air and water resources.

However;

- The general performance was not up to standards with only 13 out of 27 project components finalized at time of closure
- The secretariat did not perform well
- There was a general lack of follow-up and ability to learn from shortcomings
- There was a general lack of ability to take on pilot and demonstration qualities of the programmes further to relevant institutions and actors
- Too much disparity and lack of coherence between the numerous pilot and demonstration activities and lack of links to relevant public bodies
- There was a project approach rather than a programme approach
- A weak secretariat and a substantial problem of frequent changes of chairmen (9 in five years) for the programme gave a lack of continuity
- Substantial problems of funds not being transferred on time

Lessons learned:

- The programme should reflect the key social, economic and ecological priorities of the State
- The programme should involve all major stakeholders in this respect; government, farmers, NGOs civil society and industries
- Careful selection of the secretariat leaders in terms of managerial and scientific competence; especially concerning planning, implementation and monitoring areas
- Use the programme to develop State of the Environment Reports and Environmental Action Plans

5.4 IND 056 HIMACHAL PRADESH ENVIRONMENTAL PROGRAMME

5.4.1 Description of main areas

The governments of Norway and India entered into an agreement on 13. 12. 1994 to co-operate in the Environment Programme of the State of Himachal Pradesh. The Programme (IND 056) commenced in late 1994 and had a timeframe of five years. It had an overall budget of Rupees 28 crore (approximately NOK 70 mill.) to which the government of HP contributed 22 crore. NORAD contributed the balance, equivalent to NOK 12 million.

The State Planning Department (SPD) of Himachal Pradesh was designated as the Implementing Institution (nodal agency). The development goal of the Programme was to contribute to 'improved management of natural resources in Himachal Pradesh'. The purpose was two-fold:

- Increase the capacity of the environmental institutions within the State for identifying and accessing cleaner technology, for raising environmental awareness and for implementing policies leading to improved environmental management and

- Enable governmental agencies, non-governmental organizations / institutions, private and public enterprises in H.P. to take appropriate environmental actions which will contribute towards realization of development goals of the programme

The outputs of the programme were expected to have an established environmental policy, strategy and an action plan in H.P. and to have accomplished transfer of skills and know-how. The following departments were integrated into the programme formulation, institutional strengthening and implementation of the programme:

H. P. State Pollution Control Board on pollution monitoring and control
Department of Industries and Mining on rehabilitation of mined areas
Department of Transport and Himachal Road Transport Corporation on establishment of traffic pollution control and improvement,
State Council of Science, Technology and Environment on working out an Environmental Status report, on with awareness campaigns on SWM and on policy formulation issues
Department of Forestry; on tree planting and erosion control measures
Department of Urban Local Bodies, on solid waste management issues

A mid-term review was conducted in 1997, and a completion review was carried out in 2000.

5.4.2 Main assessments and lessons learnt

- The programme had important impacts on the general public environmental awareness in HP.
- The GoHP took initiative to address the main environmental challenges in HP from a multi-sectoral point of view
- The GoHP raised 80% of the funds themselves.
- The programme opened and allowed for a meeting ground between different state departments and also for meeting arenas between the State and the public at large
- The programme started a political process to formulate environmental policies in HP

However

- The general performance was not up to standard
- The secretariat did not perform well
- There was a general lack of follow-up and ability to learn from shortcomings
- There is a lack of ability to learn from experiences and a lack of good institution-building capabilities

The team recommended, among others:

- Establish a strong Environmental Planning Unit at the State level in a department which has formal links and established channels of communication with all line departments
- Entrust the EPU with future co-ordination of the State of the Environment Report, Environmental Action Plans, Environmental education/ awareness creation activities, monitoring and internal evaluation of IND 063 and the proposed IND 056 Phase II.
- Further strengthening of the State's capacity to deal with air, water and soil pollution.
- Capacity building for SWM at local levels in urban areas.
- Planned development of hill towns
- Measures to counter land degradation.

- Community participation in environmental project planning, implementation and post-project maintenance.
- Competence building of middle and field level personnel and NGOs in environmental management.
- A Phase II of 056 should be seen in conjunction with the ongoing 063.

5.5 IND 063 INDO-NORWAY ENVIRONMENTAL PROGRAMME

Norway and India entered into an Agreement in 13.12.1997 concerning the new Indo-Norwegian Environment Programme. The development objective of INEP was to support and supplement India's development efforts in the environment sector in their 9th Five-Year Plan (1997 - 2002). The Programme commenced in late 1997 and is to be completed by 2002. The programme has a financial scope of NOK 60 mill over a five-year period, with a tentative distribution of NOK 36 mill as a technical grant to Karnataka and NOK 24 mill. as a loan to Himachal Pradesh (80-20). The programme also opens for a latter inclusion of Rajastahn and Orissa, if so desired.

The development goals of the programme are to contribute to sustainable management and utilization of natural resources and to combat and reduce air, water and soil pollution.

The purpose of the programme is to enhance technical and management knowledge including institutional capacity within the environment field, and to develop and promote technically as well as financially sound and sustainable solutions.

The outputs would come in terms of detailed projects and programmes developed by State Governments. The projects are expected to be pilot and demonstration projects developed to display solutions to particular environmental problems. The projects should relate to achieving improved management of natural resources, reduced air, reduced air, water and soil pollution, workable models of solid waste management and improved institutional capacity through increased co-operation between Norway and India in the environment sector and transfer of know how wherever relevant. A Secretariat for the programme has been established in each State to play the following roles:

- Preparation of documents for discussion at the Semi-Annual Meetings, in cooperation with both the project and potential project holders
- Identification of possible projects under the Programme and to undertake appraisals wherever necessary
- Entering into agreements with project holders on projects approved at the Semi-Annual meeting and monitoring and reporting on the ongoing activities under the programme.

5.5.1 Karnataka

i) Description

The secretariat is placed under the Ministry of Environment and Forest, Dept. of Environment, with the Development Commissioner as the Chairman of the programme. There are the following ongoing projects:

- Integrated Ecological Environmental Development project for Mysore Urban – Chamundi Hills

- Integrated Urban Environment Improvement project, BDA, Bangalore (Solid waste)
- Integrated Development of Lakes of Bangalore – Madivala & Hebbal
- Pilikula Nisarga Dhama-Arboretum Project, Mangalore
- Demonstration of small hydro power projects in hilly areas of Karnataka
- Establishment of Fly Ash Utilisation Demonstration centre at Raichur
- Iron ore waste tailings utilization project, Mangalore
- Bioreactors for clean coffee effluents project
- Health care, waste management and education programme in Gulbarga
- There are some small R&D projects directly under the secretariat.

In addition, there are plans to start an Environmental Status Report and Action Plan for Karnataka.

ii) Review assessment:
The programme was through a mid-term review in 2000. The review is in general very positive to the programme in Karnataka and that important areas and topics are raised in the various pilot and demonstration activities and that they are basically well executed as projects. Some projects are lagging behind in performance such as the Fly Ash and the Iron Tile project. Some main recommendations are given:

- Look into and improve on factors causing delays such as availing land for projects, routing proposals through the public system in spedient ways etc.
- One should recruit a technical competent environmental engineer (this has been done)
- Improve exchange of staff and experience with the programme in HP
- Improve institutional anchoring where necessary (for example in the Lakes project-promote a Lake Dev. Wing in FD, or BDA and various activities, the Pico hydel and its relevant government institution)
- Involve more research and development environments in the different projects to get a better dissemination of knowledge and experiences and a better documentation
- In general, go through all projects and promote increased participation efforts
- Develop better models for pilot and demonstration properties of the projects

iii) Summary: The secretariat has a good hand with the projects. A main problem is to develop it closer into a coherent programme and where the different components are carefully selected in order to create a good general institution building effort for the environmental segment in Karnataka at large. This will be discussed more in chapter 8.

5.5.2 Himachal Pradesh
i) Description
The secretariat is placed under the Ministry of Finance, Department of Planning. The Chief Secretary of Finance is the Chairman of the programme. There are the following ongoing projects:

- In Himachal Pradesh, the following activities are ongoing;
- Shimla Integrated Solid Waste Management Project
- Kullu-Manali Integrated Solid Waste Management project
- Environmental Planning and Competence Building Project
- An environmental NGO-component
- Mahila Mandhal Project

This programme must be seen in connection with IND 056 that started the Norwegian work in the environmental field in HP. Under IND 056 one also developed an Environmental Status Report and an Environmental Action Plan. They have both passed the Cabinet and a possible follow-up of these in terms of sector plans support could be considered for a possible future support.

ii) Review assessment
The programme was through a mid-term review in 2000. The review raises problems relating to a weak programme secretariat in HP. The review comments on the present activities as being relevant for the overall situation in HP, especially the Solid waste programmes. However, most of the projects are lagging behind in performance and much of the problem seems to be linked to the secretariat. Problems with corruption among stakeholders are also mentioned in the case of Shimla Solid Waste Management.

Some main recommendations are given:

- Look into and improve on factors causing delays such as availing land for projects, routing proposals through the public system in expedient ways etc.
- The secretariat needs to have its roles and responsibilities clarified and controlled; concerning project planning, initiation and monitoring/control. Systems for this must be put in place.
- The CEO- head of the secretariat needs more formal power- preferably at the level of departmental heads.
- The secretariat should be given a more formal position, such as like an Environmental Planning Unit, in order to function as a Ministry of Environment.
- One should recruit a technical competent environmental engineer and in general fill up vacancies in the secretariat and at the same time set clearer demands for improved performance
- Improve exchange of staff and experience with the programme in Karnataka
- Improve institutional anchoring in the projects and training and competence building efforts
- There is a lack of local participation efforts in most of the programmes
- There are several suggestions for improving the project bookkeeping system.
- One should develop better models for pilot and demonstration properties of the projects

iii) Concluding remarks
The secretariat in HP is obviously a weak spot in the programmes. A main problem is to develop the projects into a more coherent programme and where the different components are carefully selected in order to create a good general institution building effort for the environmental segment in HP at large as could partly be seen in IND 056. This will be discussed more in chapter 8.

5.5.3 Overall programme experiences
There are some points made by the review team on scopes for improvement:

i) Improve the secretariat in HP
There is, according to the MTR, a strong need for improved performance and for thinking through its present institutional situation.

i) Institution- building

Some few, 2-3 key institutions should be identified and particular in-house training programmes considered. Pilot and demonstration activities should emanate from the institution building efforts.

ii) The overall planning model as a programme approach

Last phase was featured by a lack of clear focus and that one supported, partly along the way, scattered projects in many areas. In a new phase, one should consider to have more projects and plans in place before the programme is started than was the case for Phase I.

iii) Pilot and demonstration activities

This issue is raised separately and in more detail in 6.8. It can just be stated here that considerable more time and effort should be put into projects so that they are truly good pilot projects and that they are demonstrated for relevant actors in good ways.

5.6 OTHER GOVERNMENT PROGRAMMES

The Embassy has supported several other projects and programmes within environmental related fields over the last years. Most of them are about to be completed or have just been so. These are mostly environmental integrated projects. They are briefly described below.

5.6.1 IND 034 Trout farming in Himachal Pradesh

Indian authorities raised the question for support to a pilot project for commercial trout farming in Himachal Pradesh at the Country Programme negotiations in 1984. It was started in 1985. Around 1.5 mill. USD has been spent up to now.

The main idea was to see if this kind technology could be a viable source of livelihood among farmers in HP. It can be interpreted as a "sustainable use of natural resources" project and as such be seen as part of the environmental programme portfolio in India. It is planned to be phased out soon and a completion review in 1999 suggested the same. There have been problems with that the fodder used is quite expensive and that the technology requires the use of non-local items. The products became so expensive that only the upper markets in Delhi and other mega cities can offer cost recovering prices. The investment costs of establishing such a fish farm are high, running costs are high and the products are not relevant for poor target groups. As pointed out by FAG and by the Embassy, the project thus lacks a poverty orientation.

5.6.2 IND 040 Institutional co-operation

This programme is now approaching its third phase. The main focus is to create and develop technical and administrative capacity in private and public sectors in India, through supporting co-operation between Norwegian and Indian partners in commercial sectors, in research areas and in the environmental field.

