

CHAPTER 3
POINT 2 : STRATEGY FOR RAINFED AGRICULTURE

3.1 In spite of rapid improvement in irrigation facilities, a large part of Indian agriculture is still rainfed. Improving the productivity of rainfed agriculture holds the key to higher agricultural production. Such improvement required special programmes. Under TPP-86; in strategy for rainfed agriculture, emphasis is laid on two programmes:

- (a) Watershed Development
(b) Drought Prone Area Programme (DPAP)

(a) Watershed development consists of:

- (i) Micro watershed;
(ii) Land Development; and
(iii) Distribution of improved seeds.

(b) Drought Prone Area Programme (DPAD) comprises:

- (i) Area under soil and moisture conservation;
(ii) Creation of irrigation potential; and
(iii) Afforestation and pastures.

In addition to the above-mentioned qualitatively monitored items, there are 5 qualitatively monitored items, namely;

- (i) Distribution of seed-cum-fertiliser drills;
(ii) Distribution of improved agricultural implements;
(iii) Area covered outside watershed;
(iv) High yielding variety seeds; and

(v) Number of districts covered under DPAP.

3.2 Watershed Development :

3.2.1 The National Watershed Development Projects for Rainfed Areas (NWDPR) aim to improve production and productivity in the vast rainfed areas and to restore ecological balance. Under this item, only one component, viz.; number of micro watershed is monitored. For the Ninth Plan period an outlay of Rs. 1020 crore was provided to treat 22.5 lakh hectare of land. During the first four years of the Ninth Plan, an area of 27.66 lakh hectare were treated with an expenditure of Rs. 910.81 crore. Physical targets and allocation under the Programme depend upon the work plans of different States.The NWDPR has been subsumed with scheme for Macro-management of Agriculture Supplementation/Complementation of the States efforts through work plans from 2000-01.

3.2.2 As a follow up action to the Union Finance Minister's Budget (1999-2000) Speech, a Watershed Development Fund (WDF) was created at NABARD with the objective of integrated watershed development in 100 priority districts in 14 States through participatory approach. The total corpus of the WDF is Rs. 200 crore meant to create the necessary framework, conditions to replicate, and consolidate the isolated successful initiatives under different programmes in the government, semi-government and NGO sectors. The WDF is being operationalised in close coordination with the Central and State Ministries and Departments as a continuum of their efforts but with a distinct identity and contribution by NABARD and the Government of India financially and managerially. The WDF activities are being taken up under the guidance of a *High Powered Steering Committee* constituted with representatives from the Ministry of Agriculture, Ministry of Rural Development, Ministry of Finance (Banking Division), representatives of State Governments, NABARD and a selected NGOs from different States. Utilising WDF mode of assistance by NABARD, it is contemplated to have a spread of the programme in 14 States, namely, Rajasthan, Haryana, Gujarat, Madhya Pradesh, Orissa, Maharashtra, Andhra Pradesh, Karnataka, Tamil Nadu, Bihar, Uttar Pradesh, West Bengal, Himachal Pradesh and Jammu & Kashmir. In the first phase the WDF is accessible to 6 States, namely, Andhra Pradesh, Maharashtra, Gujarat, Madhya Pradesh, Orissa and Uttar Pradesh. In all, about 100 districts are to be covered with WDF mode of assistance. So far Memorandum of Understanding has been signed by 9 States. They include Andhra Pradesh, Gujarat, Karnataka, Maharashtra, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal and Jharkhand, State Steering Committees have been constituted in all the 8 States except Jharkhand. Now the progress indicates that 300 watersheds have been identified in 8 States for WDF facility out of which 183 watersheds have been sanctioned and preliminary work relating to social mobilisation, exposure and orientation of the community and preparation of Capacity building initiated Phase proposals are under progress in the remaining watersheds. The total grant involved in the 183 projects so far is of the order of Rs. 8.41 lakh. This comprises 35 grant based and 148 loan based projects. Loan based projects involve a commitment of Rs. 84,60 lakh.

