Report of

Inter Ministry Task Group on Integration of Ongoing Schemes

To Address Water Conservation as a Water Mission

PLANNING COMMISSION

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Contents

Introduction:

The recurrent droughts and water scarcity in different parts of the country have brought the issue of water conservation on the national agenda. The National Common Minimum Programme (NCMP) highlights the need for pro-active action in water management. A number of schemes for rainwater harvesting and conservation are under implementation. Watershed programmes for development of rainfed agriculture, desert and drought prone districts, in the northeastern regional and hill areas including Western Ghats are implemented by various agencies. There are many issues of inter-ministerial coordination, commonality of approach, provision of support services, which need to be resolved to give a greater thrust to water harvesting and conservation. The Prime Minister decided to set up an Inter-Ministry Task Group on Integration of Ongoing Schemes to Address Water Conservation as a Water Mission to resolve these issues.

The composition of the Task Group is at Annexure I. The Task Group in its first meeting held on Ist September 2004 deliberated on a number of issues and decided to adopt the following Terms of References:

- To work out modalities for convergence of watershed projects for conservation of water in a mission mode;
- To delineate an institutional structure at appropriate level for convergence;
- To develop a framework for incorporation of technical and scientific inputs in watershed projects.

A Support Group meeting to discuss issues in implementation of watershed programmes was held on 5th October 2004. Shri B.N. Yugandhar, Member Planning Commission held a discussion with experts in the field of watershed development on 18th October 2004. NGOs and State representatives participated in these meeting and presented their experiences. Prof. C.H.H. Hanumantha Rao, Aloysius Fernandez of MYRADA, Shri Crispin Lobo of WOTR, Shri Deep Joshi of PRADAN, Mrs. Vasudha Pangare of International Water Management Institute, Shri M. L. Mehta, ex-Chief Secretary, Rajasthan, and Shri Joe Mediath of Gram Vikas contributed to greater understanding of implementation issues in watershed projects. The Task Group Report is based on inputs received in the two meetings and material furnished by different organizations.

The Report contains an Executive Summary and VII Chapters. The first chapter presents Water Conservation in a historical perspective. Chapter II reviews Programmes implemented by different Ministries for water conservation and land development under a Watershed Approach. Chapter III analyses the imperative for water conservation within the Watershed Paradigm. Chapter IV discusses institutional framework for land and water management. Chapter V examines integration of technical inputs in watershed projects. Other issues that are relevant for watershed development are discussed in chapter VI. Chapter VII presents Conclusions of the Task Group.

Executive Summary

- The availability of natural resources, which sustain live forms, has declined considerably in the last 50 years, due to rapid population growth.

- Degradation of land and scarcity of water are two major problems facing the country today.

- The ground water extraction has exceeded the rate of aquifer recharge in large parts of the country. This is a serious issue that needs urgent corrective action

- The Government's response to land degradation and water crisis has been to implement programmes for harvesting of rainwater, improvement in carrying capacity of land, and increased production of biomass within the framework of watershed approach.

- Ministry of Rural Development, Ministry of Agriculture and Ministry of Environment & Forest implement projects on watershed basis. These projects have guidelines, which are considerably different. The prevalence of different cost norms and guidelines have created overlap and inefficiencies in programme implementation at the district and block level.

- The government has considered the question of bringing all watershed projects under one umbrella. However, due to differences of opinion among Central Ministries, no decision could be taken.

- There have been attempts in the recent past to give primacy to water harvesting. *Pani Roko Abhiyan* of Madhya Pradesh and construction of *Farm Tanks in drought years* in many other States are two recent examples. However, these attempts do not look at the issues of land, water and forest development in a holistic manner.

- The watershed programmes have tended to concentrate on harvesting rainwater in surface structures. There is a need to look at surface and ground water holistically and prepare a conjunctive water use plan.

- Soil erosion through the action of wind and water has been a major concern in India. These can be addressed only within the paradigm of watershed development. The water conservation activities have to be conceived in the overall context of a watershed project.

- There is a need to bring all watershed projects under one Ministry and implement them in a mission mode to cover all the rain fed areas of the countries.

- Alternatively, a separate mission under the Prime Minister may be created with four mini sub-missions under Ministry of Agriculture, Ministry of Rural Development, Ministry of Environment & Forest and Ministry of Water Resources.

- There is a need to evolve cost norms specific to each agro-ecological region. A Committee may be constituted to examine the cost norms for watershed projects.

- NGOs have played an important role in propagation of watershed philosophy for land and water management. The recent guidelines of Ministry of Rural Development have severely restricted their role in this area. The Government guidelines need to be suitably modified to provide for greater role to the NGOs.

- Separate guidelines on technical processes, social mobilization and accounting and auditing of watershed development funds need to be brought out.

Chapter I

The Problem: A Historical Perspective

Introduction

The distribution of natural resources that sustain life forms has been fairly adverse in the case of India. India accounts for 17 per cent of the world population. It occupies only 2.7 per cent of the land area and has access to 4 cent of the sweet water resources. The land / man ratio and availability of water per capita in India compares very unfavorably with other countries. The situation has deteriorated considerably in the last 50 years. The population during this period has grown by almost three times. The increase in the live stock population, which competes with human beings for space and water, has almost doubled. The combined availability of land per person and a live stock unit has declined from 0.44 hectares in 1991 to 0.20 hectares in 2001. The pressure on agricultural land has been more intense as there has been virtually no increase in the net sown area. The increase in agricultural productivity, therefore, had to come about through a more intensive use of water and other inputs. The Table below gives information on growth in human and live stock population in India.

Table 1.1

Growth in Human and Livestock Population in India, 1951-2001

Year	Total Human Population (million)	Decennial Growth	Total Livestock Population (in million)	Decennial Growth (Per cent)
1951	361	-	292.8	-
1961	439.1	21.64	336.4	10.14
1971	547.9	24.8	353.3	10.05
1981	683.3	24.66	420	10.2
1991	838.6	22.72	470.9	12.14
2001	1027	22.47	NA	-

Source: Sudarshan Iyengar," Environmental damage to land" : Economic and Political Weekly, August 23, 2003.

Water Management: Traditional Practices

The depletion of water resources and land degradation due to biotic and abiotic pressures gathered momentum after Independence, though the seeds for this decay

were sown long back. The arrival of British led to a change in the management of land and water resources. The communities in India had understood the close link between forests, agricultural land and water resources. They had evolved systems, which promoted an integrated development of these resources. Land and water were considered community resources. The community evolved its traditions of management over the centuries, which promoted sustainable use of the natural resources. In the Deccan plateau and other areas of the country, which lacked perennial rivers, people depended on the rainfall for meeting their water needs. As the rainfall was periodic and concentrated in 3 to 4 months, elaborate arrangements for storage and utilization of water were made. The system was decentralized and location specific.

Villages had clearly earmarked water bodies for drinking water, irrigation, bathing and for cattle. These water bodies were constructed keeping in view the ecology of the region. The country is divided into fifteen ecological regions. Studies by the Centre for Science and Environment, which has collected considerable material on traditional water harvesting structures, indicate that water-harvesting practices differ from region to region. Even within a region communities have adapted these structures to the requirements of the micro-ecology of the area. Khadins, kuis, pats, johars and many other structures prevalent under different names would fall in the category of traditional water harvesting structures.

In regions where tanks were the main source of irrigation an elaborate system for maintenance of these tanks was put into place. For example, ‘eris’ (tanks) historically accounted for close to 30 per cent of the total irrigated area in Tamil Nadu. They performed multiple roles by acting as flood control systems, prevented soil erosion, recharged the ground water, provided fertile soil and building material. Paddy cultivation was totally dependent on ‘eris’. It is estimated that 4 to 5 per cent of the produce was allocated by a village to maintain the ‘eris’. Village common lands were assigned to the functionaries who maintained the ‘eris’.

Decline of Traditional Systems:

After the introduction of the new rent seeking land tenure system by the British, the villagers found it difficult to allocate sufficient resources for maintenance of these tanks. Population growth and consequent pressure on land also led to encroachments in the catchment areas of the tanks. As a result many tanks dried up. In many other parts of the country, especially in green revolution areas, large scale spread of weeds due to the cropping system also damaged the water bodies. Availability of alternate State managed drinking water systems, water extractions devices suitable to individual needs, large scale irrigation, availability of fertilizers and new building material have obviated the need for the village communities to maintain traditional water bodies and keep them fully functional. Consequently, over the years these structures have become dysfunctional.

The decline in the importance of tanks can be gauged by the fact that in spite of construction of new tanks after Independence the total area irrigated through tanks has declined considerably. In 1951, there were about 5 lakhs tanks. The total number of tanks in the country was estimated to have increased to about 15 lakhs in 1986-87. These tanks are mostly concentrated in Andhra Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh and West Bengal. These States account for over 95 per cent of the country's tanks. Due to silting, neglect and irregular maintenance of irrigation tanks, the gross command area of the tanks had come down from 4.78 million hectares in 1962-63 to 3.07 million hectares in 1985-86 in spite of the increase in number of tanks . The National Commission for Integrated Water Resources Development in its Report of September 1999 had estimated that this amounted to a capital loss of over Rs.5000/- crores. The Commission strongly stressed the need to desilt and revitalize the tank irrigation system in the country.