The programme was reviewed in 1999, and after the measures were lifted in 2000, a new phase is being planned, with emphasis on identifying co-operative partners on R&D activities also in environmental fields. IND 040 thus constitutes an important instrument in both bilateral work and in generating co-operation activities between important Norwegian and Indian institutions in the environmental field. This relates to government bodies, research institutions and NGOs.

5.6.3 IND 054 The Utility Mapping Programme

The main purpose of this NOK 2.7 mill. programme is the transfer of technology and to make NIC (National Information Centre) capable of conducting its own utility mapping efforts in the future. This co-operation is meant to provide India with an adequate base for a utility mapping system for planning and maintenance of public and private infrastructure development for the major cities in India. A big pilot scheme has been tested in Delhi. The mapping is primarily for municipalities; on mapping of sewerage, electricity, phone lines etc. The technology can of course also be used in planning and monitoring in general and on solid waste management programmes, waste water treatment etc. There is also an extension component so that the results and the programmes developed can be taken out to a wider audience in India.

The project is supposed to be completed by now and a completion review was carried out in 1999. However, due to various problems, especially related to that Norwegian computer companies did not deliver their goods, set-backs have been encountered several times. The NIC has done, under the circumstances, a reasonable good job on carrying out the project.

5.6.4 IND 060 National Data Buoy Programme

The goal of this project was to obtain meteorological, oceanographical and environmental information to facilitate India's utilization of marine and coastal resources, improve long term weather forecasting and monitoring of the marine environment and to facilitate the development of environmental impact assessment of coastal and offshore waters.

The system has also intended to strengthen India's participation in the GOOS (Global Ocean Observing System) being established by Inter-Governmental Oceanographic Commission of UNESCO in accordance with the directions of the UN Conference on Environment and Development.

The programme should also lead to improved weather forecasts resulting in improved agriculture. It should also lead to better cyclone warnings resulting in less damage to people and property. It would also improve data access on environmental parameters. The data could also improve the design of ports and other shore structures resulting in reduced costs and improved safety also for offshore platforms. The data was also meant to help the identification of fishing zones.

The project was reviewed for a completion report in 2000. The report stated that the Data Buoy programme with NIOT and DOD has done a very good job in promoting and running the programme. The report was very positive to the project, which was said to have helped Indian authorities start up this new kind of technology.

In fact, FAG and the Embassy were to some extent more concerned about certain elements of the project than the review team. Their comments pointed at factors such as the lack of public access to the information, the lack of collection of “the real environmental data relative to pollution”, the high costs and high risk of buoy failures and losses, and a major question of to what extent this high technology project could be called an “environmental programme” that would justify the use of a substantial portion of the earmarked environmental grant. The poverty orientation in the present programme was also discussed and how to link the data assembled to an on-the-ground early warning system that would include also the millions of poor people and refugees often found along the shores of Orissa and West Bengal.

NIOT and DOD have suggested a follow-up programme in a regional project. This has been shelved for the time being by the Embassy, basically for a lack of funds available, and also due to some of the comments made above. If the points made on poverty, on collection environmental data, on early warning and the cost problems could be incorporated in a new phase, one could consider a regional version of a programme given that funds were available.

Summary: At present it does not seem likely that other programmes than the IND 063 will be continued as "environment specific programmes" in India except IND 040 the Institutional Co-operation is also planned with some environmental components. IND 060, the regional Data Buoy programme needs substantial investment capital and the present proposal has several weak points. It may seem warranted for the Embassy to leave this programme for the time being. However, if support should be flagged in the future, for some reasons, it is important that the programme is given a better environmental profile and a more explicit poverty orientation through a much more elaborate early warning system approach.

5.7 NON- GOVERNMENT SUPPORTS IN INDIA

5.7.1 Embassy support to local NGOs

There is a substantial NGO- portfolio in the environmental field. The supports are both direct local support from the Embassy as well as support directed from Norwegian NGOs to local Indian NGOs. In the position paper from the Embassy on NGO supports in India (see Vedeld, 2001) the portfolios are described and suggestions are made for future supports. The present supports are outlined in Appendix 6. The present level of support for environmental NGOs is around NOK 10 mill. /year.

The NGOs work within sustainable production, air and water pollution combating, genetic bio-diversity and within cultural heritage. The supports are mostly practical development work related, networking and some work with advocacy and also with training and awareness raising activities. It has been less NGO activity within environmental planning and management, biodiversity and on classical conservation issues.

Co-operation with NGOs has the form of direct, untied grants to the organizations, with project periods running from one to five years, and with formal systems for appraisal, monitoring and evaluation.

The individual NGOs are reviewed at regular intervals. In 2000, Kruse et al went through the NGO portfolio and produced a report giving comments and recommendations. Based on this, the Embassy developed a draft strategy, a "position paper" on direct support to local NGOs (see Vedeld, 2001). The strategy take sup and gives recommendations on what type of NGOs to support, in what fields, in what states etc. (see also Appendix 6).

5.7.2 Support from Norwegian NGOs to Indian NGOs

i) Background

In the overall objectives for Norwegian development assistance, Norwegian NGOs play a substantial role. They benefit from a strong political support in Norway, and have, in many ways, a rather autonomous position also relative to NORAD. The direct Embassy funding of local NGOs is a more recent phenomenon.

The Norwegian Santal Mission has worked in India for the last hundred years; Norwegian Church Aid has provided assistance to LWF projects in and around Calcutta for more than two decades**.** Sixteen Norwegian NGOs are at present supporting 42 projects in India. They are not present with field staff, but work through a broad variety of Indian partner organizations. The amount of funds channelled through Norwegian NGOs is larger (approx. 17 mill) than the NGO Grant administered by the Embassy (10 mill in 1998). Their activities are within missionary work, relief and rehabilitation, environment, AIDS, women in development, child labour, education and training. Many of the supports are thus overlapping with the Embassy activities.

Five organizations (Norwegian Christian mission organizations, Norwegian Church Aid, FORUT, Redd Barna and SOS Barnebyer) accounted for more than 60% and a broad spectre of relatively small contributions through Norwegian interest-organizations the rest. Unfortunately, the Embassy knows little about the work that NGOs are carrying out in India.

With the past political signals, there has not been any opening for extending co-operation with the Norwegian NGOs and their Indian counterparts. The Embassy gives priority to its own bilateral NGO collaboration and there is marginal interaction and sharing of information between Norwegian NGOs and the Embassy.

ii) **Assessment**

The situation has not been satisfactory. The Embassy has expressed concern with the lack of communication with Norwegian NGOs. The Embassy has been informed about the NGO supports basically through a list from NORAD, Oslo with names of organizations, projects and annual budget figures. There has been, up to recently, a clear policy from NORAD, Oslo, that the Embassy should "keep their hands off" the Norwegian NGOs.

It is now opened up for a discussion on how to develop new mechanisms for communication and co-operation between these two channels. Efforts from the Embassy interpreted by Norwegian NGOs as instructions, inspection and control, will most likely not be well received. A point of departure could rather be joint challenges, requiring collaboration and synergies of work.

New mechanisms for sharing of information and new fora for meetings and consultations could be a first step. When the Embassy and Norwegian NGOs share similar thematic priorities, closer co-operation could be encouraged. Redd Barna would have an important role to play in the field of child labour since they already provide support to relevant organizations in India. Strømme Memorial Foundation is also supporting NGOs in Orissa- one of the previous priority states for the Embassy. In the environmental field, NGOs like the FIVH, FORUT, FOKUS, Pastor Strømme, could be relevant to establish more lasting links.

The nature of such ventures could take different forms. The Embassy could;

- Assist Norwegian NGOs in identifying relevant partners

- Assist in project planning and management
- Serve as a forum or mediator for interaction between Norwegian sponsored NGOs in India
- Use Norwegian NGO efforts inside own programmes.

5.8 PILOT AND DEMONSTRATION ACTIVITIES

In most development co-operation from the various donors in India, the concept of pilot and demonstration activities is central. As the Indian economy is so large, most activities are and have to be to be financed by Indian sources. It means that donors can contribute with new ideas and approaches but that these must be taken on by Indian bodies or institutions.

In the Norwegian portfolio there has been a number of projects with what is called **pilot character** or properties. It means that the environmental efforts undertaken should be new and innovative relative to present planning, management and evaluation activities. It means that special care has or should have been taken in finding activities and designing these in way that are novel, and that hopefully can function as exemplary ways to handle particular environmental issues in question for the future. The pilot character can mean a universal new idea or taking a given idea into new geographical areas. In the case for India, most "novel ideas" have already been tried out, so the collaborating partner' job would be to find out experiences from previous trials and mitigate for problematic issues in the new pilot schemes.

Such projects should therefore also have good demonstration **effects** for other actors. As Norwegian assistance is limited in India relative to other actors, a point has been made that the projects are pilot and demonstration projects, and that other donors, governments or NGO's have to carry out the pilot projects on larger scales or in full.

There are, however, some typical bottlenecks for lack of replication of projects. The main problem is to have a bad pilot project with little replication value for concerned actors.

However, there are also a number of other reasons why pilot projects stay pilot and do not become mainstream solutions to particular environmental challenges. We do not go in detail, but briefly list some possible reasons; lack of interest for political reasons, lack of funds for sometimes expensive pilot activities, lack of capacity for the resource demanding pilot scheme, lack of competence and knowledge for the somehow complicated pilot, lack of compatibility with other activities or lack of institutions for the innovative pilot scheme.

Also, going from pilot projects and getting other institutions or actors to replicate and take further, does not come by itself, no matter how convincing the project may seem. What kind of instruments could be applied to get such replication processes going?

What is the **organisational** structure around the pilot activity? What institutions are involved, who will bring it further, who has present rights and duties, who feels responsibility. For instance, if an NGO is in charge of waste handling at site, but not for collection, it may be a problem to get high amounts of garbage to the site. By letting the same organisation take on both, one can administratively create a structure, whereby the collection rate goes up. The choice of actors and who is allowed to participate can have big impact upon if the project idea is replicated. By involving state actors in child labour or pollution control or waste management and other activities, both the experiences of being participant and the

What kind of **legal frameworks**, constraints and possibilities for command and control exist relative to the pilot project? Direct command and control measures can be efficient in getting replications, but not always. Of course putting ban on certain activities and making others mandatory can also promote particular pilot project approaches.

What kind of **economic instruments** are available to replicate the pilot project?

- Should one use systems of economic subsidies; for instance to pay subsidies for production of fly-ash bricks?
- Can a tax system lead to that the pilot project is replicated; for instance to tax present activity; such as dumping waste in landfills, so as to make composting systems more economically attractive?
- Could maximum, minimum or fixed pricing of inputs or outputs also give emphasis to certain pilot activities over others?
- Could a royalty on manure produced on garbage make the NGOs responsible for site waste management and the Municipality in charge of collection, promote joint collection efforts?

What kind of **pedagogic** related instruments exists? Apart from the effect as demonstration effect - hand-on experience, one has all the usual approaches like workshops, study tours, campaigns, written, oral and visual presentations through media, study circles, extension activities etc.

The main message is that one should put efforts into identifying relevant and good pilot and demonstration activities that are well linked to institutional building efforts and that preferable are an integral part of such activities.

5.9 DIFFERENT GRANTS FOR ENVIRONMENTAL PROGRAMMES IN INDIA

The main grants and allocations in India for 2000 indicate the following pattern:

Regional grant	20.8 mill. NOK.
Environmental grant	9 mill. NOK
NGO grant	11 mill. NOK
Women's grant	8 mill. NOK
Consultancy grant	0.8 mill. NOK
Sum grant	**49.6 mill. NOK**

In addition to this comes the direct support via Norwegian NGOs, which has been stable around NOK 17 mill. over the last years. There are also funds through regional programmes and through the multilateral system. In addition are some fund directly allocated from MoFA.

Most of the environmental support to India is given over the regional grant to IND 063, via the NGO grant and through the environmental grant.

The regional grant has been used excessively to IND 063 because not enough funds where allocated over the environmental grant to cover the planned NOK 50 mill. to IND 063 first phase (10 mill planned in the decision document over the regional grant while some 20 mill.

de facto was used). In addition, there are some supports to NGOs and to IND 054 that are environmentally oriented.

