CHAPTER - IX

NATIONAL WATERSHED DEVELOPMENT PROGRAMME
FOR RAINFALL AREA (NWDPA)

This programme has been started from the start of VIII the Five
year Plan. Since 1992 by the Dept. of Agri. & Cooperation of Govt.
Of India.

This is a cent percent sponsored programme intends to generate
successful models of development in all community Development Blocks
of the country where less than 30% arable area is under assured means
of irrigation. It is thus going to be pace setter for comprehensive
development of all our dryland areas and is expected to generate sufficient
employment in all the backward regions of the country to put a halt
to migration from rural area to the over crowded urban area. It promises
to bring the benefits of Green Revolution to the untouched areas by
adopting farming system approach on watershed. Management basis to
conserve rain water and equally precious top soil, Agro-Forestry,
Horticulture, Fisheries Agro processing etc. People’s participation right
from planing is needed. The watershed area will be 500 to 5000 hectares.
The cost on Watershed project will be Rs. 3500/- per hectare. The cost
will be recovered from revenue.

MEANING OF WATERSHED :-

Watershed is geohydrological unit or a piece of land that drains
at a common point. This natural unit is evolved through the inter action
of rain water with land mass and typically comprises of arable land,
nonarable lands and natural drainage lines in rainfall area. Sustainable production depend on health, vitality and purity of production environment of which land and water are important constituents. So far Scientific utilization of the natural resource base of land and water; the ideal geographical unit would be the product of interaction of rain with land i.e. watershed. This approach has been followed in India since early sixties for Sectarol projects aiming at control of siltation in reservoirs or mitigation of floods. However after announcement of 20 Point Programme in the year 1982, this approach was adopted as a National strategy for integrated and comprehensive development of rainfall area.

**APPROACHES OF WATERSHED DEVELOPMENT :-**

There are two area development approaches in the field of agriculture and rural development based on Sustainable farming system.

1) **COMMAND AREA DEVELOPMENT :-**

This approach is adopted for comprehensive development of irrigated areas. Availability of water the most critical factor; is almost assured and intensive production system of specialized nature is practised for maximizing production.

2) **WATERSHED AREA DEVELOPMENT :-**

This approach is pursued in rainfall areas where availability of water is dependent on erratic amount of rainfall and production system. Hence diversified and mixed farming systems are practised which include agro forest animals husbandry fishery etc.

3) **MICRO WATERSHED :-**

In each of the selected block, a micro watershed of about 500 to 5000 hectares may be taken for integrated development. The ideal
Size would be 1000 hectares Following things are considered for it.

a) Arable lands which are privately owned in the project area.

b) Non-arable land which includes pastures and grazing grounds, barren and waste land in the project area.

c) Net work of natural drainage lines one organic geohydrologic entity.

"It is the area above the given point on a stream that contributes water to the flow at that point, is called as watershed".

Soil and water are the two basic natural resources for the growth of plants and the productivity. The water has become the major cause of land degradation when allowed to flow in excess; uncontrollable water has turned productive land into unproductive watershed and made it unfit for the cultivation.

The only way to make the best use of the resources is to manage the land and rain water in large continuous natural drainage area (Separated from adjoining areas through a ridge line) termed as watershed. Watershed is sensible approach for utilizing soil and water efficiently for production of food, fuel and fruit etc.

**MAJOR ACTIVITIES IN WATERSHED :-**

1) Land treatment, 2) conservation Structures, 3) Crop production, 4) Afforestation and pasture development, 5) Run of Farming or Water Harvesting and use, 6) Create income generation activities, 7) Avoid migration, 8) Improve economic condition of rural people.

**NECESSITY OF NWDPRA :-**

Out of the 450 districts of our country, the green revolution took place in 44 districts having irrigation facility in the crop sector from
1970-1983. Out of the 44 district, 14 districts contributed 25% production and remaining 30 districts contributed 25% production. Thus these 44 districts have contributed 50% of food grain production. The rainfall farming system include 148 mha of land out which 100 mha is cultivated 20 mha barren. 16 mha cultivable waste and 12 mha is pasture land.

Green Revolution in India is successful story which is commended all over the World. Inspite of green revolution in irrigated areas, the national food secutiy continues to be fragile. During the years of drought when rainfall crops suffer, there is a sharp decline in the annual production of foodgrains.