Ground Water Scenario:

The decline of traditional systems of management, which regulated supply and controlled demand, was a result of changes in property rights that were brought in by the British. The advent of modern technology further exacerbated the decline of the traditional system. Water, including ground water is currently a private property of the

landholder. Any landholder can construct a bore well and extract ground water, which may come from aquifers that extend beyond his landholding. The system is iniquitous, as ground water becomes a property of farmers with resources to invest in bore wells and in electricity. The quest for profitability from agricultural holdings has also promoted cropping patterns even in arid regions, which are totally incongruous with the ecological conditions of the region. Cultivation of paddy and sugarcane in drought prone and arid regions in large parts of Maharashtra, Gujarat, Andhra Pradesh, Tamil Nadu and Karnataka is widespread. Ground water is extracted to irrigate these crops. As a result, with the availability of electricity, tube wells and pumps have proliferated during 1970-2000. The groundwater use was in the range of 10-20 km^3 before 1950. It stands at 240-260 km^3 at present.

These developments have created an alarming situation. Over 25 per cent of the blocks are categorized as either grey or dark zones where the rate of water extraction is higher than the rate of water recharge. The international experience of groundwater management shows that groundwater is highly regulated in countries like Spain, USA and Mexico. In Spain, Water Users' Associations are formed at the aquifer level. They are responsible for recharging the aquifer and its sustainable use. Similar laws have been enacted in the USA. However, it would be difficult to enforce such laws in the Indian context, as the numbers that one will have to deal with are extremely large. India has more than 20 million bore wells and pumps scattered all over the country. In USA, bore wells are around 0.2 million. They are concentrated in a few States. In India only a policy which empowers communities to manage surface and ground water could succeed. The only management that could work in such a situation would be the decentralized form of management, which was practiced earlier.

Government's Programmes for Water Conservation:

The deterioration in land quality and decline of water availability has attracted attention of the Government and the civil society. Small Farmers Development Agency and Marginal and Agricultural Labour Agencies created in the early 1970s were one of the first attempts to improve land productivity through moisture conservation in the lands belonging to small and marginal farmers. The recurring droughts in arid and semi

arid parts of the country gave rise to the Drought Prone Area Programme (1973-74, DPAP) and the Desert Development Programme (1977-78, DDP). In addition, the Integrated Wasteland Development Programme (IWDP), the National Watershed Development Programme in Rainfed Areas (NWADPRA) and the Watershed Development Programme in Shifting Cultivation Areas (WDPSCA) in the North-East have been implemented for conservation of water with the objective of augmenting carrying capacity of land. The Schemes of the River Valley Project for stabilization of river catchment and flood prone areas promote water conservation and soil management. Hill Area and Western Ghat Development Programe implemented by Planning Commission also fall in the category of Water Conservation and Land Development Programmes. National Bank for Agriculture and rural Development has set up a Watershed Development fund with a corpus of Rs.200 crores. Together, the Central Government currently allocates around Rs.1200/- crores annually to implement these projects. Externally Aid Projects provide close to Rs.300 crores for watershed projects.

Many of the programmes mentioned above have been in operation for over 30 years. They have been extensively reviewed in the past. The Hanumantha Rao Committee, which reviewed the DPAP and DDP programmes in 1993-1994, came to the conclusion that these programmes have been implemented:

> *'in a fragmented manner by different departments through rigid guidelines without any well designed plans prepared on watershed basis by involving the inhabitants. Except in a few places, in most of the programmes the achievements have been dismal. Ecological degradation has been proceeding unabated in these areas with reduced forest cover, reducing water table and a shortage of drinking water, fuel and fodder.*'

The Committee recommended drastic changes in programme content and design and advocated development of land and water resources in a holistic manner under the watershed approach. It emphasized the need to make the programmes people centred with greater attention to issues of gender and social inclusion. The Committee's recommendations were accepted by the government and implemented w.e.f. 1.4.1995.

The next Chapter discusses the existing Programmes for Water Conservation and Land Development in arid and semi-arid areas of the country.

Chapter II

Watershed Programmes: A Review

Introduction

Department of Land resources, Ministry of Rural Development, Department of Agriculture and Cooperation, Ministry of Environment and Forests and the Planning Commission currently implement Programmes that seek to harvest rainwater and use it for increasing production of biomass. As mentioned earlier, these Programmes have evolved over the years in response to specific needs. The objectives that they were expected to fulfill have also been different. The Drought Prone Area Programme initiated in 1973-74 was taken-up to minimize the adverse effects of drought on production of crop and livestock, productivity of land, water and human resources. Overall economic development and improvement in the economic condition of the poor and disadvantaged was one of the Programme objectives. The scheme is implemented in 972 blocks of 182 districts in 16 States. The Desert Development Programme seeks to contain the adverse effects of desertification on crops, human and live stock population. DDP covers 235 blocks, 40 districts in 7 States. IWDP seeks to check land degradation and increase biomass availability especially fuel wood and fodder by putting wastelands community under sustained use. The programme is implemented in 374 districts of the country. The NWDPRA focuses on conservation, development and sustainable management of natural resources including their use. Enhancement of agricultural production and productivity in sustainable manner and restoration of ecological balance in the degraded and rainfed eco systems by greening these areas through appropriate mix of trees and shrubs are the main objectives of NWDPRA. In the North Eastern States, IWDP and WDPSCA seek to rejuvenate degraded lands due to jhooming. All these schemes ultimately strive to arrest degradation of land and water resources and improve productivity of land for enhanced incomes and livelihood opportunities for the people.

Estimates of land degradation vary. A number of surveys have been carried out by different agencies to measure the extent and type of land degradation. These are presented in the table below:

Table 2.1
Major Surveys / Estimates of Degraded Lands

S.No.	Agency / Organisation	Year	Extent (in m ha)	Criteria for delineation
1	National Commission on Agriculture (NCA)	1976	175.00	Based on secondary data only
2	Ministry of Agriculture, GOI	1985	173.64	Based on the land degradation statistics for the States
3.	National Bureau of Soil Survey and Land Use Planning (NBSSLUP)	1994	187.70	Mapping on 1:4.4 million scale based on Global Assessment of Soil Degradation (GLASOD) guidelines
4.	Ministry of Agriculture, Deptt. of Agriculture & Cooperation	1994	107.43	Based on the land degradation statistics for the State
5.	National Remote Sensing Agency	2000	63.84	Mapping on 1:50,000 scale. Thirteen categories of Wastelands delineated.

Source: Ministry of Agriculture

The Working Group on Watershed Development, Rain Fed Farming and Natural Resource Management for the Tenth Five Year Plan (2002-2007) accepted the estimate of 107 million hectares made by Ministry of Agriculture in 1994 as degraded lands which required to be treated under the watershed approach. The progress in treatment of the degraded lands is extremely slow. Up to the Ninth Plan, only 29 million hectares was treated under the watershed approach. The table below provides information on area treated and investments made up to the Ninth Five Year Programme.

Table 2.2

Area Developed under various Watershed Development Programmes since inception up to the end of Ninth Five Year Plan

S.No.	Ministry / Scheme (Year of start)	Area Treated (Million hectares)	Investment (Rs. Crores)
1	**Ministry of Agriculture**		
	• NWDPRA (1991)	6.99	1878.94
	• RVP & FPR (1962)	5.49	1516.21
	• WDPSCA (1974-75)	0.22	175.74
	• EAPs	1.50	2071.01
	Sub Total:	**13.85**	**5641.90**
2	**Ministry of Rural Development**		
	• DPAP (1973-74)	9.34	1767.14
	• DDP (1977-78)	2.05	1241.61
	• IWDP (1988-89)	2.73	616.49
	Sub Total:	**15.11**	**3625.24**
3	**Grand Total:**	**29.07**	**9267.14**

Source: Ministry of Agriculture, Ministry of Rural Development

The evaluation reports of projects implemented show that watershed programmes had positive impacts. Agricultural productivity has increased substantially

and the availability of water, fuel wood and fodder has also increased. However, there are many infirmities in the programme implementation. The box below highlights findings of evaluation studies carried in 16 States.

Box: Evaluation of MoRD Watershed Projects

Positives:

- An overall improvement in land use;
- Increase in net-sown area and gross cropped area;
- Increased irrigation options, increase in water table, number of dug-wells and bore-wells;
- Increased fuel-wood and fodder availability, especially in IWDP projects;
- Increase in number of livestock with a marked preference for improved breeds in the post-project phase;
- Changes in household incomes. In some States, increase in incomes was as high as 50 per cent

Drawbacks:

- The benefits of watershed projects flow largely to land owners and large and medium farmers.
- The large and medium farmers have been able to extract re-charged ground water as they were in a better position to make investments in dug-wells and bore-wells. Even though water availability has increased, it had very little impact on drinking water security.
- With availability of water, cropping pattern favours more water intensive crops. This again leads to water stress.
- Major expenditure on the projects was on construction activities with little focus on institution and capacity building.
- People's participation was extremely unsatisfactory in most States. Government departments with very little interaction with the people implemented projects.
- Scheduled Castes / Scheduled Tribes and other landless benefited only marginally through increased employment opportunities. There was no direct flow of benefits to them through the project design.
- Women's participation was extremely poor.
- Involvement of NGOs was also limited.