Of the around NOK 29 mill. given via the environmental grant to India from 1997-2000, NOK 24.5 mill. has been used for the state-to-state programmes under IND 063 in Karnataka and HP. In addition, NOK 2.5 mill. has been used to finalize the IND 060 Data Buoy programme. Some NOK 2.3 mill. has gone to NGO-support. From 1995-1999, NOK 53.6 mill. was spent in India from the special environmental grant, basically for the support of the IND 060 Data Buoy programme.

Concerning the NGO-grants maybe as much as 50-60% is allocated to environmental specific and environmental integrated projects.

Summing up: Around 50% of total support is allocated to environmental related programmes and projects in India.

5.10 MULTILATERAL SUPPORTS

We have received no inputs from MoFA in this respect. In a catalogue from MoFA (2000) programme supports are listed for various multilateral organisations. It is however, difficult to see the geographical direction on many of these supports by the descriptions.

There are core supports and also to some extent regionally specified programmes where India is involved.

Norway gives substantial support to UNDP and in particular the GEF-support should be mentioned.

There are various supports through the World Bank and the Asian Development Bank that has environmental components. Cities Alliance has a project in India, where the Embassy has been invited to join planning processes.

Within agriculture, there are supports to FAO on Integrated Pest Management and there are also supports to CGIAR organisations that we believe involve India.

ILO has a project on labour unions and environmental awareness raising, where we believe also India is involved.

WHO has a project on chemicals and health hazards.

Unfortunately, very little input have come from MoFA on this, despite requests from the team and it is difficult to find out from the documents what is actually done in India.. We do hope that Embassy can be able to create some kind of communication links on these issues in the future.

5.11 REGIONAL PROJECTS AND OPTIONS

There are in particular two regional supports at present according to Ramslien, NORAD (pers.mess.). These are through ICIMOD and IUCN.

i) ICIMOD

ICIMOD (the International Centre for Integrated Mountain Development) is a regional international organisation with its headquarters in Kathmandu, Nepal. Eight countries are members of ICIMOD. They share a part of the Hindu Kush Himalayas ICIMOD's long term goal is to contribute to environmental stability and poverty reduction in the Hindu Kush Himalayas. Its work is concentrated around documentation and exchange of experiences on mountain development, applied research, training and provision of expert advisory services on mountain development and resource management.

NORAD has supported ICIMOD since 1993. During the first years the support was given to two projects, Tourism for Local Community Development in Mountain Areas, and Capacity Building for Mini and Micro Hydropower in selected countries in the Hindu Kush Himalayas. Both of these projects received a fairly positive evaluation, and since 1999 NORAD has supported ICIMOD through the Regional Collaborative Programme (RCPII), which is the general work programme of ICIMOD. The level of funding is about NOK 14 mill over 4 years. An international team has reviewed the RCP II in June 2001.

The work programme of ICIMOD is very closely catering to major objectives in Norwegian development policies. The organisation has been evaluated positively, and is playing an important regional role. It is one of the few places professionals of the member countries can talk without the contentions of formal bilateral meetings. This has a great potential for forwarding issues like cross border water management (e.g. sharing of data on flood forecasting), regional biodiversity issues, joint efforts in tourism development, sharing of technology in agriculture and watershed management etc.

Several ICIMOD projects are active in India. The responsibility for following up ICIMOD has been shifted from Delhi to the Norwegian Embassy in Kathmandu. The Embassy in New Delhi could benefit from seeking coordination of ICIMOD activities in India with other ongoing programmes supported by Norway. ICIMOD is a "knowledge organisation", not a funding agent, and needs co-funding for local implementation. Many cases of synergy effects have been seen when partner institutions, donors and governments draw on ICIMOD expertise in planning and implementing projects in their respective countries. Some ICIMOD partners in India are very eager to increase their interaction with ICIMOD, and some clear impacts of the ICIMOD connection can bee seen in mountain states of India.

ii) IUCN

IUCN Asia Region has under its Sustainable Use Initiative Programme developed a programme called Himal Mountain Programme, where one outlines a strategy to foster linkages between people and nature.

NORAD gives support to a research programme under this consisting of 4 different initiatives;

- Effects of mountain tourism on sustainable development and conservation practices
- Community-based Conservation Compared: co-management in Pakistan and Nepal.
- Pastoralism and utilization of Wildlife
- Biodiversity and Sustainable Use of Mountain Grasslands

It seems as if little of this research takes place in India, but is basically found in Nepal and Pakistan. The present support is around NOK 1.1 mill.

iii) Others
There may be or have been programmes through AIT that also had environmental components and that to some degree also involves India. The team has not had time itself nor received any input on this. Interregional organisations that could receive Norwegian support would be through SARC or ESAP. The team has not looked further into this.

5.12 NORWEGIAN SUPPORT TO ENERGY SECTOR PROJECTS IN INDIA

i) Direct local supported bilateral programmes
There are hardly any programmes supported directly through bilateral programmes. Inside IND 063 there is a small component on Pico Hydel power in Karnataka. There are also small elements of biogas in some of the NGOs but apart from that there is nothing.

ii) Mulitlateral/mulitbilateral support
We have not been able to get much information about this.

- Norway is supporting a project in Andhra Pradesh through the World Bank on energy efficiency improvements in agriculture under the Climate Convention (4.6 mill. USD).

MoFA gives support on and off directly to TERI.
- There is one project with CICERO and TERI on the effects of climate on agriculture.
- There is another project also on climate (4 mill. USD) where CICERO is involved with TERI on adaptation strategies relative to climate change
- CICERO has also carried out a project on wind power.

FNI has had a co-operation with International Energy Initiative in Bangalore and TERI on climate change issues.

iii) Regional efforts
We have not been able to get much information about this.

5.13 IMPLICATIONS FOR A FUTURE ENVIRONMENTAL STRATEGY

For the future strategy, the main programmes at present seem to be new phases of IND 063 and IND 040, in addition to the NGO-supports.

A new phase of **IND 063** is taken up in detail in chapter 8.3. The experiences can be split in four.

i) The organisational structure of the programme should be looked into, especially in HP and in particular concerning the functioning of the NORAD supported secretariat. Clear cut conditions for change should be put forward prior to a new phase.
ii) The programmes must focus more on institution building and capacity enhancement and less on unfocussed pilot and demonstration activities. The pilot and demonstration activities should have a firm institutional anchoring and a clear purpose.

iii) The process of planning the programme should take a comprehensive programme approach. In phase I there was a number of scattered individual projects running, that was partly approved as the programmes were running. There was a lack of overall explicit perspectives on key institutions and activities to prioritise.

iv) The pilot and demonstration properties must be cultivated much better than in phase I. This could include a stronger involvement of the national MoEF. They could be involved in work to disseminate experiences and knowledge from successful pilot and demonstration activates under IND 063.

Since IND 040 and IND 045 have their own planning processes, not much of this is taken up in this report, but it is mentioned that there are possibilities that are mentioned in chapter 8.

It should also be possible to link regional and multilateral activities somewhat more to ongoing Embassy activities.

6. POLITICAL DIALOGUE BETWEEN INDIA AND NORWAY ON ENVIRONMENTAL ISSUES

6.1. INDIAN PARTICIPATION IN INTERNATIONAL ENVIRONMENT PROCESSES

India has during the 1990'es been an important actor in international environmental processes, including in negotiations and development of multilateral environmental agreements (MEAs). India takes active part in all important global environmental organizations and agreements, including those mentioned in section 7.2 below. India fully recognizes that many of the serious environmental problems the country faces can only be solved through international co-operation. Based on the priorities for co-operation focused in 7.2, a comprehensive overview of all international environment processes in which India takes part, is not given here. See 7.2 for Indian participation within the priority areas.

As the dominating country in South-Asia, and in Asia at large, India often plays an important role as co-coordinator and spokesman for countries of the region, and also has a leading role in the important group of G77. The fact that India for the time being has the chairman of UNEP's Committee of Permanent Representatives (CPR), gives the country a strong hand in important ongoing international environmental processes.

India possesses considerable expertise in several environmental issues. Their negotiators are often highly professional. Indian representatives in international negotiations may show a higher degree of flexibility than some of the other leading countries within the group of G77, but the picture is mixed. India also negotiates from a point of view where socio-economic concerns are highly integrated in their positions, cf. generally strong Indian positions on technology transfer, financial resources etc.

The Indian emphasis on socio-economic concerns is also reflected in forums debating related issues, cf. India's positions on intellectual property protection of genetic material in the TRIP's Council of the World Trade Organisation (WTO). Here India takes the view that the TRIPs agreement will have to accommodate the needs of the CBD, if necessary through the negotiation of new provisions in TRIPs. In the more general discussions on trade and environment in the WTO, however, India has shown less willingness to accommodate environmental concerns into the trading system. The current debate on the multi functionality of agriculture is another example of India's reluctance to accommodate non-trade concerns within WTO. Clearly, there is scope for more dialogue with India on trade/environment issues.

Indian NGOs are members of all major international NGOs taking part in international environmental processes. These international NGOs may have considerable influence on such processes, often indirectly through acting as advisors to participating countries or groups of countries. Representatives from Indian NGOs are in some cases representing the international NGOs, for example in the area of hazardous chemicals and waste. It is difficult to say to what extent these NGOs have influence over Indian positions in the international processes. Some studies indicate that their influence is in general quite limited, whilst examples of influence on specific issues can also be found.

In addition, some of India's academic institutions also contribute significantly to the national as well as international debate.

India will in the years to come most likely play an increasingly important role globally, including international co-operation in the field of environment. Even if India and Norway on many occasions may have different views on specific issues, and on ways and means to reach international environmental objectives, Norway has in most forums a good and constructive dialogue with Indian representatives. Of course, the extent of such contacts may vary considerably between different forums, and in some forums be rather limited.

The fact that India is likely to play a stronger role in international environmental processes is clearly an argument for closer contact and co-operation with India. Efforts to this effect must be pursued through various channels, including at government level, via academic institutions and through civil society organizations Norwegian development assistance programmes in India can, strategically used, provide one instrument to promote such contact and co-operation. It can a.o. assist in giving political legitimacy and "capital" towards Indian authorities and representatives in important international processes.

6.2 MAIN AREAS OF CO-OPERATION OF INTEREST TO NORWAY

6.2.1 Priority areas for co-operation

In identifying areas of particular interest for Indo – Norwegian co-operation, the following factors must be taken into account:

i) Norwegian funds for projects in India will be quite limited. Hence, there will be a strong need setting priorities in future co-operation.

ii) International co-operation covers a large number of areas. The Norwegian Government is giving top priority to the following three areas:
   - Climate change
   - Sustainable use and protection of biological diversity
   - Hazardous chemicals

iii) Further, a priority in Norwegian environment - development assistance policy is to assist developing countries in their participation in and, in particular implementation of international environmental agreements.

In all the three priority areas for co-operation, important global conventions have been agreed. The need for technical and financial assistance to developing countries in their efforts to implement these conventions is almost inexhaustible. Through ongoing international processes India has indicated a need for co-operation and assistance in these areas. The most important conventions, to be mentioned here, are:

- The United Nations Framework Convention on Climate Change (UNFCCC), 1992, and the associated Kyoto Protocol, 1997 (not in force).
- The Convention on Biological Diversity (CBD), 1992, and the associated Cartagena Protocol on Biosafety, 1999 (not in force).
- The Stockholm Convention on Persistent Organic Pollutants (the POPs Convention), May 2001 (not in force), and the Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal, 1989 (the Basel Convention).

The effective implementation of these conventions, as well as their further development and strengthening, will be crucial in order to limit or reduce key global environmental problems.

Except for the Kyoto Protocol, India has either ratified or signed all the legal instruments mentioned, and is expected to become a party to all of them. Co-operation and dialogue in the above areas will also contribute to the co-operation and dialogue that will take place in the UNEP context and other international forums.