3.3 Drought Prone Area Programme (DPAP):

3.3.1 The Drought Prone Areas Programme (DPAP) is one of the areas development programmes launched by the Government in 1973-74 to tackle the special problems faced by those fragile areas which are constantly affected by severe drought conditions. These areas are characterised by large human and cattle populations which are continuously putting heavy pressure on the already fragile natural resource base for food, fodder and fuel. This continuous biotic pressure is leading to fast and continuous depletion of vegetative cover, less and less rainfall, increasing soil erosion and fast receding ground water level due to continuous exploitation without any effort to recharge the underground aquifers. The basic objective of the DPAP is to (i) minimise the adverse effects of drought on the production of crops and livestock and productivity of land, water and human resources thereby ultimately leading to the drought proofing of the affected areas; (ii) to promote the overall economic development and improve the socio-economic condition of the resource poor and disadvantaged sections inhabiting the programme areas; (iii) to take up development works through the watershed approach for land development, water resource development and afforestation/pasture development.

3.3.2 The Programme allocation is to be shared equally by the Centre and State Governments on 75:25 basis. The cost norms adopted under DPAP for various eco-systems depending on the severity of the problem are as under:-

Sl. No.	Ecosystem Type	Per Hectare Average Cost (Rs.)	Watershed Project Cost (Rs. in lakh)
(1)	(2)	(3)	(4)
1	Semi-Arid Region	4,000	20
2	Dry Sub-Humid Region	3,000	15
3	Dry Sub-Humid (Hilly) Region	4,000	20
4	KBK Districts of Orissa	5,000	25

3.3.3 Presently, 972 blocks of 182 districts in 16 States are covered under the programme. The States are Andhra Pradesh, Bihar, Chattisgarh, Gujarat, Himachal Pradesh, Jammu &Kashmir, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, Uttaranchal, Uttar pradesh and West Bengal.The details are given below. The total area to be covered under the Programme is 7.46-lakh square kilometer. During the year 2003-2004, under Drought Prone Areas Programme (DPAP), 2535 new watershed projects have been sanctioned. These projects shall cover an area of 12.39 lakh hectares.

States, Districts and Blocks covered under DPAP

Sl.No.	State	Number of Districts	Number of Blocks	Area in Sq. Kms.
(1)	(2)	(3)	(4)	(5)
1	Andhra Pradesh	11	94	99218
2	Bihar	6	30	9533
3	Chattisgarh	8	29	21801
4	Gujarat	14	67	43938
5	Himachal Pradesh	3	10	3319
6	Jammu &Kashmir	2	22	14705
7	Jharkhand	14	100	34843
8	Karnataka	15	81	84332
9	Madhya Pradesh	23	105	89101
10	Maharashtra	25	149	194473
11	Orissa	8	47	26178
12	Rajasthan	11	32	31969
13	Tamil Nadu	16	80	29416
14	Uttaranchal	7	30	15796
15	Uttar Pradesh	15	60	35698
16	West Bengal	4	36	11594
	Total	182	972	745914

3.4 Desert Development Programme (DDP):

3.4.1 The Desert Development Programme (DDP) was started both in the hot desert areas of Rajasthan, Gujarat and Haryana and the cold desert areas of Jammu & Kashmir and Himachal Pradesh in 1977-78. From 1995-96, the coverage has been extended to a few more districts in Andhra Pradesh and Karnataka. In hot sandy desert areas, sand dune stabilization and shelterbelt plantations were given greater weightage. On the other hand, in cold desert areas, since rainfall is negligible, crop cultivation and afforestation could be taken up only through assured irrigation. In these areas, the main activity was water resources development by construction of channels for diversion of water flow from the glaciers and springs to the fields and lift irrigation works in the valleys. The programme has been conceived as a long-term measure for restoration of ecological balance by conserving, developing and harnessing land, water, livestock and human resources. It seeks to promote the economic development of the village community and improve the economic conditions of the resource poor and disadvantaged sections of society in the rural areas. The major objectives of the programme are as under:-

- to mitigate the adverse effects of desertification and adverse climatic conditions on crops, human and livestock population and combating desertification.;
- to restore ecological balance by harnessing, conserving and developing natural resources i.e. land, water, vegetative cover and raising land productivity; and
- to implement developmental works through the watershed approach, for land development, water resources development and afforestation/pasture development.