Source: TERI: Impact Assessment of Watershed Development – A Compendium – July, 2004

The tasks that the country faces in restoration of degraded lands are gigantic. The Working Group on Watershed Development, Rain Fed Farming and Natural Resource Management for the Tenth Five Year Plan period had estimated that close to 89 million hectares would have to be treated under different programmes in the Ninth and subsequent Plans. There are many districts, which experienced droughts for three to four years consecutively during 2000 to 2004 period even in good rainfall years. Most of these districts are categorized as DPAP. Drought proofing these districts has to receive priority.

The Working Group was of the view that people would have to be motivated to share costs in the watershed projects. The Working group projected a treatment plan for 88.5 million hectares at a total cost of Rs.72750 crores. This is reported below:

Table 2.3
Projected Treatment of Land under Watershed Development Programmes

Five Year Plans	Area to be covered (mill.ha)	Estimated cost (Rs. Per ha)	Total cost (Rs. crores)	Cost Sharing Ratio	Cost Sharing (Rs. crorfes)		
					By Centre	By States	By People
X Plan	15.0	5000-7000	9000	50:25:25	4500	2250	2250
XI Plan	20.0	6000-8000	14000	40:30:30	5600	4200	4200
XII Plan	25.0	7500-9500	21250	30:30:40	6375	6375	8500
XIII Plan	28.5	9000-11000	28500	25:25:50	7125	7125	14250
Total	**88.5**		**72750**		**23650**	**19950**	**29200**

Source: Report of the Working Group on Watershed Development, Rainfed Farming and Natural Resource Management for the Tenth Five Year Plan (2002-07)

The unit of implementation for DPAP and DDP programmes is the block. The DPAP, DDP blocks are indicated in Figure I. The Non-DPAP / DDP blocks are covered under other schemes for Watershed Development. Implementation of schemes with largely similar objectives but with different guidelines in the same project area was considered detrimental to programme implementation. State Governments had also represented in the past that different guidelines with their rigid formats for implementation and monitoring systems made it difficult to execute programmes effectively at the ground level. The issue of treatment of forestland falling in a watershed was another impediment. The Government of India, therefore, resolved to bring all watershed projects under one umbrella. The President of India in his address to Parliament in 2000 and the Finance Minister in his Budget Speech for the year 2000-01 indicated that all watershed programmes would be brought under the Department of Land Resources. A Cabinet Note prepared to bring all watershed programmes under a National Mission for Land and Water Development. The DOLR's proposal on Lok Nayak Jaiprakash Naryan Watershed Mission was considered by the CCEA on January 7, 2004. However, decision was deferred.

The coordination issues in Watershed Development were sought to be resolved by an Inter-Ministerial Committee set up in 1999 with representatives of Department of Land Resources, Ministry of Agriculture and Ministry of Environment & Forests. The Committee submitted its Report in March 2000, which was accepted by the Government. The Committee recommended that a common approach to

implementation of watershed programmes should be adopted by the Ministry of Rural Development and Ministry of Agriculture & Cooperation. It was also decided that the schemes of Ministry of Forest & Environment would continue to remain outside the ambit of the common approach, as forestlands required a different type of treatment. The main features of the common approach are indicated in the box below:

Box: The Common Approach

- A programme-specific and focused project approach;
- Greater flexibility in implementation;
- Well-defined role for state, district and village level institutions;
- Removal of overlaps;
- A provision for keeping the watershed development projects on probation;
- Entry Point Activities;
- An exit protocol for the Project Implementing Agencies (PIAs);
- A twin track approach that provides for short term and long term benefits in the implementation of projects;
- A combination of government organizations / NGOs as PIA;
- A greater role for women;
- An effective role for the Panchayati Raj Institutions (PRIs);
- Bringing self-help groups comprising rural poor, especially those belonging to SC / ST categories to the forefront;
- Establishing a credit facility from financial institutions;
- Transparency in implementation;
- Effective use of remote sensing data furnished by the National Remote Sensing Agency.

The guidelines of Department of Agriculture & Cooperation were revised in November 2000 to conform to the Common Approach. Peoples' participation and role of NGOs was highlighted. It was also decided that all projects would be implemented on a Watershed basis with greater concern for equity and social inclusion. Pre-project activities, involvement of technical and research organizations and processes of project implementation were substantially aligned. Both Ministries adopted similar criteria for inclusion of a village under a Watershed.

The Ministry of Rural Development has also revised its guidelines in January 2003. The revised guidelines place responsibility for the implementation of Watershed Projects on Panchayati Raj Institutions. The space for Non-Governmental Organizations, which existed as per the guidelines issued in the wake of Hanumantha Rao Committee Report, has been severely curtailed. This was one of the main components of the common approach as well. The cost norms and method of project implementation have also undergone a change. The convergence that was expected

after adoption of common approach has not come about. The problem is further compounded by a number of externally aided projects implemented by both Ministry of Rural Development and the Department of Agriculture, which follow a different approach and provide higher cost per hectares. These projects are more intensively monitored and provide greater technical inputs at project formulation stage. As they command higher resources per project, they are in a better position to invest in social processes and promotion of equity. These are reported in the Table below:

Table 2.3
Watershed Programmes

	EAPs	**DPAP**	**DDP**	**IWDP**	**NWDPRA**	**WSDSCA**
Cost per hectare	Rs.11000 hectares	Rs. 6000/ hectare	Rs. 6000/ hectare	Rs.6000/ hectare	Rs.4500 / hectare for slopes below 8%. Rs.6000 / hectares for slopes above 8%.	Rs.10000/ hectare
Cost sharing between Centre : State	-	75:25	75:25	91:9	90:10	100% centrally funded
Implemen-tation	Joint / NGOs / Govt.	Panchayat	Panchayat	Panchayats	Govt. line deptts.	Government line departments
Role of NGOs	High	Restricted	Restricted	Restricted	Provision	Provision
Entery Point Activity	Yes	No	No	No	Yes	Yes
Cost Norms						
(a) Watershed treatment (%)	NA	85.0	85.0	85.0	77.5	-
(b) Community Mobilisation and training (%)	NA	5.0	5.0	5.0	12.5	-
(c)Administrative Overheads (%)	NA	10.0	10.0	10.0	10.0	--
Beneficiary contribution	Yes High	Yes Low	Yes Low	Yes Low	Yes Low	No

The National Bank for Agricultural and Rural Development (NABARD) has also set-up a Watershed Development Fund with the objective of Integrated Watershed Development in 100 priority districts through participatory approach. The programme is implemented in 14 States follows a different approach to project implementation. It initially funds a capacity building phase for which it provides grants to the State Governments. This phase could last for as long as 18 months. After successful

completion of the capacity building phase only, money is released to the States for project activities.

The differences in approach in programmes with broadly similar objectives and different funding norms have affected implementation of projects, which require a higher cost sharing by the State Governments. These States prefer NWADPRA and IWDP projects where their contribution is only 10 per cent. They are reluctant to take up projects in DPAP and DDP blocks, as they have to contribute 25 per cent of the cost in these projects. There has been a greater incentive to pose projects for external funding, which provide higher per hectare cost of treatment. These issues can be resolved only if all Watershed Projects are implemented by a single line agency within a common framework.

Chapter III

Water Conservation Within a Watershed Approach:

Introduction

The watershed projects implemented by Central Ministries are highly process-oriented projects. The *WARSA JANSAHBHAGITA* Guidelines of Department of Agriculture and the *HARYALI* guidelines of the Department of Rural Development provide for involvement of peoples' participation in Watershed Projects. The projects take at least five years for completion. The preparatory phase itself last anywhere between six to eighteen months. The project activities that are visible on the ground commence only in the second year or after. There has been a feeling that the long project duration makes it unattractive for States to take-up such projects. The political leadership prefers projects, which could immediately be seen by the people to have delivered benefits. Many research studies show that people rank watershed development fairly lower in their list of priorities. They list health facilities, connectivity, and drinking water availability as their priority. One of the interesting issues in this regard is whether Water Conservation Structures should be constructed first so that people utilize the available water for raising crop productivity. It is argued that this would generate interest in them to take up other activities in the watershed. The other approach argues for holistic watershed treatment as a package without compromising on essential ingredients of the watershed paradigm. The NGOs who have implemented many successful watershed projects advocate treatment of upper reaches of watershed and land stabilization of water channels before money is spent on structures for impounding water.

Water Conservation: Recent Attempts:

Two recent experiments give primacy to water conservation. The Madhya Pradesh Government implemented watershed development under Rajiv Gandhi Watershed Mission. In the initial phase beginning with 1994, the objective of the programme was to arrest degradation of resources that were critical to people's livelihood. The programme evolved over a period of time and culminated in the year 2001 as *Pani Roko Abhiyan.* It was a people's movement, which was backed by financial commitment and technical support of the Government. The resources

available from the Government for drought relief were placed at the disposal of the community, which took up programmes for water harvesting and water conservation in a decentralized manner. The programme was so successful that 14 districts, which were not covered under the drought relief programme in 2001, were also enabled through the banking channels to take up *Pani Roko Abhiyan.*

Box: Pani Roko Abhiyan in Madhya Pradesh:

The crisis of widespread drought of 2001 was sought to be converted into an opportunity by the Government to take the message of water harvesting to all villages through the Pani Roko Abhiyan. Simple Do-It-Yourself methods on water harvesting were developed and taken to each village through the annual Gram Sampark Abhiyan of the state. The message resonated with the community who were facing a drought and were already familiar with work of the watershed management mission.