6.2.2 Important international fora for co-operation

The most important (standing) international forums in which the priority areas and conventions are discussed, and in which both India and Norway take part, are:

- Regular meetings of the conference of parties/signatories to the conventions and protocols, and preparatory meetings of legal end technical working groups. Regular meetings of UNEP's Governing Council and its subsidiary bodies

In addition, there will be a varying number of ad hoc expert working groups established by the parties. Further, the priority areas and conventions are relevant in the ongoing preparations for the World Summit on Environment and Development ("Rio+10") to be held in Johannesburg in September 2002, as well as in the meetings of the UN Commission on Sustainable Development (CSD). Financial issues related to global environmental policies are regularly discussed in the council meetings of the Global Environment Facility. The World Trade Organisation, including the Committee on Trade and Environment, is an important venue for discussing the interface between trade and environment.

Other relevant, important global forums are listed under the respective areas below. As can be seen, the forums for co-operation are many, and take place at various levels (policy – expert).

Sustainable use and protection of biological diversity

1) Regular meetings of the conference of the parties to the 1971 Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention).
2) Regular meetings of the signatories to the Convention concerning the Protection of the World Cultural and Natural Heritage (The UNESCO World Heritage Convention)
3) Regular meetings of the signatories to the Convention on the Conservation of Migratory Species of Wild Animals (known as CMS or the Bonn Convention)
4) Regular meetings of the conference of the parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
5) Meetings of the United Nations Forum on Forests
6) Meetings in FAO's Commission on Genetic Resources for Food and Agriculture.

Hazardous chemicals

1) Regular meetings of the signatories under the 1998 Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.
2) Meetings of the Intergovernmental Forum for Chemical Safety (IFCS), and its subgroups.

6.3 MAIN INDIAN INSTITUTIONS, RESOURCE CENTRES AND FORUMS RELATED TO THE PRIORITY AREAS

6.3.1 Government institutions

At central government level, the Ministry of Environment and Forests (MoEF) has the responsibility to formulate national policy and develop national legislation (minimum

standards) in the priority areas. MoEF will also play a catalytic role in training and capacity building of government institutions at central and state level, but has only very limited funds for such activities. MoEF is also in charge of India's participation in international processes. MoEF reputation in donor agencies is not so good (ineffective in implementing projects).

The most relevant expert agency at central level is the Central Pollution Control Board (CPCB). In the area of nature management, there is no similar executive agency. Under MoEF there are a number of semi-governmental institutions doing R and D activities in the area of nature management, but the area seems fragmented and not well co-coordinated. Further, the "forest side" of MoEF mainly controls nature management issues. The central and state institutions, and especially at state level, seems to have good contact and co-operation with NGOs. Because of lack of resources in government, you may also say that the government in many areas is very much dependent of their work and support.

Implementation of national policy and legislation is principally the responsibility of state governments. It seems to be a general understanding that the state agencies, like the State Pollution Control Boards (SPCB), are working more efficiently than central government institutions, although this varies considerably between the states. Not all states have established ministries for the environment, and some ministries are clearly very understaffed and have very limited funds for their activities.

6.3.2 Non-governmental organisations/resource centres and forums (NGOs)

There are numerous Indian NGOs working in the field of environment protection/sustainable resource management. Based on information received during the mission, few of them are engaged and competent in international processes and working with and trying to influence government policies in these processes. The main activities of these NGOs are nevertheless at national level. The fact that these NGOs work both at international and national level makes them interesting partners for co-operation when looking at ways to implement projects in India, which may also contribute to a policy dialogue relevant to important international processes. It should be added that some of the experts interviewed were of the opinion that funds for NGO activities is rather good for the time being and that some NGOs may be taking too many projects ("over-stretching"). Below are listed NGOs which seems to be the most relevant to draw upon in the priority areas for co-operation. Further investigations and considerations of their particular competence and performance should however been made based on the concrete projects to be supported by Norway, see section 7.4 below.

6.3.3 Climate change issues

Tata Energy Research Institute (TERI)

R and D on energy and climate change issues, including energy conservation/efficiency and renewable energy. Do also take part in concrete implementation of pilot projects. Responsible (facilitator) for a government initiated project to identify possible JI projects on climate. Competence also in the field of chemicals, waste and pollution control. TERI is advisor to the government, including on international processes (see also Appendix 3).

Centre for Science and Environment (CSE)

One of their priority areas for the time being is climate change. Working on information and awareness raising as well as more concrete projects. CSE also has competence in the areas of biodiversity and air and water pollution, both management issues as well as technical projects. CSE is following international processes on all major conventions, and have made/are making studies on such processes, including the negotiation processes, conflict of interests between

developing and developed countries, and implementation of obligations in developing countries. Co-operate with NGOs in many other countries. Good contacts with concerned government institutions, and is also used as an advisor (see also Appendix 3).

6.3.4 Sustainable use and protection of biological diversity

World Wide Fund for Nature – India

WWF has offices in 16 states in India and holds in total more than 30 offices. Their priorities are in the area of protection of biological diversity. Co-operating with government both at central and state level. UNDP indicates that WWF may not always be efficient in implementation locally, but good as a co-ordinator for projects and drawing upon other local NGOs for implementation.

Kalpavriksha

Mentioned by several of the interviewed as a well-qualified NGO with a good network all over India. Appointed as the national co-ordinator of a GEF funded project to develop a draft national strategy and action plan on biodiversity. A committee to facilitate the work is established. All stakeholders are represented on the committee, government, private and NGO sector. The draft plan, to be presented to MoEF, is planned to be ready by end 2001/early 2002.

Centre for Environment Education (CEE)

CEE has its central office in Delhi, and regional offices covering all of India. The fact that UNDP has identified CEE as "the nodal agency" for co-ordinating all GEF "small grants" projects for NGOs in India should be an indication of CEE being a competent NGO. Priority on involving government institutions in all projects and involvement of local communities in project implementation. Good contacts and co-operation with government at central, and in particular state level.

Centre for Environmental Sciences (CES), Bangalore

The CES in Bangalore, Karnataka, has for a number of years done interesting analytical work in the field of biodiversity. Some of their activities have been particularly relevant from an environment/devlopment point of view, thereby contributing to ongoing debates on sustainable development. Prof. Gadgil of the CES has also contributed to the international debate on these issues, e.g. by chairing the GEF advisory panel on scientific matters.

6.3.5 Chemicals and hazardous waste

Toxic Link

Engaged in projects on management issues as well as technical issues in the chemicals, heavy metals and hazardous waste areas. Carries out demonstration projects in the field of waste management/disposal. Local offices or co-operating with local NGOs all over the country. Involved in several projects with the government. Used as advisor to central and state government. Very good international contacts. Taking part in international meetings (representing international NGOs) under the Basel Convention and the Stockholm Convention.

TERI and CSE also have competence in these areas.

6.4. ENVIRONMENTAL SUPPORT PROGRAMMES AND POLITICAL DIALOGUE

How can environmental support programmes be used to facilitate and promote environment-political and policy dialogue with Indian authorities, bilaterally as well as in multilateral forums?

Based on meetings and discussions with Indian government representatives and NGOs, and taking into account their expressed priorities for co-operation as well as Norwegian priorities for development assistance projects (see 7.1), areas for possible co-operation are identified. In developing the list, considerations have also been given to the competence of Norwegian institutions to provide quality technical advice and assistance.

6.4.1 Modes of co-operation

In order for the Indo-Norwegian programmes and projects to facilitate and promote dialogue and co-operation between concerned government institutions in both countries, it will be important that the projects are well embedded in MoEF, even if a project is implemented by state governments and/or NGOs. The involvement of governmental institutions at central and state levels in the projects will also be important to ensure capacity building in key environmental institutions and possibilities for more effective utilization of results (replication etc) from the projects.

Further, to promote dialogue and co-operation, efforts should also be made to link "sister" organizations and institutions in the two countries in the implementation of the projects. Examples could be co-operation between TERI and CICERO on climate change issues (NGO co-operation), between a State Pollution Control Board and the Norwegian Pollution Control Authority (government institution co-operation) and between academic institutions working in the field of biodiversity (i.e. CES in Bangalore and the Norwegian Institute for Nature Research). Such institutional co-operation could be an essential component in the programme and could result in capacity building in both countries. Co-operation between concerned institutions in the two countries, including exchange of personnel programmes, could therefore in itself be relevant and important projects in some of the priority areas identified. Finding the right institutions, and the optimal way of co-operation, will have to be further discussed at the Embassy.

The training component should be important in all projects.

6.4.2 Possible areas of co-operation

i) Climate change

- Monitoring and verification of national emissions
- JI projects
- Energy efficiency/clean technologies

Initiate co-operation through a joint seminar, which can identify suitable projects for further co-operation.

ii) Sustainable use and protection of biological diversity

Work in this area seems quite fragmented/not coherent. Many government institutions are involved. A national strategy and action plan is not yet developed, but is under preparation with the aim of finalization late 2001/early 2002. The plan will include a list of projects, among others to approach GEF and other donor agencies for support and co-operation. A comprehensive law is developed and presented to the Parliament, but not yet decided upon.

- Contribute to the development of a state strategy and action plan – for Karnataka and support for follow-up in HP
- Watershed management
- Wetlands protection
- Collection and classification of information on biodiversity (selected species?)
- Conservation of identified priority areas
- Coastal zone management

iii) Hazardous waste management

- For selected priority industries or waste streams (waste reduction/recycling, clean technologies, collection schemes, the role and responsibility of industry, environmentally sound disposal methods)
- Scrapping of ships. Update/further develop national regulations/standards, taking into account the coming Basel Convention and IMO regimes. Implementation standards (pilot projects?)

iv) Chemicals management

- Contribute to the development of a national strategy and action plan (responsibility/division of labour at central and stat level, private sector responsibility, setting of priorities, development of legislation and other policy instruments, capacity building in implementing agencies, etc).
- Selected small scale industries (pollution control and improve energy efficiency)
- Pollution control and improved waste management in the pulp and paper industry. Other industries?
- Promote regional co-operation to implement the 2001 Stockholm Convention on Persistent Organic Pollutants (POPs).

In future contacts with government institutions and NGOs in order to develop a final programme and projects, it must be taken into account that the present proposals have been identified during a very short mission and with limited time for discussion with the concerned institutions and organizations. Further, some of institutions had done little or no preparations for the meeting with the team. In further discussions, some other priorities than those listed below may emerge. There is also clearly a need to further limit the scope of the sometimes relatively broad project areas identified. And, most important, the total number of issues put forward is too many. Rather than doing small projects on a large number of quite diversified issues, further discussions should aim at concentrating efforts on a limited number of priority issues to be identified by the Indian government.

7. NORWEGIAN COMPETENCE IN ENVIRONMENT AND DEVELOPMENT

This chapter provides information on Norwegian competence in the area of environment (including alternative energy) and development. The section gives a brief description on government institutions as well as research centres, consultants and firms dealing with i) climate change issues/alternative energy, ii) sustainable use and protection of biological diversity, iv) chemicals and hazardous waste. [4]

7.1 INTRODUCTION

India's major environmental challenges are related to water and air pollution, to deforestation and land degradation, to loss of biodiversity and to various threats to cultural heritage (chapter 4). Besides, India has committed itself to various international environmental conventions, for example in areas such as climate change, sustainable use and protection of biological diversity as well as hazardous chemicals. Through ongoing international processes India has indicated a need for technical and financial assistance in these areas (chapter 6).

In a future environmental co-operation between India and Norway one should encourage a closer institutional co-operation on different levels within the mentioned areas. Accordingly, this chapter provides information on Norwegian competence in the field of environment (including alternative energy) and development. The chapter gives a brief description on Norwegian government institutions as well as research centres, consultants and firms dealing with i) climate change issues/alternative energy, ii) sustainable use and protection of biological diversity, iv) chemicals and hazardous waste. This is not a complete list of all the Norwegian actors in the field, but it represents, in our opinion, the most relevant actors for the purpose of this India-study.

7.2 GOVERNMENT INSTITUTIONS

7.2.1 Environmental management in Norway

The state environmental administration is divided into three levels: i) the Ministry ii) the five Directorates and iii) the regional level with County Departments of Environmental Affairs.