3.4.2 The Desert Development Programme was in operation in 131 blocks of 21 districts in 5 States upto 1994-95. On the recommendations of the Hanumantha Rao Committee, 32 new blocks were brought within the purview of the programme and 64 blocks were transferred from DPAP. Consequently, coverage of the programme was extended to 227 blocks of the country w.e.f. 1.4.1995. Presently, with the reorganization of districts and blocks, the programme is under implementation in 235 blocks of 40 districts in 7 states, namely, Andhra Pradesh, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka and Rajasthan. The total area to be covered in these 7 States is 4.58 lakh square kms. The States where DDP is under implementation along with the number of blocks and area are indicated in the table below:

States, Districts and Blocks covered under DDP

Sl.No.	State	Number of Districts	Number of Blocks	Area in Sq. Kms.
(1)	(2)	(3)	(4)	(5)
1	Andhra Pradesh	1	16	19136
2	Gujarat	6	52	55424
3	Haryana	7	45	20542
4	Himachal Pradesh	2	3	35107
5	Jammu &Kashmir	2	12	96701
6	Karnataka	6	22	32295
7	Rajasthan	16	85	198744
	Total	40	235	457949

3.4.3 The Desert Development Programme (DDP) is a centrally Sponsored Programme and funds are released to DRDAs/ZPs for implementation of the programme. The programme is being funded on the basis of 75:25. Central and State assistance is directly made available to the DRDAs/ZPs as the Nodal Agency at the district level. The funds are then passed on to the Project Implement Agencies. The cost norms adopted under DPAP for all projects is Rs.6,000/ per hectare. Normally a watershed of about 500 ha. is selected for each project. The period for completion of the project is 5 years. Under DDP, 2194 Watershed Development projects (covering an area of 10.98 lakh hectare at an approximate total cost of Rs. 438.80 crore) had been sanctioned and taken up in different batches from 1995-96 to 1998-99 by the programme States. During 1999-2000, a total of 1500 Watershed Development projects as well as special projects (cost about Rs. 325 crore, an area approximately 7.5 lakh hectare.) were sanctioned during 1999-2000. Further, 1659 new watershed and special projects were sanctioned during 2000-2001; the total cost being Rs. 497.70 crore and an area to be treated being 8.29 lakh hectare. During the year 2001-2002, 1359 number of project were sanctioned with a total cost of Rs. 407.70 crore covering an area of 6.79 hactares. In view of typical geographical and regional factors, The Ministry has given permission to implement special projects for sand dune stabilization, shelterbelt plantation and pasture development in 10 districts of Western Rajasthan since 1999-2000. These districts are Churu, Nagaur, Jodhpur, Barmer, Sikar Jhunjhunu, Pali, Jalore, Bikaner, and Jaisalmer. Under these special projects, activities can be taken up outside the watershed areas but are restricted to identified DDP Blocks only. Every year, about 50% of the total projects are sanctioned to the states as special projects. The relaxation in rate per ha./project cost may be provided based on actual work taken up under three components as per schedule of rates fixed by the State Government. During the period from 1999-2000 to 2003-2004, 1895 special projects have been sactioned.

3.5 Integrated Wastelands Development Programme (IWDP)

3.5.1. This programme has been under implementation since 1989-90, and was transferred to D/oLR (erstwhile D/oWD) along with the NWDB in July 1992. From 1 April 1995, the scheme is being implemented on a watershed basis in accordance with the Guidelines for Watershed Development. It is expected to promote the generation of employment in the rural areas besides enhancing the participation of people at all stages-leading to sustainable development of land and equitable sharing of the benefits. The main objectives are;

- Development of wastelands based on village/micro-watershed plans. The stakeholders prepare these plans after taking into consideration the capability of land, site - conditions and local needs.
- Promoting overall economic development and improving the socio-economic condition of the resource poor and disadvantaged sections inhabiting the programmed areas.

Coverage:

3.5.2 The projects under IWDP are generally sanctioned in areas not covered by DDP and DPAP. The programme is being implemented in 374 districts of the country. The guidelines for Watershed Development have been revised to enable a greater role for Panchayati Raj Institutions (PRIs), Self-help groups (SHGs) and user groups particularly the land less from the Scheduled Castes (SCs) & Scheduled Tribes (STs) and other backward classes in watershed programmes.