Each village identified water-related works to be done and government supported this with funds under drought relief and rural development funds. In the operation between January-June 2001, over 7,06,334 structures came up. Out of Rs.415 crores spent on this campaign, community contribution was as high as Rs. 99 crores. People of Madhya Pradesh responded to the campaign in an overwhelming manner prompting the government to refashion the Mission and inbuilt this as a second track or the new generation of the Mission. Using the framework of Gram Swaraj initiated in Madhya Pradesh, Pani Roko Samitis have been created in all non-watershed villages to sustain the momentum created by the Pani Roko Abhiyan. .

The success of people led Pani Roko Abhiyan encouraged people to continue their effort towards drought proofing. The Abhiyan for water harvesting continued even after June 2001. The Government supported people's action with funds and technical guidance.

Source: Rajiv Gandhi Watershed Mission, Madhya Pradesh Govt.

PRADAN, a NGO has adopted this strategy in Jharkhand. Under the Indo-German Bilateral Watershed Project it seeks to promote livelihood improvement through water harvesting. It is an innovative and simple technique of collecting rainwater in a two-meter deep pit in 5 per cent of the total area of the plot. PRADAN provided assistance and guidance to the villagers for construction of farm tanks. The farmers have been able to harvest two crops from the same land due to the availability of water in the field tanks.

Box: Water Harvesting in Jharkhand:

An innovative and simple technique of collecting rainwater in a 2-meter deep pit in an area of about 5 per cent of the total field area, has changed life for Nand Kishore Bhuiya, a 26 year old marginal farmer living in village Karma of RWS Karkara. For Nand Kishore, who owns 20 kathas of upland and 20 kathas of lowland (20 katha = 1 acre), life was difficult, as the land did not give him enough in return to sustain his family of 13 members all through out the year. From the 20 kathas of upland, which was rainfed, barren and undulated he used to harvest about 1.5 kg. of maize, 10-20 kg. of gundli, and 30-40 kg. of mandua and in the lowland he used to get around 1200 kg. of paddy. This could barely feed his family for three months. Rest of the year, he along with his two brothers migrated to Bombay to work as daily wage labourers.

When PRADAN came with the proposal to build 5 per cent ponds, everybody including Nand Kishore was apprehensive about the scheme. In order to convince the villagers, PRADAN arranged for demonstration camps in nearby areas. Members of the village samiti were sent to Purulia and Mayurbhanj where they interacted with local farmers who had constructed these ponds in their fields and were benefiting from them. With the assistance and guidance from PRADAN, Nand Kishore constructed five ponds in his 20 katha of upper land. It took him almost three weeks to construct these structures with an investment of Rs.1500 per pond of which the project paid Rs.1200 and his contribution in the form of labour was about Rs.300. He uses rainwater collected in the pits mainly for irrigation purpose. He regularly attends various agricultural training programmes conducted by PRADAN. It has benefited him immensely. He has learnt about new kinds of farm implements, better variety of seeds, fertilizer application, compost making and use of pesticides for different kinds of diseases.

Today, Nand Kishore is able to harvest two crops from the same land. Instead of growing mandua and gundli during the kharif season, he now grows Vandana paddy, which is of 90 days duration. PRADAN has helped him to procure better quality of seeds and fertilizers. On the bunds he grows arhar. During rabi season he grows wheat and channa. With this and the paddy he harvests from the lowlands, he is able to support his family for almost seven months.

When asked whether the 5 per cent ponds have made any difference in his life, he says: with the increase in my harvest today I do not worry from where the next meal is going to come for my family. I still work as a labourer but that money is now spent on the education of my three children. Without the 5 per cent pond this could not have been possible.

Source: GTZ: www.watershedindia.org

It would appear that harvesting of water in every plot could be a possible option for rainwater conservation. This, however, ignores the close link between stabilization of water channels, even in the plain areas. This problem would be more acute in areas with higher slopes as without treating the upper reaches the soil erosion would continue to be rampant and would require desilting of ponds every second or third year.

Soil Erosion: Watershed Approach

The stabilization of catchments through treatment of upper reaches is the hallmark of all Watershed Projects. Watershed Development Programmes prevent soil erosion through activities of wind and water erosion. Wind erosion is a major cause of land degradation in hot arid regions of the country, but soil erosion due to water run-off is the most serious process of land degradation. Though the estimates of soil erosion due to water activities vary, The Ministry of Agriculture estimates (1985) that over 100 million ha of country's geographical area is affected by erosion of soil because of water run-offs. R.N. Prasad and P.P. Biswas (Soil Resources of India: 1999) estimated the

average rate of soil erosion at 16.35 tonnes per hectare per year. It translates to total soil lose of 5.3 billion tones annually. The Himalyan foothills, Western Ghats and North-Eastern States account for over 60 per cent of the total soil erosion in the country. Thirty per cent of the eroded soil is permanently lost to the sea. The soil, which has deposited in the storage in the major River Valley Projects, eroded their storage capacity by 1-2 per cent annually. It is estimated that the larger reservoirs in the country have lost over 1/3rd of their storage capacity. This has resulted in a reduction in area irrigated and lower electricity generation, thereby rendering large investments in these projects unviable. The soil erosion removes roughly 14 million tones of major nutrients such as nitrogen, phosphorous and potassium from the country's soil. The loss of soil organic matter affects crop productivity. The Tata Energy Research Institute in its Report on *Green India* 2047 had estimated that economic losses due to land degradation caused by lower crop yields and reduced reservoir capacity were in the range of Rs. 89 to 332 billion and 11 to 26 per cent of total agricultural output.

The Watershed Projects fail largely because quick yielding activities such as construction of farms, dams and bunds are undertaken to the neglect of treatment of the catchment area. As a result, bunds and tanks get silted up in a short time and the investment goes waste. Sukho Majri in Haryana was implemented by the government agencies. The project demonstrated the need to treat forest land in the upper reaches of the Sukho Majri village to protect dams and embankments created downstream. It also brought to the fore the organic link between forest protection, water recharge and agricultural productivity. These lessons were ignored in watersheds contiguous to Sukho Majiri with disastrous consequences. A study of 68 watersheds in Morni Pinjore (2003) area indicates that 25 per cent of the dams got silted within the first year. 31 per cent were silted up within 5 years. Only 10 per cent dams were functional even after 5 years. The non-treatment of the ridgelines was the main reason for soil erosion and siltation of the water structures in this area.

Therefore, approach to water conservation needs to be linked to the total regeneration of the area including land, forest and water resources. The long-term sustainability of water conservation structures can be sustained only if an area is treated completely on Watershed basis. The *Pani Roko Abhiyan of Madhya* Pradesh

and *Farm Tank Irrigation* in Jharkhand address the short-term problems of water scarcity and could be taken up under the Programmes for wage employment. The Government has decided to implement a new Food for Work Programme in 150 backward districts. It is expected that employment guarantee would be extended to all districts within the next 5 years. The preliminary estimates of resource requirements indicate that Rs. forty thousand crores would be spent by the government on the Employment Guarantee Programme. The programames that improve productive capacity of the area would be taken up under the Food for Work and Employment Guarantee Programme. Small-localized water structures on private lands within a Watershed Project could be promoted to enable farmers to increase crop productivity as a part of these programmes. The success of these structures would, however, be critically linked to the treatment of the entire area on a Watershed basis which needs to be kept in view.

Chapter IV

Institutional Framework for Land and Water Management:

Introduction

The Watershed Approach signifies holistic development of an area with the integration of land, water, forest and agriculture production systems in a sustainable manner. The issues of land and water management, therefore, require a coordinated response. Unfortunately, These subjects are handled by different Departments and Ministries. The Constitution gives responsibility for these subjects to different organs of the State. Land and water are State subjects; Forest is in the Concurrent List. Further, land, water (Minor Irrigation) Social Forestry and Minor Forest Produce also form part of the Eleventh Schedule, which is earmarked for Panchayati Raj Institutions. As such there are several agencies that have the responsibility to undertake programmes and projects for the development of the natural resources.

Functional Responsibility:

The Ministries of Agriculture, Rural Development, Water Resources and Environment and Forest are vested with the basic responsibility for policy planning and implementation of schemes relating to land, water and forest management. The Ministry of Water Resources is responsible for the overall planning, policy formulation, coordination and technical guidance in respect of water. The Ministry provides technical support and clearance for irrigation, flood control and multi-purpose projects (major and medium) of the States. It is involved in policy formulation in respect of minor irrigation and command area development. Various institutions under the control of Ministry of Water Resources, viz., Central Water Commission (CWC), Central Ground Water Board (CGWB) and Command Area Development Authority (CADA) provide technical expertise in water related matters. The CGWB is responsible for carrying out assessment of ground water availability by carrying out of periodic surveys through its network of over 15,000 stations spread across the country. CGWB also provides support to he States in scientific and technical matters relating to ground water. CGWB delineates aquifers, which can provide sustainable supply.