At central government level, the Ministry of the Environment (MoE) has responsibility for overall environmental policy. It serves as a secretariat for the Minister of Environment, and is the catalyst for new policy and legislation. The basic legislation is the laws and acts in the fields of pollution control, nature conservation, cultural heritage and planning and building.

The Ministry is involved in a wide range of bilateral, regional and global environmental co-operation processes concerning climate change, biodiversity, pollution and cultural heritage. Besides, the Ministry follows up the bilateral environmental co-operation with Ministries of Environment in China, Indonesia and South Africa. In 1983, India and Norway signed a Memorandum of Understanding for Indo-Norwegian Co-operation in the environment sector, but no programme has been implemented under the MoU in recent years.

[4] *This is not a complete list of all the Norwegian actors in the field, but in our opinion it represents the most relevant actors for the purpose of this study*

The Norwegian Pollution Control Authority, the Directorate for Nature Management and the Directorate for Cultural Heritage are the central advisory and executive bodies for the Ministry in pollution control, nature management and cultural heritage management. The Norwegian Mapping Authority is the state expert authority in mapping. The Norwegian Polar Institute is the central state institution for mapping, practical and environmentally-oriented studies in the Arctic and Antarctic, and is the central body for the Ministry in polar issues.

Five environmental research institutes are partly financed by the MoE. They function as national resource centres and have a knowledge-based strategic role for the environmental authorities:
-The Norwegian Institute for Urban and Regional Research (NIBR)
-The Norwegian Institute for Air Research (NILU)
-The Foundation for Nature Research and Cultural Heritage Research (NINA/NIKU)
-The Norwegian Institute for Water Research (NIVA)
-The Centre for Soil and Environmental Research (JORDFORSK)

7.2.2 Seven centres for environmental assistance

Environmental and natural resource management is one of the target areas of Norwegian development policy. In addition to offering direct support to environmentally oriented development assistance, NORAD works to integrate environmental considerations in all projects and programmes financed by development assistance.

Consequently, seven centres for environmental assistance (www.norad.no/environment) are organised to assist the Ministry of Foreign Affairs and NORAD. The centres also contribute to institutional co-operation with partner countries in the field of environment. During the last two years, the Norwegian Ministry of Environment and four of its directorates have signed 3-year agreements with NORAD. The four directorates are: The Norwegian Pollution Control Authority, the Directorate for Nature Management, the Directorate for Cultural Heritage and the Norwegian Mapping Authority. Besides, the Agricultural University of Norway (NLH) and the Institute of Marine Research have signed similar agreements. NORAD also co-operate with other Norwegian institutions dealing with environmental issues.

The environmental assistance centres are supposed to take actively part of a national and international network within their field and should be updated on relevant research activities. Each centre has an earmarked budget for training employees and competence building on development issues. In addition, an exchange programme between NORAD and the MoE (including the directorates) has been successful when it comes to competence building both concerning development and environmental management issues.

7.3 RESEARCH INSTITUTIONS, CONSULTANTS, FIRMS AND NGOS

Among the Norwegian universities, most research on issues dealing with development and environment in a third world perspective takes place at the Agricultural University of Norway and the University of Oslo. The Norwegian University of Science and Technology focus on energy and the environment as one of their five strategic areas. Besides the Norwegian institutes for environmental research mentioned in 5.1, there are several independent research centres dealing with environmental issues. It is also worth mentioning that the Norwegian Forum for South Asia (NoFSA) (Centre for Development and the Environment, University of Oslo) has published a catalogue providing information on "who knows what about South Asia

in Norway" (www.nofsa.uio.no). The catalogue focuses especially on the Norwegian R&D expertise on South Asian affairs.

Several Norwegian consultants cover a wide range of activities within the environmental field including renewable energy, pollution, waste and water. Appendix 1 gives an overview of some of the consultants.

This study has not focused on the Norwegian environmental NGOs. However, there are several Norwegian NGOs such as for example the Development Fund, FIVAS, NNF and Bellona that could be potential partners in an Indian-Norwegian environmental co-operation. It should also be mentioned that the Norwegian Forum for Environment and Development (FORUM) is a network for NGOs actively promoting environment and development issues. The voluntary movement has long traditions in Norway and today there are some 35 voluntary environmental organisations and networks. The MoE allocates annual core funding for the nation-wide democratic environmental NGOs, and this amounts to approx. 27 mill NOK, or about 1 per cent of the MoE's total budget. About the double amount is allocated as project funding from MoE or its directorates.

7.4 CLIMATE CHANGE ISSUES AND ALTERNATIVE ENERGY

7.4.1 Climate change issues

The MoE has the responsibility of developing policy instruments and policy with respect to climate change and long-range transport of air pollutants, as well as international negotiations in these two areas. The Norwegian Pollution Control Authority assists in the fields of climate change and ozone depletion substances.

The **Norwegian Institute for Air Research** (NILU) conducts environmental research with emphasis on the sources of airborne pollution, atmospheric transport, transformation and deposition and is also involved in the assessment of the effects of pollution on ecosystems, human health and materials. NILU is one of the leading specialised laboratories in Europe dealing solely with problems related to air pollution. NILU is presently working world wide in programmes dealing with air quality monitoring, environmental impact assessments, optimal abatement strategy planning and various studies related to air pollution.

Belwo are listed some co-operation projects in India:
Urban air quality management in Asia – URBAIR;
The aim of the project is to develop a Guidebook for the development of an Urban Air Quality Strategy relevant for Asian mega-cities, and to develop city-specific action plans to improve the air pollution situation.

Air quality models for planning purposes - monitoring and surveillance;
Air pollution dispersion models for air quality planning purposes have been developed and applied in four areas of India. Included model modifications, emission inventories, statistical evaluation of meteorological data and air quality estimates.

A training programme included demonstrations and practical applications of the models. Further plans for the development of monitoring and surveillance systems have been discussed with Indian Authorities. In present, a proposal of establishment of a national

environmental monitoring database consisting of both air and water quality is under preparation in collaboration with the Central Pollution Control Board.

The Center for International Climate and Environmental Research (CICERO) was founded by the Norwegian government in 1990. It is an independent research centre associated with the University of Oslo. CICERO's mandate is both to conduct research and provide information on climate change issues. CICERO is co-operation with the Indian research institute TERI on two projects.

Co-operation projects in India:
Globalisation and climate change in India: The impacts on agriculture
The goal of the project is to analyse the "double exposure" of India's agricultural sector to both climate variability and economic globalisation, within the domestic policy context, and to offer policy recommendations for facilitating adaptation to climate and economic changes. The project will consist of a macro-level vulnerability analysis, a domestic policy analysis, a micro-level analysis (including participatory case studies in four different agricultural regions), and an integrated analysis which will synthesise the preceding work and offer policy recommendations for facilitating adaptation in the agricultural sector. The project is going on in the period of 2001-2003 and the total budget is 4 mill NOK of which Norway has paid 0,5 mill NOK. A Canadian and US research institute have also been involved.

Institutional roles in disseminating renewable energy technologies: A comparison of China and India. The purpose of the project is to invite researchers from TERI to come to CICERO to write reports on institutional barriers for renewable energy dissemination in India.

The Centre for Economic Analysis (ECON) is an independent research and consulting company in the area of applied economics. The professional basis is economics, and ECON is a leading centre for applied economics, and has a broad international experience. ECON has expertise on energy/markets, power market analysis, power sector reform and industry restructuring, oil and gas, energy and environment – climate change. The company has published studies of policy instruments to address climate change, such as:

- taxes (carbon taxes/emissions, conversion of energy taxes to carbon taxes within the OECD and in selected developing countries;)
- tradable emissions quotas and negotiated deals
- analysis of the potentials, obstacles and possible rules for the flexible mechanisms, notably joint implementation (JI), clean development mechanism (CDM)
- developing national climate policy strategies
- analysis of energy efficiency improvements

Co-operation-projects in India
Some years ago, ECON had a research co-operation with TERI, but there are no on-going research activities in India today.

The Fridtjof Nansen Institute (FNI) is an independent foundation engaged in research on international environmental, energy, and resource management politics. Its main emphasise is on political science, economics, and international law. The institute has an extensively collaboration with institutions in Norway as well as abroad (e.g. Russia, China, India).

Co-operation projects in India:
FNI has co-operated with the International Energy Initiative (IEI) in Bangalore and TATA Energy Research Institute (TERI).

Det Norske Veritas (DNV) is an independent foundation working with the objective of "safeguarding life, property and the environment". DNV has a total of 5,500 employees (engineers, economists and other scientists), often working via mordern technical facilities across national borders in large international project teams. DNV has extensive operational experience in India with 5 offices in the country.

DNV has been involved in work related to climate change in Norway and internationally for many years. As one of the world's largest certification bodies, DNV has played an important role internationally in developing systems for verifying and certifying greenhouse gas emission reductions. As the leading certification body within the pilot phase of climate change projects, DNV has been advising several governments and institutions like the World Bank and UNFCCC in the development of modalities supporting the Kyoto Protocol.

As a leading provider of services for managing risk, DNV has an international network of environmental consultants. In the area of climate change DNV has performed assessments of various CDM projects in developing countries and JI/AIJ projects in countries with economies of transition.

7.4.2 Cleaner Production Programme

The World Cleaner Production Society (WCPS) is a Norwegian non-profit umbrella organisation founded in 1995. The WCPS's vision is to establish basic conditions for self-sufficiency in countries with little or no capacity for cleaner production (CP) processes, at minimum cost and within a timeframe of 1-3 years. The aim is to enable local organisations to continue the dissemination of cleaner production assessments and implementation to all relevant industries, based on the countries own human and financial resources. OECD has recognised this Norwegian Environmental Technology Programme as a successful way to achieve cleaner production. It is currently being transferred to countries in Eastern Europe, Asia and Africa. Several Norwegian institutions such as the Norwegian Society of Chartered Engineers (NIF), Det norske Veritas, the Technological Institute, Østlandsforskning take part of the WCPS.

The Norwegian Society of Chartered Engineers (NIF) gather civil engineers and people who are technical-scientific educated in common work for the interests of the profession. The Society plays an active role in the preparation of reports on subjects such as education, entrepreneurship, the environment, income policy and other areas affecting its members.

The National Institute of Technology, TI co-operates closely with the Norwegian Ministry of Industry and Energy. The main objective is to transfer technology and expertise to industry through consultancy and advisory projects, training, education, laboratory and certification services. TI has 260 employees in 6 countries. TI has the chairmanship in World Cleaner Production Society (WCPS). TI helps Norwegian companies in their efforts to develop sustainable products and processes and to meet environmental standards and reduce environmental damage. The objective is better resource management and reduced waste and cost.

7.4.3 Renewable energy

In this context the concept "renewable energy" mainly focuses on solar, bio-energy, geothermal and wave energy. The term is used to distinguish between the new technologies and large hydropower, as the latter is considered to represent more conventional technology even if it is renewable.

i) Government institutions

The **Ministry of Petroleum and Energy's** principal responsibility is to achieve a co-ordinated and integrated energy policy. A primary objective is to ensure high value creation through efficient and environment-friendly management of Norway's energy resources.

The Norwegian Water Resources and Energy Directorate (NVE) is responsible for the administration of Norway's water and energy resources. NVE's function is to ensure a comprehensive and environmentally sound approach to water resource management, to promote an efficient energy market and cost-effective energy system, and to contribute to efficient energy consumption.

NVE has several agreements concerning institutional co-operation and have on-going projects in 14 countries in Africa, Asia, South-America and Southeast-Europe. The aim is to improve the management of water- and energy resources. The co-operation-projects include:

- development of existent regulations
- implementing of new regulations
- courses and guidance
- development of institutional structures,
- assist in licensing
- building of geographical data systems
- alternative power system development strategies
- wind power and use of ground heat

ENOVA SF is a new enterprise established by the Ministry of Petroleum and Energy in order to strengthen the work with energy consumption and energy production in Norway in a more environmental friendly direction. ENOVA will focus on more effective consumption, production of renewable energy and environmental friendly use of nature gas. The enterprise will be financed from a governmental energy fund.

ii) Research and development institutions (R&D)

The **Norwegian Research Council** is running two programmes focusing on renewable energy. The NYTEK programme focuses on R&D aimed at efficient, renewable energy technologies. The goals of the programme are to develop products and systems which pave the way for profitable Norwegian business activities related to efficient, renewable new sources of energy, and to ensure a satisfactorily level of expertise in selected areas at key research centres. The "Energy for the future" programme is covering fundamental research within the files of renewable sources of energy, energy efficiency, hydro power and conversion of natural gas. In the first phase, priority has been given to hydrogen related research as well as solar heating and energy systems.