3.5.3 IWDP is a Centrally Sponsored Scheme. The cost norm of Rs. 4000/- per ha. has been revised to Rs. 6000 per hectare w.e.f. 1.4.2000.The increase of Rs. 2000 is to be shared between the central and State Govts. In the ratio of 75:25. Thus the funding pattern of the scheme has been revised from 100% Central grant to sharing in the ratio of 11:1 between the Central Govt. and the State Governments i.e. Rs. 5,500 is borne by the Central Government and Rs. 500 is shared by the State Government. During the year 2003-04, 190-project sanctioed and area 10,06,500 hac. covered under IWDP programme. Total projects sanctioned and total areas covered since 1995-96 to 2003-04 under IWDP programme were 662 and 50,78,833 hac. respectively. The table indicates the State wise sanction of projects taken up since the introduction of new Guidelines are as follows:

Statewise Project Sanctioned Under IWDP Programme

Total Project/ Total area under IWDP from 1995-96 to 2003-04 and (during 2001-02 to 2003-04)

Sl. No.	State	2001-02		2002-03		2003-04		Total Project	Total Area (in ha)
		No. Project	Area (in ha)	No. Project	Area (in ha)	No. Project	Area (in ha)		
1	Andhra Pr.	10	58785	2	12000	10	60000	48	427912
2	Bihar	1	8000	-	-	9	45000	11	54000
3	Chattisgarh	6	42436	-	-	8	40000	19	139106
4	Goa	-	-	-	-	2	10000	2	10000
5	Gujarat	6	37720	-	-	11	57500	37	320669
6	Haryana	3	21740	-	-	4	20000	10	72962
7	Himachal Pr.	7	47110	-	-	8	43000	32	287857
8	Jammu & Kashmir	4	30567	-	-	1	5000	8	62447
9	Jharkhand	1	6037	-	-	6	33000	10	57679
10	Karnataka	8	55230	1	6448	9	45000	32	278682
11	Kerala	-	-	-	-	3	15000	6	44551
12	Madhya Pradesh	10	60732	1	7972	16	87000	55	407810
13	Maharashtra	4	27275	-	-	9	45000	29	258143
14	Orissa	9	58555	-	-	7	38000	37	251481
15	Punjab	3	14181	-	-	-	-	4	14731
16	Rajasthan	7	42362	-	-	9	45000	38	276739
17	Tamil Nadu	4	23343	-	-	11	55000	35	227237
18	Uttaranchal	6	32751	4	22063	3	16000	18	129346
19	Uttar Pradesh	7	40546	-	-	13	65000	54	475506
20	West Bengal	1	5460	-	-	2	10000	3	15460
	Total	97	612830	8	48483	141	734500	488	3812318
North Eastern									
1	Arunachal Pr.	1	8300	8	54171	10	32000	20	95971
2	Assam	10	58221	15	90432	14	84000	54	373688
3	Manipur	1	8000	6	44500	5	30000	19	148968
4	Meghalaya	-	-	-	-	7	28000	14	62725
5	Mizoram	5	37910	5	40685	5	40000	22	193803
6	Nagaland	5	41030	7	57250	5	40000	29	275930
7	Sikkim	2	12177	-	-	3	18000	12	96006
8	Tripura	4	19423	-	-	-	-	4	19423
	Total	28	185061	41	287038	49	272000	174	1266514
	G.Total	125	797891	49	335521	190	1006500	662	5078833

3.6 Distribution of Seed-cum Fertiliser Drills

3.6.1 So far as the qualitatively monitored items are concerned, the State Governments have reported that there has been considerable change in the attitude of farmers towards the adoption of various improved agricultural practices. Farmers have been using various fertilisers and manures to increase the productivity of their agricultural land by 10% to 20%. For good farm crop, farmers are using improved seeds and fertilizers also. The use of quality seeds is vital for high per acre productivity in agriculture. The national Seeds Policy, 2001 provides a framework for ensuring the growth of the Seed Sector in a liberalized economic environment. It seeks to provide the Indian farmers with a wide range of superior seed varieties, and planting materials in adequate quantity. A scheme for the establishment and maintenance of a Seed Bank has been in operation since 1999-2000. The basic objective of the scheme is to make available seeds for meeting any contingent requirement and also develop infrastructure for production and distribution of seeds. The scheme is being implemented through National Seeds Corporation, State Farms Corporation of India and 12 State Seeds Corporations of various States.The National Seeds Policy 2002, provides the framework for growth of the Seed Sector. It seeks to provide the farmers with a wide range of superior quality seed varieties and planting materials. The production/distribution of certified/quality seeds since 1999-2000 & onward is given in the following table.