Policy Coordination at Central Level:

Different Ministries perform functions, which considerably overlap. They also implement schemes with similar programme content. To overcome the problems of coordination at the Central level councils and boards have been set up by the Government. The National Land Use and Wasteland Development Council (NLWC) is headed by the Prime Minister. Two separate bodies have been set up under the NLWC. The Minister of Agriculture & Cooperation heads National Land Use and Conservation Board. National Wasteland Board functions under the Ministry of Rural Development. The Minister for Environment & Forests chairs National Afforestation and Eco Development Board. Table below provide details of functions of each of these Boards.

Table 4.1
Policy Planning Organisations

Board	Year of Establi-shment	Headed By	Functions
National Land-Use and conservation Board.	1985	Union Minister Agriculture.	Formulation & implementation of a national land use policy. Concerned with conservation & optimal utilization of the land resources. Guidelines and financial support to State Land Use Boards (SLUBs).
National Wastelands Development Board, (NWDB, MORD).	1985	Union Minister for Rural Development.	Development of wastelands in the country for sustainable use and increasing biomass availability, especially fuel wood & fodder.
National Afforestation & Eco-Development Board (NAEB), MOEF.	1992	Minister of Environment and Forests.	Promotion of afforestation, trees planting, ecological restoration & eco-development activities in the country. Regeneration of degraded forest areas and land adjoining the forest areas, national parks, sanctuaries & other protected areas and ecologically fragile areas.
National Standing Committee for Watershed Development.	1999	Deputy Chairman, Planning Commission.	Review the progress of watershed development schemes. Coordinate and monitor measures for promoting wasteland development in the country.

After the adoption of common guidelines in March 2000, a coordination committee chaired in rotation by the Secretary (Agriculture) and Secretary (Rural Development) has also been set up.

The Central boards rarely meet. The NLWC, the highest policy planning body has not met even once in the last five years. The NLCB and NWDB meeting take place after long gaps. The co-ordination committee chaired by Secretary (RD / Agr.) held its first meeting on October 13, 2004, four years after adoption of the common guidelines. As such, though formal mechanisms have been put in place for coordination of policy, programme implementation and monitoring, these have been ineffective.

Coordination in States:

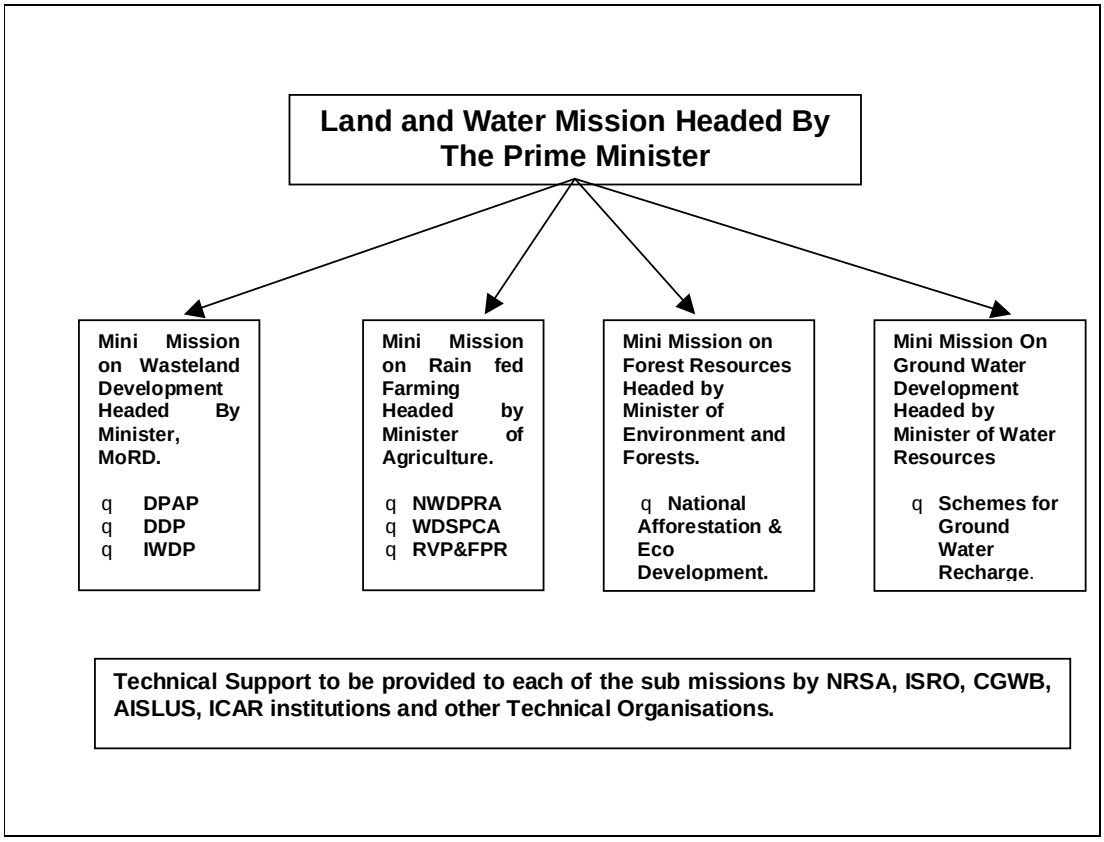
The institutional arrangements at the State and the district level for implementation of watershed projects are equally scattered. The Ministry of Agriculture releases funds for watershed projects to the State Governments for projects under Macro Management. Under Macro Management, states are free to choose out of 27 schemes listed under the scheme for implementation. NWADPRA forms part of the Macro Management. The Department of Agriculture has field offices in districts headed by an Agriculture Officer. NWADPRA is largely implemented by line departments. The Departments, which are generally given responsibility for implementation of projects, are Agriculture, Animal Husbandry, and Soil Conservation. These Departments act as the Programme Implementing Agencies (PIAs)and constitute watershed development teams which interact with the community through Watershed Committees and provide technical guidance. Monitoring Committees at central, state and district level are constituted for monitoring NWADPRA.

In the case of Department of Rural Development, the money is released directly to the zilla panchayats. The responsibility for selection of PIAs rests with the zilla panchayats. The basic responsibility for implementation rests with the gram panchayats under the overall supervision and guidance of the PIAs. The Hariyali guidelines provide that an intermediate panchayat may be the PIA for all projects sanctioned to a particular block / taluka. In case these panchayats are not adequately equipped to handle watershed projects, then the zilla panchayats could either itself act as a PIA or may appoint a suitable line department like agriculture, forestry, soil conservation or an agency of the State Government, University / institute as a PIA. In case, it is not possible to appoint any of the above, the zilla panchayat could consider appointing a reputed NGO as a PIA. Separate Monitoring Committees at National,

State and district level exist to review and monitor projects implemented by the Ministry of Rural Development.

The Government of India has considered the matter of convergence of all watershed programmes under one umbrella. The most prudent course would be to bring programmes implemented by Ministry of Rural Development and Department of Agriculture under one Ministry. This matter has been considered by the Cabinet in the past and no decision could be taken because of disagreement on location of these projects to one Ministry. The Department of Agriculture has argued that the focus of DAC projects is on increasing productivity of rain fed agriculture while the Ministry of Rural Development Programmes are implemented on common lands with greater attention to people's participation. Needless to say the objective of all the programmes is to raise productivity of land and water resources. The differences are only in emphasis and not on substance. In an ideal situation, all these programmes should be merged.

In case it is not possible to bring all watershed programmes under one administrative Ministry, it may be advisable to create a National Land And Watershed Mission under the Chairmanship of the Prime Minister. Four mini-missions could be located in Ministries of Rural Development, Agriculture, Environment & Forest and Water Resources. They could continue to implement their programmes but with common cost components and process guidelines. The technical institutions such as NRSA, ISRO, AISLUS, CGWB and Institutions under ICAR could provide technical support to all the four mini-missions. Separate technical process guidelines could also be prepared with the help of experts to internalize technical inputs in the project design. This is indicated in the graph below:



Adoption of Uniform Cost Norms:

The watershed programmes are implemented at the block and the district level. Prevalence of different cost norms under different programmes creates confusion and affects programme implementation. Administrative capabilities and technical support available in the district also gets fragmented under different programmes. It is necessary to adopt uniform cost norms for projects of MORD and DAC. It would be easier to pool resources available from different projects for watershed development at the district level. In such a situation, a separate district watershed mission could be created. In some States, after the intervention of the Ministry of Rural Development, a separate post of Additional District Magistrate for watershed development has already been created. Government of Karnataka have set up a separate Watershed Development Department at the State level and Watershed Directorates at the district level to implement all watershed projects in the State. In Andhra Pradesh, Water Conservation Mission was set up for Neeru-Meeru Project. Government of Orissa has

also created Orissa Watershed Mission as a registered society. Madhya Pradesh Government has Rajeev Gandhi Mission for watershed development. If uniform cost norms were adopted, it would facilitate creation of separate Directorates for watershed development at the district level by other States also. The District Watershed Directorates / Missions would then be in a better position to plan for the watershed development activities in a district.

Employment Guarantee Act and Water Conservation:

The constitution of a separate mission at the district level assumes urgency in view of the fact that substantial resources are likely to be available to the districts under the National Food For Work Programme and the Employment Guarantee Scheme, which would underpin the Employment Guarantee Act. The Ministry of Rural Development has estimated total fund requirements of about Rs. forty thousand crores for employment guarantee. District of an average size is likely to get Rs. 70-80 crores every year for employment guarantee programme. In addition, the districts in arid and semi-arid areas get resources under different watershed programme which range from 3 to 5 crore per district.