The Norwegian University of Science and Technology (NTNU), SINTEF, the Institute for Energy Technology (IFE) and the Agricultural University of Norway (NLH) are among the key R&D centres in the field of renewable energy in Norway.

One of the main goals of NTNU is to provide Norway with internationally competitive level of technological know-how. Energy and environment is of the NTNU's strategic areas, with special focus on smart energy-efficient buildings and environmentally friendly utilisation of natural gas.

The SINTEF Group performs contract research and development work for industry and the public sector in technology, medicine and the natural and social sciences. SINTEF Energy Research is engaged in contract research in Norway and abroad. Activities are focused on power production as well as energy conversion, transmission, distribution and the use of energy, including industrial processes and products.
Bioenergy:

- Combustion of solid fuels, such as bio-fuels, waste and coal
- Gasification of biomass
- Pyrolysis of biomass
- Characterization of solid fuels
- Developing solid fuel technology
- Energy production systems fuelled by biomass or waste

The Institute for Energy Technology (IFE) is an independent foundation established in 1948. With a staff of 600, IFE is Norway's national research centre for nuclear and energy technology. Focus areas:

Energy systems
Research, development and dissemination of information in the fields of energy efficiency and renewable energy (solar cell technology, wind power, heat pump, Industrial energy efficiency activities). Climate change and energy efficiency projects

Environmental technology
Research, development and application of new technologies in order to minimize the environmental impact of energy-production and -use (cleaner technologies and non-polluting industrial processes)

The Agricultural University of Norway (NLH) is internationally acknowledged for its expertise in agriculture and management of natural resources and environment. Relevant competence within the area of renewable energy sources:

- Waste water- and waste technology
- Nature based waste water cleaning methods
- Waste as fertilizer
- Bio-gas (e.g. work on integrated systems on the use of wastewater and waste resources for production of fertiliser and energy. Decentralised and nature-based systems adjusted to the local surroundings and economy. The systems lead to an overall reduction on water consumption between 25-50%. NLH co-operates with SINTEF on the project Distributed Energy from bio fuel and waste.)

iii) Consultants and firms (alternative energy technologies)
There is a wide range of consultants and firms in this field in Norway. Most firms have concentrated on niche products. In some areas, like solar-cell technology and bio-energy, Norwegian competence and products are in the lead internationally. Reference is made to the enclosed booklet New Renewable Energy (Norwegian Developments, 1998). This gives an

introduction to new renewable sources of energy with a focus on Norwegian activities and relevant national developments. However, in the following some consultants and firms are mentioned explicitly:

On solar cells
The vision of Renewable Energy Co-operation AS (REC) is to become a global cost-effective, fully integrated solar energy company. Today REC consists of five companies. One company, SolarNor AS, is related to solar thermal energy, the remaining companies are related to photovoltaic (PV). One company, Solar Silicon AS is a subsidiary of another, ScanWafer AS. A particular advantage to solar energy is the opportunity for decentralised energy generation, matching the disseminated consumption.

On a whole, REC consists of companies which together covers technology, production, planning, utility and maintenance of solar cell and can provide clean and renewable electricity for lighting, water, telecommunication and health to rural and urban customers in the international market. Key markets are areas with no or poor grid electricity services.

Waste incineration technology
Energos ASA is a Norwegian company that plans, supplies and operates high-technology, environmentally sound energy recovery plants for waste. This technology is marketed in Norway and internationally, mainly Europe.

The business concept of **Organic Power ASA** is to develop and market technology for cost-effective energy production from biomass and sorted waste. The technology is applied in small-scale combined heat and power (CHP) plants supplied by Organic Power in co-operation with selected manufacturers in Norway and abroad. Organic Power's solutions are based on standard gasification modules with a thermal output of 2MW. By combining several modules, the energy recovery plants can be adopted to serve energy users with a demand for up to 12 MWth.

Bioplan offers a wide area of equipment in connection with waste management. In addition, different soil conditioners are offered:
- Optical screening plants
- Composting plants (delivers fully automatic composting plants)
- Green products (soil conditioners).
- Biological and chemical cleansing of waste water
- Bio-filters (Filters that are used to purify the air from composting plants)
- Ovens for production of bio-energy (for wooden chips and other bio-fuels)
- Bio-fuel
- Biogas plants (uses organic waste for heat- and energy production.)

Energy efficiency
KanEnergi ASA offers consulting services in the fields of energy and environment. Renewable sources of energy and efficient energy technologies are their core competence with a special focus on:
- Energy policy measures and funding design, strategy, research and development, analyses, energy planning, project planning, information and training.
- Reduction of greenhouse gas emissions, flexible mechanisms

iv) NGO's

The Association for International Water and Forest Studies (FIVAS) is an independent organisation working to obtain and disseminate information on the consequences of large dams and hydropower projects in developing countries, and to prevent Norwegian participation in projects with significant negative social or environmental impacts. The FIVAS' activities are based on co-operation with grassroots movements and local organisations in developing countries.

7.5 SUSTAINABLE USE AND PROTECTION OF BIOLOGICAL DIVERSITY

The **Directorate for Nature Management** (DN) is the national implementing authority in the fields of biodiversity, land use planning and management, wildlife and freshwater resources, and outdoor recreation. The management responsibility held by the directorate mainly relates to Acts that ensure the protection and sustainable use of natural resources.

Areas of work;

- sustainable biodiversity (strategy, surveying and action plans) including sound management of biological resources for sustainable and equitable use, including tourism
- natural resources
- wetland conservation
- Environmental Assessment (EIA) procedures for hydropower (Nepal, not started)

DN has experience from co-operation projects in Eritrea, Ethiopia, Malawi, Tanzania, Uganda, Zimbabwe, Costa Rica and Indonesia.

The **Foundation for Nature Research and Cultural Heritage Research** (NINA/NIKU) is Norway´s leading institution for applied research in ecology. Areas of work are terrestrial pollution, biodiversity and conservation biology, fish and wildlife management as well as the recreational use of wilderness areas. NINA has extensive experience in collaborative research and consultancy work in developing countries and in Eastern Europe, contributing actively to competence development and technology transfer. NIKU was established to meet the need for research in the areas of cultural heritage and the restoration of ancient monuments.

JORDFORSK – The **Centre for Soil and Environmental Research** is a national centre for research on soil monitoring and conservation; agro-hydrology; recycling of organic waste; bioremediation of toxic waste; natural process wastewater treatment; and monitoring and protection of groundwater. Its agricultural service laboratory is the largest in Norway for conducting chemical soil analysis.

NORAGRIC, the **Centre for International Environment and Development Studies**, is part of the Agricultural University of Norway (NLH). NORAGRIC's emphasis lies on international co-operation and its contribution to international development lies in the interface between research, education and assignments. Based on more than 25 years of interaction between NLH and institutions in Africa, Asia and Eastern Europe, NORAGRIC has established a broad network of worldwide contacts that include institutional co-operation with academic and professional institutions. Some of NORAGRIC's competence areas lie in the fields of:

- Primary industries development and sustainable use of natural resources
- Food and livelihood security

- Management of natural resources
- Biodiversity, genetic resources and intellectual property rights

Co-operation projects in India:
- Co-operation with Sadguru and Development Fund on a triangular project to promote the transfer of sustainable watershed management approaches
- Support to research institutions in the field of aquatic resource management
- Co-operation on CPR research with University in Rajasthan
- Research programme on soil degradation in the Himalayas
- Several consultancies for the Royal Norwegian Embassy on environmental programmes; on evaluations, on inputs on environmental sound land use planning, etc.

The **Norwegian Institute for Water Research** (NIVA) is Norway's leading multidisciplinary research institute as regards the use and protection of water bodies and water quality. NIVA provides water management authorities, industry and commerce, and the public with a solid basis for a healthy water management. NIVA performs research and development, monitoring and feasibility studies, and conveys information about water related issues to interested parties. NIVA co-operates extensively with developing countries on projects dealing with environmental impact assessment, coastal zone planning, water resource management, monitoring of fresh and marine water bodies, and aquaculture.

Co-operation projects in India:
NIVA will probably assist CPCB in formulating applications for 2 projects:
- Environmental information systems for water and Air (ENSIS) in cooperation with Norwegian Institute for Air Research (NILU)
- Institutional Support; training in analytical methods for PCB

The **Institute of Marine Research and the Directorate of Fisheries** (IMR and DoF) represent the main institutions for fisheries research and management respectively in Norway. IMR and DoF are particularly focusing on:
- Management issues related to biological diversity of marine ecosystems
- Research and monitoring of fish resources and the marine environment
- Fisheries management in marine areas
- Institutional development in research and management with emphasis on the role and function of government organisations
- International agreements, treaties, conventions and codes within the IMR and DoF area, including their implementation in developing countries
- Food security and poverty alleviation in relation to the fisheries sector
- Coastal zone issues as seen from a fisheries perspective
- Research and management in marine aquaculture
- Quality control of fisheries products

7.6 CHEMICALS AND HAZARDOUS WASTE

The national main tasks of the **Norwegian Pollution Control Authority** (SFT) are to combat pollution, noise and waste, and to regulate the use of environmentally hazardous substances and products. It has the primary responsibility for combating industrial pollution, supervising of the national emergency response system for oil and other acute pollution, and monitoring air and water pollution.

The international activities have been focused on:

- Industrial pollution programmes (implementing of new legislation on waste and pollution like basic waste- and hazardous waste management, water pollution)
- public awareness/information
- legislation/institutional structures.
- capacity building processes
- Acute pollution (Response to acute pollution and contingency planning, training at all levels within the field of marine pollution, establishment of environmental databases including sensitivity mapping).

Co-operation projects in India:

- Technical guidelines on "Environmentally sound management for dismantling of ships" in co-operation with the Netherlands and India for the Basel Convention "on the Control of Transboundary Movements of Hazardous Wastes and their Disposal"
- Indian National Data Buoy Programme. The programme consists of the delivery of several buoys and expertise contracted by the OCEANOR company based in Norway. The aim is to establish an oceanographic surveillance system for meteorological and environmental monitoring of the ocean areas around India.
- Review of 3 environmental programmes in India (Himashal Pradesh, Karnataka) Assistance in institutional capacity building, support in projects addressing waste management, air- and water pollution, resource management and land degradation.

8. SUMMARY AND MAIN RECOMMENDATIONS

This chapter summarises experiences and observations, and draws up some main principles for future co-operation with India, on bilateral, multilateral, regional and international levels. A more detailed "elements of a strategy" is outlined in the last section.

8.1 INTRODUCTION

India has, as documented in this report, experienced a rapid economic development over the last decades, with an intensive growth of industry and exports, substantial growth in transport activities and energy use, rapid increases in the urban population and a population growth of more than 2 %/year. This exerts serious pressures on the natural environment and on water resources, soils, vegetation and air and has serious implications for human health. The biological diversity is negatively affected and India's rich cultural heritage is also threatened by various development activities. Poor people, women and low castes and tribals are in particular affected by this environmental degradation as they to a large extent directly depend upon the natural resource base.

Government policies in India have been and are still dominated by the overriding concern for economic growth in order to cater for the swiftly growing population - and for the increasing demands for consumption especially from the fast growing and politically influential middleclass.

India's participation in the 1972 Stockholm Conference marked the introduction of explicit and more encompassing environmental policies in India and with establishment of a Ministry of Environment in 1980, a formal governance system was in place. This report however, documents that the Ministry and its autonomous bodies and directorates are still young and weak. They have up to now been unable to make a substantial difference, especially in the competition with major established segments and ministries, especially in industry, agriculture and energy fields.