Production of Breeder, Foundation and Certified Seed

Sl. No.	Type of Seeds	Unit	1999-2000	2000-01	2001-02	2002-03	2003-04
1	2	3	4	5	6	7	8
1	Breeder Seed	MT	5064	4269	4600	4900	5000
2	Foundation Seed	MT	46600	59100	54400	60000	65000
3	Certified/Quality Seed Distribution	MT	8798	862700	918000	930000	1170000
			(7,296)	(7,092)	(7,565)		

Note: Data in parenthesis are of certified seed distribution # Anticipated

3.6.2 The Seed Bank Scheme introduced in 1999-2000 with the basic objective of making available seeds for meeting any contingent requirement is currently implemented through National Seeds Corporation, State Farms Corporation of India and 12 State Seeds Corporations. The National Seed Policy, 2002 provides the framework for the growth of the seed sector. It seeks to provide the farmers with a superior quality seed varieties and planting materials. During the year 2003-04, production of Breeder Seed and Foundation Seed was 50000 MT and 65000 MT and the Certified/Quality Seeds distribution was11,70000 MT. The production and distribution of Quality Seed is given on table.

3.6.3 As a part of India's obligation under TRIPs Agreement of the WTO, the Protection of Plant Varieties and the Farmer Rights Act 2003 was enacted to protect the intellectual property rights of plant breeders and to stimulate investment in R&D for the development of new plant varieties. The Act involves setting up of an Authority for implementing the provision of the Act. Necessary rules and regulations under the act have been notified. A draft Seeds Bill has been formulated to replace the Seeds Act, 1966. The Bill provides for compulsory registration of seeds on the basis of their performance, deregulation/decontrol of seed industry/processing units and imposition of more stringent penalties to check the sale of spurious seeds.

3.6.4 The Government set up a high level Task Force on Agriculture-Related Applications of Biotechnology under the chairmanship of Dr. M. S.Swaminathan to formulate a long-term

Policy on agro-biotechnology; suggest modifications in the existing administrative and procedural arrangements in various Ministries/Organisations and to suggest the role of Ministry of Agriculture on matters relating to development and application of biotechnology in agriculture. The Task Force has already submitted its report.

3.6.5 To encourage export of seeds, the procedures for seed exports have been simplified. Seeds of privately developed varieties/hybrids will be allowed to be xported freely subject to the provision of r the EXIM Policy (2002-2007), except where there is an emergency caused by natural calam,ities and seed is required for meeting the domestic demand. Imports of seeds and planting materials are also allowed subject to the New Policy on Seed Development 1988 and the provisions of the Exim Policy, 2002-2007.

3.6.6 The old agriculture implements like darati, plough, khurpa, spade, and kudali have become outdated because they take more time and energy. Modern agriculture implements like tractors, trolleys, threshers and sowing machines and disc harrows, furrows are being utilised for more agricultural production. The Centrally Sponsored Scheme of agricultural mechanisation, which is in operation since 1991-92 has also helped a lot in this direction. Subsidy to the extent of 30% limited to Rs. 30,000 is being provided to individual farmers for purchase of tractors. During the last ten years about 22 lakh tractors and 130 lakh power tillers were sold in the country. During 2002-03 (up to December 2002), total production and sale of tractors in the country were 102,415 & 106,088 respectively and total production and sale of power tillers in the country were 10,542 and 13,563 respectively. As in the past, the sale of tractors and power tillers in 2002-03 was the highest in the states of Uttar Pradesh and West Bengal. Efforts are on to encourage the farmers to adopt technologically advanced agricultural equipments in order to carry farm operations timely and precisely, and to economize the agricultural production process.