The Employment Guarantee Act provides an opportunity to enlarge coverage under watershed development projects by drawing resources available under the Food For Work Programme to provide for the labour component. The State Government and many NGOs have expressed the opinion that watershed development project costs provided by the government, which range between Rs.4500 to Rs.6000, are quite low. It is difficult to treat upper reaches and undertake plantation activities within these costs. Instead of revising the cost norms upwards, it would be better to provide for only the material cost under watershed projects and leverage Employ Guarantee Act funds to provide for labour cost component of watershed projects. There could be process of bidding for employment generation under Employment guarantee Act and projects, which generate higher man days, their labour cost could be booked under Employment guarantee Act funds. As watershed projects are more labour intensive, they are likely to generate higher employment. This in fact, would enhance the allocation in real terms for watershed development projects.

Construction of small ponds and earthen dams to save every drop of water in the field could be conceived as a part of this activity within the overall framework of watershed development. For success of watershed development under a water mission at the district level, many other ingredients would have to fall in place. The technical inputs in planning and design of the watershed projects, involvement of the community, training and capacity are some of the issues that would have to be resolved in this regard.

Chapter V

Technical Inputs in Watershed Development:

Introduction

Watershed development is a complex discipline. It requires knowledge of soil, sub-soil structures, geo-hydrological data, and agricultural sciences. It also requires strong organizational support to be successful in its objectives. The technological inputs in watershed projects are required both at the preparatory phase of the project, during project implementation and in the post-project phase.

Identification and Selection of Watersheds:

The first phase of any watershed project is delineation of the watershed. The programme guidelines of the MoRD and DAC indicate that macro-watersheds of about 25,000 to 30,000 hectares should be first mapped with major drainage courses consisting of rivers, rivulets and other drainages. With the help of maps prepared by Survey of India, each of these macro watersheds should then be sub-divided into sub watersheds of 5000-6000 hectares. The sub-watershed is considered to be the unit of operation for a Project Implementing Agency (PIA). The sub-watershed should be further divided into micro watersheds of about 500 hectares where new projects are to be undertaken. As far as possible the watershed should be coterminous with the village boundary. The prioritization of micro watersheds should be on the basis of degree of land degradation, the potential water run-off and scarcity of drinking water. Technical organizations with requisite capacity to provide these technical details exist at the State level. The Ministry of Agriculture has All-India Soil and Land Use Survey Offices at State level. The National Remote Sensing Agency is also active in mapping lands resources in the country. Organisations under Ministry of Water Resources have offices all over the country.

Technical Inputs in Watersheds:

The guidelines provide for detailed scientific investigation before the projects are formulated. Unfortunately, these activities are rarely undertaken by district authorities. Only very few watershed projects are prepared on the basis of detailed investigations

as envisaged in the guidelines. The preparation of watershed projects without adequate scientific and technical analysis has its own problems. For example, the construction of water impounding structures without adequate investigation of the geo-hydrological data could lead to construction of water harvesting structures at places, which have impermeable rocks underneath. This would prevent re-charging of ground water, which is one of the major objectives of the watershed programmes. Similarly, the construction of dams and bunds on small rivulets and nallahas without detailed investigation could lead to drying up of wells downstream of the dams, as the flood waters which earlier re-charged wells downstream get impounded in the bunds. This calls for analysis of water balance in the area. Hydrologists contend that at least 35 per cent run-off should be allowed to go downstream to maintain the hydrological balance. The Central Ground Water Board (CGWB) is the only organization in the Government which has the capability to undertake these studies as it has over 15,000 centres spread over the country. CGWB's expertise, however, is not internalized in the watershed programmes being implemented at present. They have taken up separate projects for recharging ground water aquifers. The CGWB could play a more pro-active role by providing technical assistance at the district level in formulation of watershed projects.

Conjunctive Water Use:

Watershed programmes implemented by the Government have largely concentrated on impounding of rain water in surface structures. Their main focus has been to prevent water run-off and collect it by surface storages. Research studies indicate that underground aquifers are the most efficient storage structures as water evapo-transparation losses in ground water storage are lower compared to overground reservoirs. The watershed projects, therefore, need to internalize ground water storage potential in the project design. The water harvesting structures have to be closer to underground aquifers. The projects need to specifically provide for recharging of these aquifers. This requires a detailed knowledge of geology and geo-hydrology of the area. The scientific institutions like CGWDB need to play a more pro-active role in this regard. They have to re-orient themselves as service providers to the watershed projects. The water utilization planning has been based on a comprehensive assessment of available water resources, both overground and underground within the water basin. There has to be a conjunctive water use plan which incorporates surface water and ground water.

Conflict Management:

The scientific and technical inputs at times conflict with the perception of the farmers. Scientists may want to construct water-impounding structures on land, which may be permeable and facilitate re-charging of ground water aquifers. Losses of ground water are negligible compared to evaporation of water in open reservoirs. However, a farmer may want ponds near his land to facilitate irrigation. There could be problems in designing and location of structures such as contour bunds,trenches, vegetative bundings and similar other structures which are part of a watershed project. These conflicts of opinion need to be resolved in an open discussion with the watershed community. Without resolution of such technical issues, the sustainability of watershed programmes becomes a question mark.

The PIAs set up watershed development teams. These teams are expected to have at least one woman, one sociologist and two other members from civil engineering, forestry, animal sciences or related basic sciences. However, the evaluations studies indicate that the ability to carry out pre-project investigations on soil and geo-hydrology is limited and can only be provided by the specialist institutions such as CGWB, Agricultural Universities or Engineering Colleges. However, specific involvements of such organizations have not been incorporated in the project guidelines. In 1995, when the Ministry of Rural Development adopted the watershed guidelines in the wake of Dr. C.H.H. Hanumantha Rao Committee Report, the Ministry had planned to bring out separate guidelines on social processes, technological inputs accounting procedures and monitoring formats. This was not accomplished. It is time to evolve such guidelines with the help of State Governments, NGOs and other technical institutes and make it a part of the watershed programmes to make them more sustainable.

Agricultural Extension:

The technical support in terms of agronomic practices, creation of marketing linkages for inputs and outputs is equally critical to the success of a watershed project. The agricultural extension system in the country has suffered serious setback and is considered to be extremely weak. The lack of extension support was highlighted as

one of the major reasons for low agricultural productivity in large parts of the country, in the mid-term review of the Ninth Plan. The National research systems have also tended to neglect research needs of the rainfed farming system. This needs to be corrected. The future food security of the country largely depends on the ability of the rainfed agriculture to move to a higher growth path. The technical guidelines should also clearly delineate the processes for infusion of agricultural support in a specified time-bound manner during the project execution and in the post project phase as well.

Chapter VI

Other issues in Watershed Management:

Social Process:

Participation of the community in planning and implementation of watershed projects has been highlighted as the most critical factor which determines the success or failure of the project. Community mobilization has been attempted by government agencies as well as the NGOs that have been active in the field of watershed development. Many NGOs have approached the issue of social mobilization by setting up small Self-Help Groups (SHGs) on specific themes. These SHGs then participate in the watershed association which has the overall responsibility for project implementation. Charismatic leaders such as Shri Anna Sahib Hazere, Shri Vilasrao Salunke, Shri Harnath Jagawat of Sadguru Foundation and Shri Rajendra Singh of Tarun Bharat Sangh have done commendable work in mobilizing the community. The government agencies, on the other hand have tried to use the village panchayats to mobilize people's participation. A study of watershed development projects conducted by Shashi Kolvallian and John Kerr indicates that in the projects implemented by government agencies, though the processes for people's participation such as setting up of Watershed Committees, Self Help Groups and Watershed Associations were followed, the basic values and beliefs that underpin social mobilization, were missing. They attribute lack of belief in peoples' ability to manage projects as the main factor for unsustainability of government implemented projects. NGOs have been more successful in promoting peoples' participation. As such, NGO-supported projects have survived over longer periods.

The development of degraded lands has been one of the priorities of the Tenth Five Year Plan. The UPA Government has also stressed the need for development of rain fed agriculture and conservation of water resources. There is, therefore, a need to bring out detailed process guidelines for watershed projects. The guidelines should clearly identify the role of NGOs in the process of social mobilization so that community is motivated to feel a sense of ownership in the watershed projects and maintain them after the projects are completed.

Selection of Watershed:

The watershed projects are prepared by District Agencies and submitted to the Central Government for approval. The projects are approved on the basis of resources available. Selection of a village under a watershed programme could be much more stringent. The criteria for selection of watershed projects should be so designed that only those villages, which have the requisite social capital to implement a project, get covered under the programme. In Maharashtra, under Indo-German watershed project, villages are selected under the project only whey they successfully complete 'shramdan' for four days. In the constitution of Watershed Development Committee, similar provision is kept for mobilization of 'shramdan' to be eligible as a watershed committee member. MYRADA insists on people contribution towards project cost before it selects a village for taking up watershed project. Such self-selecting criteria should be worked out for every agro-ecological zone so that only those villages are taken up for watershed development, which have the requisite conditions for their successful implementation. The impulse for the project should come from the community. It should not be a top down patronage system.