Environmental policies in India have been featured by what has been called the "politics of reconciliation"; where economic growth and development policies at large have main priorities and where environmental concerns are incorporated residually or in cases where the environmental problems directly impinge upon overriding development goals.

But it is not only the formulation of environmental goals that is a key concern for environmental policy efficacy but there is also what has been called the "enforcement gap". There is a distinct mismatch between politically sanctioned goals and the actual implementation and results. There are several reasons for this; there is lack of legitimacy of policy goals both within government at different tiers of government, between sectors and between the government and local people. There is a general lack of transparency, accountability and local participation. The industry furthermore seldom complies voluntarily with rules and regulation and there is a widespread interference in public life by private interests. Corruption and resource misuse is a major obstacle to an efficient environmental policy implementation.

On the other hand, in certain areas, India has been able and willing to generate policies that have proved to be reasonably successful in the environmental field. The deforestation rates

have been slowed down considerable and India has embarked upon one of the largest R&D programmes in the world on renewable energy. There are also pressures from the civil society; from NGOs, from media and lately also from the Supreme Court and to some extent from State High Courts. They have come forward with initiatives to create public debates on key issues related to biodiversity, to combating pollution, to environmental health hazards and also relative to climate change issues.

India is an important actor globally because of its vast population and its rich natural resource base. India, with its 1 billion people, has the 7th largest economy in the world. India's actions and resource use thus have globally significance.

On the international environmental scene, India plays an important role as an active participant in the international negotiations on the environment on issues like biodiversity, climate change, POP and WTO and the environment. India holds an important position in the G-77 group.

Given the vast Indian continent and economy, neither development assistance in general to India nor Norway's small contribution will on any scale have any substantial impact directly on India's development path. At present donor funds constitute around 0.4% of India's GDP. Norwegian support is less than 1% of this.

Norwegian development co-operation should thus be given a particular orientation. A bearing idea in the new strategy for co-operation with India is the need for a broader perspective, where the development co-operation is seen in conjunction with wider environmental issues, including international and regional perspectives. Environmental development efforts can contribute to link development to poverty alleviation. India's follow-up of international agreements can also be linked to this work in selected fields. Furthermore, a general increased and improved dialogue can be achieved between Norwegian and Indian environments and organisations through such efforts.

8.2 CLARIFYING PRIORITY FIELDS, ACTIVITIES AND INSTITUTIONS

The principle of recipient responsibility does not preclude the need to clarify own priorities, own capacities and competence as a point of departure prior to or concomitant with deliberations with Indian partners. But the recipient responsibility principle still conveys that the needs of the Indian society should be at focal point more than Norwegian competence and the "compulsory involvement" of Norwegian bodies and organisations.

8.2.1 Priority fields

In Norwegian environmental development policies, there are four important fields;
1) Development of sustainable production systems/management of natural resources
2) Conservation and sustainable use of biological diversity
3) Reduced pollution of soil, air and water
4) Preservation of cultural heritage/management of the natural environment's cultural values

On the international scene climate change, biological diversity and toxic waste management have been outlined as key international processes to be given priority by the Norwegian Government.

There are no important contradictions between these two sets of policies, except for somewhat less focus on sustainable production and that cultural heritage is not addressed in the presented international policies. It would be problematic to introduce a strict principle that any environmental initiative in the bilateral support should be linked to India's follow-up of particular international conventions. It is obvious that Indian authorities may have some priorities that do not match such a principle. In addition to the priority fields that are seen as important above, there is also a need for overall and encompassing environmental policies.

From Indian authorities, priority fields are stated to be the combating of air and water pollution, improving waste management systems, reducing land degradation, developing sustainable production systems and promoting afforestation. The new initiative on the National Biodiversity Strategy is also an area that could be looked into, although it seems to have sufficient funding.[5]

8.2.2 Priority activities

Major challenges are linked to good governance in the environmental field in India; to improve efficiency in public planning, management, implementation and monitoring/control systems. There is also a need to improve aspects of transparency, accountability and participation at different levels to increase legitimacy, reduce corruption and misuse and improve the general efficiency of the systems.

This could imply that institution- building efforts should be at focal point in new strategies. It would involve working with organisational structures and processes, with economic, legal and organisational frameworks, and with capacity and competence and practical proficiency enhancement. This would involve work on organisational structures, it would involve in-house on the job training and designing competence development plans for staff at different levels. Concerning training, and in particular training abroad, one could consider a more systematic use of the existing NORAD-supported M.Sc. Programmes in Norway in relevant fields as at NTNU and at NLH/NORAGRIC, where there are several relevant programmes.

The institution-building efforts should also point forward towards carrying out practical environmental measures. It means that one should link practical efforts to planning documents such as the State of the Environment Reports, Environmental Action Plans, environmentally sound town and country plans, coastal zone and more general land use plans, and the inclusion of environmental concerns in sector development plans etc.

In many of the programmes and project supported up to now, Indian authorities have had a tendency to focus on small-scale pilot and demonstration activities at the expense of more comprehensive institution-building efforts. These pilot projects will often benefit particular groups in particular areas of the state in certain fields. In this way, the approach reflects a rather basic feature of politics. One spreads power and resources to a secure broad power base and support among a wide range of potential supporters. This also enhances the legitimacy of the present bureaucratic and political leadership.

Pilot and demonstration schemes do have an important function in that they display that it is possible to improve environmental conditions in practice. In the Indian project portfolio one

[5] Of a more than semantic character concerning cultural heritage; Indian authorities would not see cultural heritage as an environmental activity the way Norway does and would most likely not see it naturally included in an environmental programme at state levels.

has also used Norwegian institutions and organisations to share experiences, give advise or even convey products and solutions in the pilot schemes, on anything from trout farming, to GIS-systems and to waste management and compost systems. The transfer of technology in a wide sense should thus not be forgotten even if one tries to increase the emphasis on institution building. These should rather be seen as complimentary activities.

In the international scene, relevant activities could of course be related to institution-building efforts and what is stated above. But, in addition, it could be of interest to link both research environments and also governmental bodies together for joint research, workshops etc.

At a more trivial level, the Embassy should have a continuous contact with MoE and MoFA in Norway as to what issues to follow up through regular and by case reporting and through contact keeping with relevant Indian institutions.

Concerning regional and south-south efforts the Embassy could look for successful environmental activities or organisations and institutional arrangement that could have interest across countries in the region.[6]

8.2.3 Priority institutions

From what has been stated above concerning fields and activities, the main **public Indian institutions** would be Ministry of Environment and the Central Pollution Control Board at central level and the Departments of Environment, the State Pollution Control Boards and the Land Use Planning Authorities at state levels. We have also mentioned the proposed National Biodiversity Authority and the State Biodiversity Boards that are still in the planning stage.[7]

Some important **Indian research institutions** are mentioned in chapter 4. India does have substantial research competence in universities, in subordinate institutes and colleges and in autonomous research institutions. To give a good or encompassing picture would be a difficult task. We will give a few examples of research environments in relevant fields below:

- On climate and pollution problems; Indian Institute of Science, Bangalore and the National Environmental Engineering Institute, Nagpur and Madras Institute of Development Studies in addition to TERI and SCE, to mention a few.
- On biodiversity and sustainable resource use; there are many agricultural universities, including universities in Banglore, Mangalore and in Himachal Pradesh (in this context) in addition to institutions such as Centre for Ecological Sciences, Bangalore, Bombay Natural History Society, Wildlife Institute of India, Indian Institute of Public Administration, Delhi to mention a few.
- On cultural heritage we have visited INTACH.

This report has identified some **Indian NGOs** with particular competence in relevant fields. They generally work with both international issues and national issues at policy formulation levels. They are thus of interest for both development co-operation as well for co-operation of more international/global character.

[6] (An example is the Development FUND/NORAGRIC arrangement with SADGURU, an Indian NGO. They work with watershed management in drought prone areas in Gujarat. Their experiences have been shared with Ethiopian authorities and local people in similar agro- ecological areas in Ethiopia).

[7] There are also several autonomous institutions and subordinate offices with quite specific competences. If such areas are taken up in particular programmes, one should look at their sets of competences, see chapter 4).

- On pollution issues and climate change; Tata Energy Research Institute (TERI) and Centre for Science and Environment. Toxic Links work in particular with chemical wastes.
- On sustainable production systems and biological diversity; Centre for Science and Environment, Kalpavriksha, WWF, Centre for Environmental Education and Centre for Environmental Sciences.
- On cultural heritage there is INTACH. The Embassy already renders support through Hasta Shilpa Trust Fund and the Indian Environment Society.

Norway has over the years developed a particular environmental competence; both in planning and management issues, in research and educational efforts and in working with civil society on environmental issues. This experience-based competence or proficiency has been utilised in the past in India and can of course be used in the future if so wished. It can be utilised in a dual way; in conveying particular Norwegian knowledge and experiences in relevant fields, and it can also be seen as an instrument to improve relationships with Indian institutions in these fields and improve Norwegian environments insights in the Indian society.

From what has been stated above concerning fields and activities, the main public Norwegian institutions would be Ministry of Environment, the Norwegian Pollution Control Authority, the Directorate for Nature Management and the Directorate for Cultural Heritage. In addition there are environmental research institutions linked to the public sector such as Norwegian Institute for Urban and Regional Research (NIBR), the Norwegian Institute for Air Research (NILU), the Foundation for Nature Research and Cultural Heritage Research (NINA/NIKU), the Norwegian Institute for Water Research (NIVA) and The Centre for Soil and Environmental Research (JORDFORSK).

Some other important Norwegian research institutions have been mentioned in chapter 7. The main research environments on environment and development linked to the University of Oslo and the Agricultural University of Norway and its international centre, NORAGRIC. There are also environmental research activities in CMI in Bergen and NTNU in Trondheim.

Norwegian research environments in the climate/ pollution control fields would involve the University of Oslo in addition to CICERO, FNI and the SINTEF group.

On biodiversity and sustainable resource use, the Agricultural University of Norway, NINA/NIKU, NIVA, plays an important role in addition to the public institutions mentioned above.

On cultural heritage we would emphasise NIKU/Riksantikvaren.

This study has not looked much at Norwegian NGOs. Some important organisations would include the Development Fund, FIVAS, NNF, FORUT, KN and Pastor Strømme.

8.3 RECOMMENDATIONS FOR A NEW STRATEGY[8]

Four main thrusts are suggested in a new strategy:

- Bilateral development co-operation efforts in the environmental field
- Multilateral and multi-bilateral efforts; improve links between the Embassy and MoFA/NORAD where India is or can be involved.
- Regional and south-south effort; improve links between the Embassy and NORAD/MoE/MoFA where India is or can be involved.
- International environmental issues and obligations and general foreign affairs efforts: links between these issues and development co-operation should be clarified

8.3.1 Bilateral development co-operation efforts in the environmental field

The bilateral efforts in the environmental field are routed through three main channels; through the state programmes, through the institutional co-operation programme and through NGO supports.

1) IND 063 The Indo-Norwegian Environmental Programme

The present prioritised states are Karnataka and Himachal Pradesh. The programme has a typical project focus, with a variety of projects in many different fields and sectors. It should be an ambition of phase 2 to move from somewhat scattered projects to a more focussed programme approach. This would be in line with review reports and also general development co-operation principles. One should also move towards increased and more conscious institution- building efforts in selected fields. One should furthermore put more work into developing good pilot and demonstration projects that are linked to the institution-building efforts. One could consider increasing the involvement of Norwegian expertise/competence in fields requested by Indian authorities. One should also consider including a component of active involvement of central environment authorities for bridging pilot and demonstration activities from the two pilot states to other areas in India.

The main objective of the next phase could be to contribute to enhance both State governments in HP and Karnataka and the civil society's proficiency in planning and managing of natural resources utilisation, combating pollution, improve bio-diversity and cultural heritage through development assistance programme support.

The institution-building efforts could include external training and on the job-training activities. It should contribute to knowledge on organisational analysis and further development of the present structure and processes in key institutions. This involves analyses of present distribution of power and authority, of case handling and decision-making processes, of awareness raising on management culture, how to improve transparency, accountability and approaches on local participation. It could also include improving knowledge and competence on management issues such as policy formulation including competence on the relationships between policy goals, measures, and the use of policy instruments.