Livelihoods:

Evaluation reports point out that in spite of detailed guidelines for holistic watershed development, projects are implemented as a single line activity with greater focus on construction activities. In the undulating areas of the country where the tribal population of the country resides, the issues of livelihood and their integration with watershed approach has not really been thought through. For example, in States like Jharkhand, Chattisgarh and tribal belts of Orissa, tribals grow paddy under extremely primitive conditions. All efforts by the Government and the NGOs for crop diversification and infusion of technology have failed due to lack of input and output marketing linkages. The question of livelihoods and the role of land and water in provision of that livelihood should be brought to the center stage in watershed development. The strategy should be one of pro-active resource management, i.e. land and water, to improve and stabilize production opportunities in the area. Unless the issue of water conservation is linked to the issue of livelihoods, it is unlikely to succeed in the long run.

Convergence of other Government Programmes in the Watershed:

Watershed guidelines of the Ministry of Agriculture and Department of Land Resources stress the need to saturate watershed area with other resource-management and production support oriented schemes of the government. Detailed guidelines have been issued for interaction with Agricultural Universities, Extension Agencies and other Support Services. In spite of these guidelines, actual coordination and convergence of schemes in the watershed areas was very weak. A few good examples do exist in this regard. However, their replication on a nation-wide scale has not been possible. Convergence of other activities should be internalized in the sequencing of activities that have been identified in the watershed project schedule. At the district level, various Departments, which deal with land, water, agriculture and other rural-based activities, should be brought under one formal coordinating mechanism so that the issues of convergence are resolved.

Efficient Water Use:

Efforts to properly utilize harvested water also need to be taken up. Promotion of sprinkler and drip irrigation in water scarce areas has not been taken up on the scale that is required. These activities need to be promoted in the watershed development programme. Water storage structures recharge ground water aquifers. Landholders construct bore-wells to extract ground water. This violates the equity principle. Many State Governments have resorted to regulatory mechanisms to control extraction of ground water. Given the large number of bore wells in the country, control through administrative or legal measures may not be effective. A better alternative would be to integrate water policies in the land revenue code and empower the community to exercise control over the water resources in the same manner as revenue department managed land in the past

Training :

The capacity to undertake watershed projects is extremely limited at the ground level. The Ministry of Agriculture provides 7.5 per cent of the total project cost on training. The Ministry of Rural Development provides 5 per cent of the total project cost for training activities and community mobilization. Thus for a project costing Rs.25 to Rs.30 lakhs, a training provision of Rs.1.5 to Rs.1.75 lakhs is available. As a PIA is normally allotted 8-10 projects for implementation at a point of time, a training budget of Rs.10-12 lakhs is available to one PIA. However, the training component of watershed projects is extremely weak. The various agencies that have been active in this field, themselves lack capacity to train people in watershed projects.

The capacity that is required in a watershed is of two kinds. The first relates to the ability to sensitize and motivate the community to take up watershed projects. This capacity is largely available only with the NGOs. A more successful training model has been demonstrated by the Watershed Organisation Trust (WOTR) in Maharashtra. This is reported in the box below:

Box: Watershed Organisation Trust's (WOTR) Training Programme

Under the Central Government's Drought Prone Area Programme (DPAP) being implemented since WOTR has been selected as the "Mother NGO" for implementing organizations in the Ahmednagar District since the year 2000. WOTR's responsibilities include conducting trainings in the technical and social aspects of watershed development with a special emphasis on people's participation, evaluation of the Capacity Building Phase, support for preparation of project proposals, scrutiny of the estimates for works to be undertaken, etc. The work is undertaken through a close collaboration with the District Rural Development Agency (DRDA). The various training programmes conducted for the Project Implementing Agencies, Watershed Development Teams, Watershed Secretaries, Watershed Volunteers and Watershed Committees have proved to be very useful in improving the quality of the work and implementation.

The common thread running through all these trainings was the importance and means of obtaining the participation of the community in the work so as to create in them a feeling of ownership of the project. As was noticeable in the evaluation of the Capacity Building Phase conducted by WOTR, these trainings went a long way towards improving the quality of the work both technically as well as socially.

This new method of implementing the DPAP projects is very important since this is the first time that all the concerned government departments have come together to undertake integrated watershed development work in a village by pooling in all their individual strengths for the benefit of the village. Besides the above mentioned activities, WOTR has played a key role in that it has been largely responsible for bringing together the DRDA, the Zilla Parishad (District Council) and the PIAs on a common platform for planning and monitoring the work. This has led to better coordination, quicker decision-making and smooth implementation of the work.

Source: WOTR Annual Report 2003-04

The capacity building is required in the technical domain as well. The Agricultural Universities and Agricultural Research institutes have to be brought in the picture to provide the technical support at the ground level.

Interface between Panchayati Raj Institutions (PRIs) and NGOs:

The watershed development programme is a highly process-oriented programme. Community participation is an imperative for successful implementation of such programmes. In the earlier guidelines of the Department of Land Resources, NGOs were identified as Project Implementing Agencies along with other government departments. However, w.e.f. 1.4.2003, the Department of Land Resources has adopted new guidelines "Haryali". The guidelines give responsibility for implementing watershed projects to the PRIs. Giving monopoly powers to panchayats on implementation of watershed projects was likely to result in capture of money meant for watershed projects by the elite sections of the village. There is a need to promote competition in this area for efficient delivery. Both models of executing a watershed project, viz., through PRIs and through the NGOs should be given a fair trial. There

was a need to promote cooperation between NGOs and PRIs. Execution of the project could be left to the village panchayats. The NGOs could take over the role of sensitization of the community and building social capital in the village. The Hariyali guidelines need to be immediately revised to provide a greater role for NGOs in watershed projects.

Chapter VII

Conclusions:

Land degradation and water scarcity in large parts of the country are two major issues facing the country. Livelihoods of people in rain fed farming areas critically depends on restoration of ecological balance. This calls for an integrated development of land and water resources. The Government has taken up a number of steps for development of degraded lands. Ministry of Rural Development, Ministry of Agriculture and Ministry of Environment & Forests are the three main agencies for implementing programmes for restorations of degraded lands. The schemes implemented by the Government follow watershed approach. Rainwater harvesting and conservation is an integral part of watershed development. There have been attempts in the recent past to harvest and conserve rainwater within the field boundaries. *Pani Roko Abhiyan* in Madhya Pradesh under Rajeev Gandhi Watershed Mission and farm tanks and bunds created in the wake of drought in other States, give primacy to harvesting of rainwater. However, the issues of water conservation cannot be delinked from the question of soil erosion, land degradation and loss of agricultural productivity. The water conservation, therefore, has to be looked at within the overall framework of watershed paradigm for long-term sustainability.

The Central Ministries implement schemes for watershed development under a common approach since March 2000. However, in the last four years, there has been a substantial divergence in the cost norms and the implementation philosophy. The external agencies also fund projects for watershed development. They provide higher cost per hectares. The cost norms and the cost components also differ from project to project. As the basic unit of implementation for all the watershed projects is the district and the blocks, implementation of schemes, which follow the same approach but different cost norms creates un-necessary duplication of efforts, which can be avoided by integration of all watershed schemes. This matter has been considered by the Cabinet but no decision could be taken. Many State Governments have attempted to create unified implementation structures at the district level by setting up a watershed development agency. The functioning of such agencies could be improved considerably if schemes are converged at the central level. It is, therefore, recommended that all the schemes for watershed development implemented by the

Ministry of Agriculture and Ministry of Rural Development should be converged and brought under one Ministry.

In case it is not feasible to bring watershed projects under one Ministry, it may be desirable to merge all the apex level organizations such as National Land Use Board, National Wasteland Development Board and create a unified structure under a watershed mission. This watershed mission could be headed by the Prime Minister. Four separate sub missions could be created under the Ministry of Rural Development, Ministry of Agriculture, Ministry of Environment & Forest and Ministry of Water Resources. The four Ministries could continue to implement their projects within the overall framework of the policies laid down by the watershed mission.

In the immediate context, the minimum that needs to be done is to work out uniform cost norms for watershed schemes. The Ministry of Agriculture provides higher cost norms for treatment of lands with slopes higher than 8 degree. The schemes implemented by Ministry of Rural Development provide Rs.6000/- per hectare. NGOs as well as the government representatives have indicated that the cost for treatment of higher reaches is more than the cost provided under the government schemes. There is, therefore, a need to go into the specific cost norms relevant to each agro-ecological zone and adopt these cost norms for all the projects implemented in that zone. A separate committee, may, therefore, be set up with representatives of State Governments and NGOs to work out a detailed cost structures for watershed projects.

The watershed development approach requires integration of various disciplines in formulation and execution of watershed projects. Detailed technical analysis of soil conditions, hydrological features of the area and water balances studies are required to be carried out before watershed projects are taken up. Many technical institutions at the national and state level exist with the requisite capacity to provide scientific inputs into project formulation. Unfortunately, the services of these institutions have not been fully utilized. The guidelines of the Ministry of Rural Development and the Department of Agriculture provide for use of technical inputs in project formulation. There is a need to formulate guidelines on technical aspects of a watershed project. The role of National Remote Sensing Agency, Land Use Survey Boards, Central Ground Water

Board and other relevant technical institutes needs to be clearly spelt out in the technical guidelines.

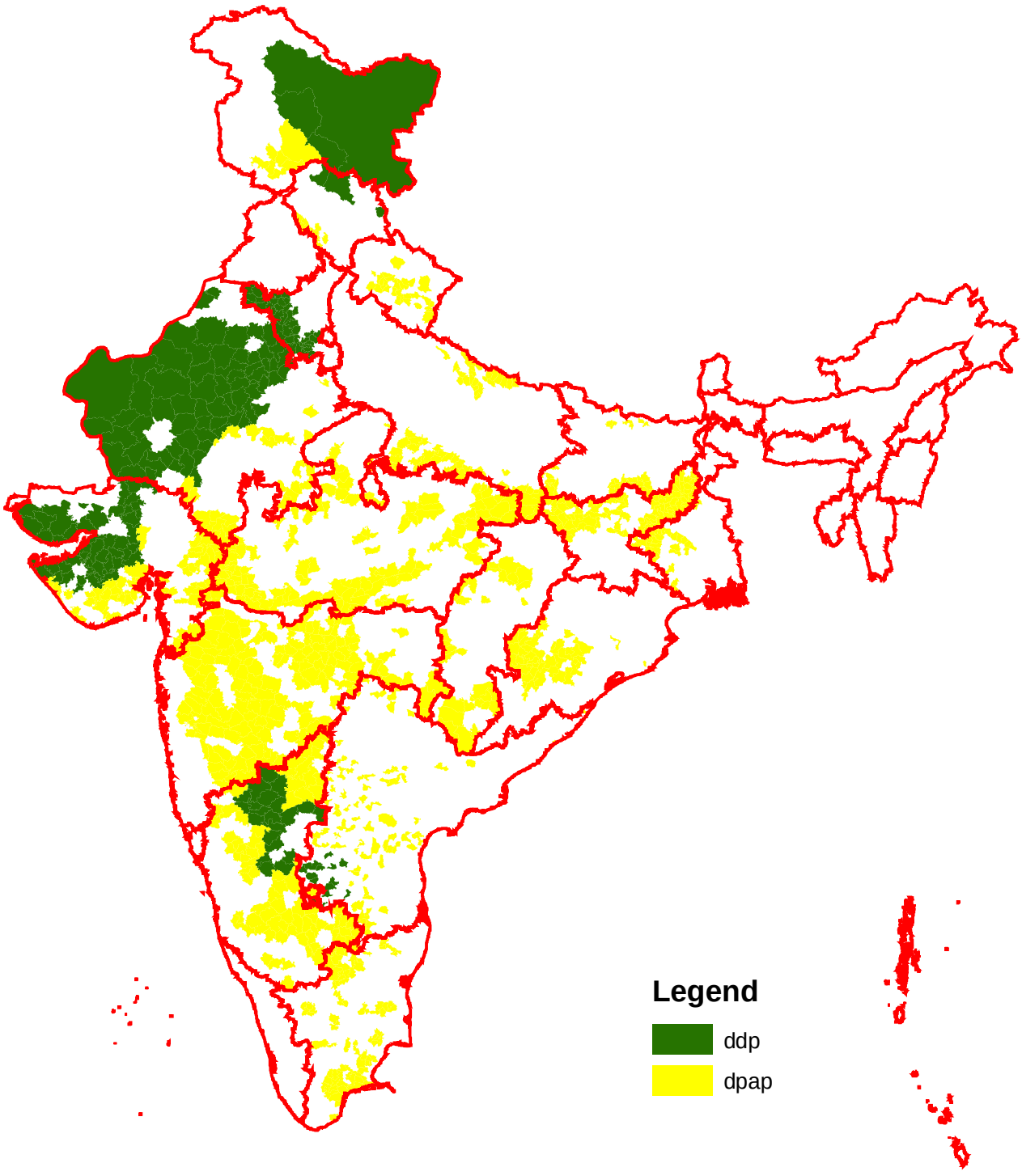
The watershed programmes are highly process-oriented. These projects are completed over a period of five years. The programmes demand high degree of people's participation. The Ministries have implemented these programmes through the district level line departments. Many projects have been implemented by the NGOs either with government funding or with funds provided by international agencies. The guidelines for Government programmes provide for creating platforms for people's participation such as Watershed Committees, Watershed Associations and Self Help Groups. However, these associations in most cases do not provide for peoples' participation in planning and implementation of the projects. On the other hand, evaluation reports indicate quite clearly show that projects implemented by the NGOs have been much more successful in the programme objectives as they have been in a better position to mobilize the community.

The MoRD has revised its guidelines and given responsibility for project implementation to the PRIs only. The space for non-governmental action has been severely curtailed. The Haryali guidelines need to be revised to allow for greater participation of NGOs in implementing watershed projects. It is also necessary to bring about a detailed guideline on process of social mobilization in watershed projects. The guidelines should clearly stipulate major milestones. The projects should be monitored more closely on social processes and the disbursement of funds to the projects should be linked to effective social mobilization.

Summary:

In conclusion, water conservation has to be addressed within the overall paradigm of watershed development. It requires action on both supply and demand management. Promotion of less water intensive crops, irrigation system such as dripp and sprinkler and other activities that conserve water need to be promoted. It would be desirable to bring all projects that are implemented under a watershed approach under one Ministry and implement them in a mission mode.

DPAP & DDP Programme (Block-wise)



Source : Dept. of Land Resources
Ministry of Rural Development
2002

National Informatics Centre

Annexure-I

Government of India
No.N-11017/7/2004-PC
Government of India
Planning Commission

Yojana Bhavan, Sansad Marg,
New Delhi, 4th August, 2004.

ORDER

Subject: Setting up of an Inter-Ministry Task Group on Integration of ongoing schemes to address water conservation as a Water Mission.

In pursuance of the decision taken by the Prime Minister for setting up of Inter Ministry Task Groups to consider action needed for those areas of National Common Minimum Programme where the agenda is cross sectoral and requires action encompassing a number of Ministries / Departments, it has been decided to set up an Inter-Ministry Task Group on Integration of ongoing schemes to address water conservation as a Water Mission..

2. The composition of the Task Group is as under

Secretary, Planning Commission	-	Chairman
Secretary, Ministry of Water Resources	-	Member
Secretary, Department of Agriculture & Cooperation	-	Member
Secretary, Department of Agricultural Research & Education	-	Member
Secretary, Ministry of Finance (Department of Expenditure)	-	Member
Secretary, Department of Rural Development	-	Member
Secretary, Department of Land Resources	-	Member
Secretary, Department of Science & Technology	-	Member
Sectoral Officer-in-Charge, Prime Minister's Office	-	Member
Adviser (WR), Planning Commission	-	Member
Adviser (RD), Planning Commission	-	Convener

3. The Terms of Reference of the Task Group would be developed in the first meeting of the Task Group by the Group itself keeping in view the objectives and priorities laid down in NCMP relating to the subject of the Task Group after sharing with the Prime Minister's Office.

4. The Task Group may constitute a support group of domain specialists in the Ministries (i.e. officers in the rank of Joint/Additional Secretaries) in its first meeting to assist the Task Group in the spadework and in preparing and finalizing its Report.

5. The Task Group would address integration of selected ongoing schemes with multiple Ministries to address the water conservation agenda through a National Water Mission.

6. The Group will attempt to combine employment programmes with water conservation as their focus to make the investment productive as well as using the Mission format to enlist citizen and community action. The Group will make a specific recommendation/ suggestion for combining the programmes mentioned below: -

- o National Watershed Development Project for Rainfed Areas under Macro Management
- o Food for Work for selected districts.
- o SGRY is selected districts.
- o Hariyali
  Drought Prone Areas Programme
  Integrated Wasteland Development Programme
  The scheme announced in the budget 2004-05 for desilting tanks.
- o Pradhan Mantri Jal Samvardhan Yojana
- o A Portion of Rashtriya Sam Vikas Yojana in selected districts.

7. Each Ministry / Department concerning the subject of the Task Group should make a written presentation to the Task Group on what possibilities exist in their areas of concern.

8. The Task Group will have the powers to co-opt/ associate professionals/ domain experts into the Group. The Task Group will also have the powers to set up Sub Groups/ Steering Committees of officials on specific issues. The Task Group should, however, encourage active participation of the State Governments in the areas of concern of the Group.

9. The expenditure of the members on TA/DA in connection with the meetings of the Task Group will be borne by the Ministry/ Department/ State Government to which the members belong. In case of private members, TA/DA will be borne by the Planning Commission as admissible to the Class I officers of the Government of India.

10. The Task Group will submit its report to the Planning Commission within Ninety days from the date of its constitution.

11. The Task Group will be serviced by the Planning Commission.

(**Rajan Katoch)**
Joint Secretary to the Govt. of India

To

All Members of the Task Group

Copy to :

Deputy Chairman, Planning Commission

Minister of State (Planning)
Members, Planning Commission.
Cabinet Secretary
Secretary to the President of India.
Pr. Secretary to Prime Minister
Joint Secretary to Prime Minister (Sh. R. Gopalakrishnan)with reference to his U.O.No. 360/31/C/20/04-ES.II, Dated 29th July 2004.
Pr. Advisers/Advisers, Planning Commission.