Key actors at the central level could be MoE and the Central Pollution Control Board. At the state levels, the Department of Environment and the Environmental Planning Unit, the State Pollution Control Boards, the Council for Science, Technology and Environment, and Land

[8] *A more comprehensive strategy is outlined in Appendix 9.*

Use Planning Authorities/Dept. of Town and Country Planning in charge Master Plans, Development Plans and Coastal Zone Plans.

Relevant Norwegian organisations and institutions would comprise SFT, DN/NINA, NORAGRIC, Min. of Environment, Statskonsult.

One could use development of State of the Environment reports, sector environmental plans, Environmental Action Plans and coastal zone management plans as elements in institutional-building efforts. In Himachal Pradesh, a State of the Environment report has been developed and action plans are being developed. One may consider strategic support to the implementation of Environmental Action Plans as part of the pilot activities. In Karnataka, one has made State of the Environment reports earlier, and a workforce is in the process of being started for the development of a new report. If desired by Karnataka, the Embassy could offer support to the follow-up through Environmental Action Plans and selected support to part of the implementation as part of the pilot activities.

Relevant Norwegian organisations and institutions for this would comprise SFT, DN/NINA/NIKU and NORAGRIC.

One should look for fields in the two states where the authorities consider that the environment challenges are of most concern. This could be in biodiversity, in agriculture, in industry, in forestry etc. One could from the Norwegian side discuss areas where one may have good pilot and demonstration elements to offer.

Relevant Norwegian organisations and institutions would comprise SFT, DN/NINA/NIKU, NORAGRIC, Min. of Environment and Statskonsult.

In a central government programme component, one could supply support to taking pilot and demonstration activities from the state programmes via central government and out to relevant other states and also facilitate contacts with other donors. The central government in this case would mean Min. of Environment and the Central Pollution Control Board and maybe also the National Biodiversity Authority if the plans for this body are materialised. The Embassy and others must do a careful screening of this in order to secure that such an undertaking will be useful and that funds will be used in a sensible way.

One can also think about separate components. One suggestion brought up during our visits was to sponsor reports on India's follow-up of various international conventions and agreements.

Relevant Norwegian organisations and institutions could comprise SFT, DN/NINA, NORAGRIC, Min. of Environment and Statskonsult.

2) IND 040 Institutional co-operation programme
Part of this programme is meant to provide support for R&D co-operation between Indian and Norwegian institutions in the environmental field.

Relative to the general recommendations; government bodies (such as SFT/DN/NILU/NIVA and Indian counterparts such as CPCB/STCB/MoE etc. can be linked on particular issues.

Concerning research environments such as CICERO/NORAGRIC/CMI/SUM and Indian counterparts such as IIT, IIS, SCE, TERI, Kalpavriksha, Centre for Ecological Studies, could be relevant.

Relevant areas of co-operation could be on climate, pollution, bioenergy, solid waste, biodiversity and sustainable use of natural resources and on international negotiations in the environmental field. The Embassy through the secretariat could play an active role as a catalyst in this respect.

3) Revised local supported NGO portfolio

This has been discussed in the recently formulated NGO strategy for the Embassy (Febr.2001). Some main points are outlined under:

The present portfolio of NGOs constitutes a substantial part of total funds allocated from the Embassy. NGOs working with environmental issues constitute around 50% of the total funds allocated for NGOs. The Embassy plans to concentrate more NGO efforts in the two priority states. There has been a focus on grassroot NGOs working in the field and often directly with women and with poor people on environmental issues. In the new strategy, there are plans to increase support to NGOs that work with media, advocacy and policy formulation issues.

The NGO grant could in this respect be utilised to support to a few (2-4) targeted advocacy groups/national/international NGOs such as CSE, Kalpavriksha, Toxic Link etc. Some of these could, however, maybe be better served with a direct link to Norwegian institutions, as under the IND 040 programme. This would depend on the purpose for the support. An important dimension of such strategic support would be to develop contacts with selected Indian NGO leaders. They are quite influential in the Indian society and have good contacts also with environmental policy formulation and implementation environments.

4) Co-operation with Norwegian NGOs working in India

In the NGO strategy for the Embassy, the following items are mentioned for interaction between the Embassy and the Norwegian NGOs:

- Exchange of information and experiences
- Identify actors and present activities
- Develop a platform for co-operation
- Assist Norwegian NGOs in identifying relevant partners
- Assist in project planning and management
- Serve as a forum or mediator for interaction between Norwegian sponsored NGOs in India
- Use Norwegian NGO efforts inside own programmes.

There is little contact between the Embassy and these NGOs. There are environmental NGOs getting support from Norwegian environmental NGOs. The Embassy could investigate if some of the Indian NGOs are interested in contacts with particular Norwegian NGOs such as FIVAS, FIVH, PS, FORUT, Development Fund or NNV. The Embassy has a substantial experience in the Indian NGO scene and should be a qualified advisor for Norwegian NGOs.

8.3.2 Multilateral and multi-bilateral efforts where India is or can be involved

MoFA and NORAD presently handle this work, with some inputs from MoE and other organisations in the Norwegian environment. The present role of the Embassy is somewhat

unclear, and one has expressed a need to clarify what is expected and what is a sensible division of labour concerning multilateral work. Possible roles for the Embassy could be:
- As now- inputs and information at random or at felt need from home basis
- Being kept regularly informed
- Being involved in planning and assessment work of new proposals
- Participating in relevant national forums.

8.3.3 Regional efforts and south-south efforts
One should improve the links between the Embassy and NORAD/MoE/MoFA on issues where India is or could be involved.

Relevant organisations are IUCN ICIMOD, SARC AIT, ESAP. The present role of the Embassy is also here unclear, and one has expressed a need to clarify what is expected and what is a sensible division of labour concerning such work? Possible roles for the Embassy could be:
- As now- inputs and information at random or at felt need from home basis
- Be kept informed.
- Be involved in planning and assessment work of new proposals.
- Participate in relevant regional fora.

8.3.4 International environmental issues and obligations and development co-operation
India takes actively part in all important global environmental organizations and agreements. As the dominating country in Asia, India often acts as a co-ordinator and a spokesman for the countries of the region. The fact that India is likely to play a stronger role in international environmental processes is clearly an argument for closer contact and co-operation with the country. A closer contact could be pursued through various channels, e.g at government level, via academic institutions and through civil society organizations. Norwegian development assistance programmes in India can, strategically used, provide one instrument to promote such contact and co-operation.

It is suggested that the further environmental co-operation between India and Norway take account of the important international processes going on, that is in the field of i) climate change; ii) sustainable use and protection of biological diversity; iii) hazardous chemicals. Important global conventions have been agreed upon in all these areas. The need for technical and financial assistance to developing countries in their efforts to implement these conventions is almost inexhaustible. Such assistance is in line with priorities in the Norwegian environment – development assistance policy. At the same time, the two countries have a common interest in policy dialogue to explore strategies in these fields.

Based upon meetings and discussions with Indian government representatives and NGOs, some possible areas of co-operation have been identified in chapter 6. Potential areas of co-operation in the area of climate change could be: monitoring and verification of national emissions, JI projects, and energy efficiency/clean technologies. Possible projects in the field of sustainable use and biological diversity could for instance be: assistance on the development of a state strategy plan and action plan for Karnataka, watershed management, wetlands protection, coastal zone management etc. A co-operation on hazardous waste management could focus on selected priority industries or waste streams, and on scrapping of ships.

In order to facilitate the programme, it is important to involve governmental institutions at central and state level. This will ensure capacity building in key environmental institutions and gives possibilities for more effective use of results (replication etc) from the projects. To promote dialogue and co-operation, efforts should also be made to link ”sister” organizations in the two countries at different levels, and stimulate for institutional co-operation.

The main inputs from the Embassy would be to, in co-operation with MoE, MoFA and NORAD home, to

- Identify partners
- Establish institution building efforts
- Enhance institutional co-operation,
- Clarify various levels of reporting for different topics

8.5 SUMMARY

India is emerging as one of the key actors in the international political scene; through the size of its population and of the economy and its vast the natural resource base and environment. India’s internal resource use alone has local as well as regional and international impacts. India also has a special role and status in the G77-group that makes India a particularly interesting dialogue and interaction partner along several dimensions.

The new strategy for India was developed around motivations to improve the knowledge, the dialogue and the interaction between Norway and India. One means to achieve this is to improve Norway’s internal integration between development co-operation, more traditional foreign affairs efforts and aspects related to the international scene and in the case for this report also to dimensions related to the international environmental negotiations.

From a Norwegian point of view this will require a closer co-operation between activities and actors that traditionally have had quite different goals and cultures and different ways of working. It will for example, be a challenge to strike a reasonable balance between the promotion of more or less altruistic ideals of poverty alleviation and a different set of ideals or goals on how to promote Norwegian interests. It will take time and explicit efforts to create good co-operation on this. Linking environmental issues in development co-operation with foreign affairs and with international environmental agendas furthermore presupposes that involved parties through dialogue and agreements take their responsibility seriously. In addition to a willingness to agree upon particular gals, such undertaking also assumes an ability to carry this out through the allocation of various resources. Which is a matter of political priorities beyond the scope of this report.

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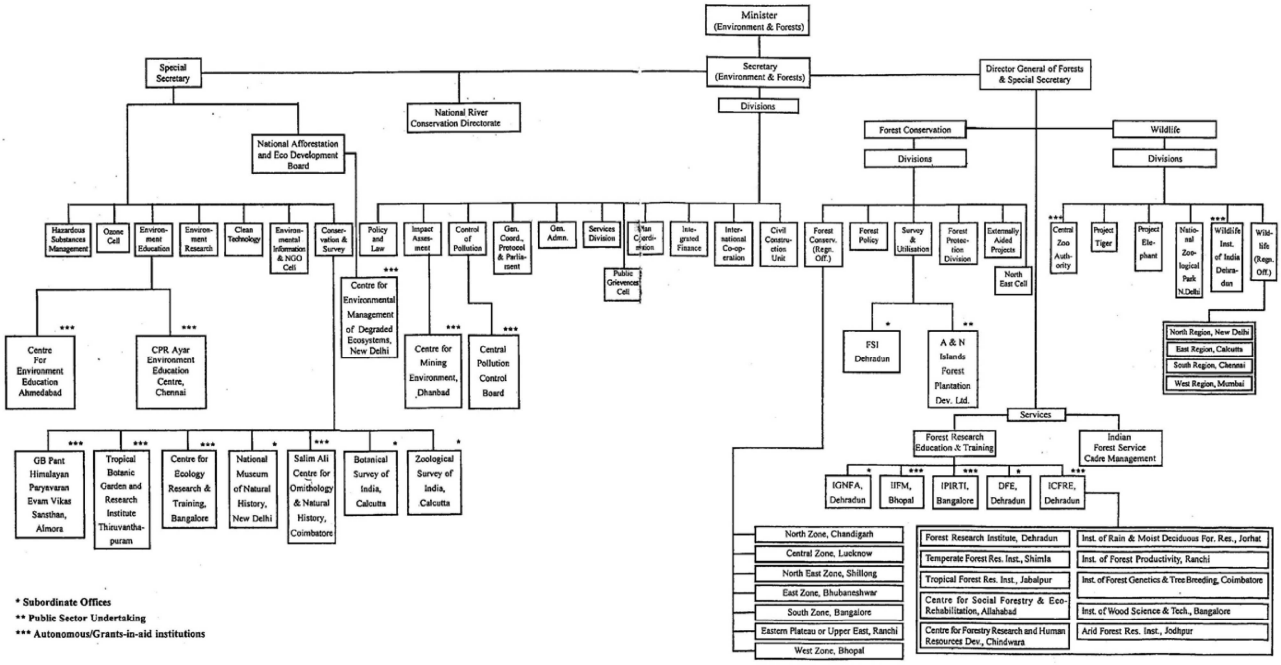
Annexure I

ORGANISATION CHART OF THE MINISTRY OF ENVIRONMENT AND FORESTS



* Subordinate Offices
** Public Sector Undertaking
*** Autonomous/Grants-in-aid institutions