WATERSHED MANAGEMENT :-

Project-Financing-Financial Assistance :-

A) UNIT COST :-

The average unit cost as a whole and in a plain area will be Rs. 3500/- per hec. Including Rs. 500/- for management. However for undulating and hilly areas the unit cost may go upto Rs. 5000/- per hec. To qualify as hilly and undulating area the wateshed should have 75% of its area with more than 8% slope. The unit cost of Rs. 3500/ - per hectare is the average cost for the entire NWDPRA in a State.

B) PATTERN OF ASSISTANCE :-

The projects will be financed by Govt. of India in the form of 75% grant in-aid and 25% loan to State Govt.

C) SUBSIDY AND RECOVERY :-

In principle the project envisages that there will be some financial contribution from the beneficiaries so that financial they are involved. The recovery will be effected as areas of land revenue in instalment
as per procedure and norms of the State Govt.

D) ESTABLISHING NURSERY :-

Well stocked nurseries in each micro watershed is necessary.

E) REPORT :- Quarterly and Annual Reports are necessary. Board framework of NWDPRA and indicative cost structure.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Item</th>
<th>cost.</th>
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<tbody>
<tr>
<td>1)</td>
<td>Survey-Field investigation</td>
<td>10%</td>
</tr>
<tr>
<td>2)</td>
<td>conservation measures</td>
<td>30%</td>
</tr>
<tr>
<td>3)</td>
<td>Prdouction System</td>
<td>30%</td>
</tr>
<tr>
<td>4)</td>
<td>Training to the Staff</td>
<td>10%</td>
</tr>
<tr>
<td>5)</td>
<td>Establishment Management cost</td>
<td>10%</td>
</tr>
<tr>
<td>6)</td>
<td>Research Support for integrate Farming</td>
<td>5%</td>
</tr>
<tr>
<td>7)</td>
<td>Infrastructure cost</td>
<td>2.5%</td>
</tr>
<tr>
<td>8)</td>
<td>Reserve for other activities</td>
<td>2.5%</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

MODEL WATERSHED :-

I.C.A.R. Launched Model Watershed development projects in 46 sites in the country. These watershed located in different agroclimatic regions; representing different rainfall regions.

OBJECTIVES OF NWDPRA :-

The objective are -

1) Optimising Land use.

2) conserving soil and water and checking soil erosion, controlling land degradation by providing vegetative cover to nonarable areas.
3) Safety disposing off excess run off water and storing it for use.
4) Increasing the production of food, fodder, fuel.
5) Improving Socio economic conditions of the participant farmers.

**GENERAL PLANNING FOR WATERSHED**

**MANAGEMENT PROGRAMME IN INDIA :-**

1) 127 agroclimatic zones by I.C.A.R. and training to selected participated villagers.
2) Messages-in simple and Local Languages.
3) Mitra Kisan as a link between scientists and other farmers. They will receive training at Training Centres and provide feedback to scientists.
4) Gopal,- A landless agricultural labourer to signify his tending cattle as well as to look after common grazing land. He will focus attention on common property resources management on behalf of village community or farmer group.
5) components of the Training Programme
   a) Farmers training.
   b) On Farm Research Programme.
6) Agencies for Training.
   a) Krishi Vidyan Kendras.
   b) Farmers Training Centres.
7) Holistic Approach Twin concept of IWM.
   (Integrated Watershed M-In)
8) Three sub-Sectors
   a) Arable, b) non arable, c) Network of Natural drainage.
9) F=conservation of Food, Fodder, Fuel, Fibre, for rural upliftment.
10) Peoples participation-Stimulating and promoting people's participation in project planning, project preparation, implementation and post project management of project as set would be an integral part of the approach strategy.

WATERSHED BASED FARMING SYSTEM :-

This is a new approach in which the attempt is made to utilize the water in all its stages and then excess water is drained out into a farm pond connected to the field by protected grassed water ways.

Water Harvesting will bring sustaintability in Dry Land farmining and may help for solving the problem of drinking water in rural area.

In Maharashtra State rainfall area accounts upto 87% while irrigated area hardly upto 30%. From the total rainfall yearly 34% areas account under dry land farming in the State. Crop yields are uncertain in dry land area. There is drought after every 2 or 3 years in Maharashtra State. The intensity of drought may not severe but it affect the crop production. Since the rain fall pattern is erratic and uncertain the planning of water havesting technology will bring substantiability by collecting the run off water and using that water for crop production.

Maharashtra State Govt. has rightly declared this NWDP for implementation into the State on 5th August 1992.

1) There should be integrated planning of the works of identified small wateshed development area on the basis of water conservation and use of suitable land; by accepting an unit of concerned village as an element of planning. The programme under Watershed shall be on only technical feasibility basis.
2) The main objective is to complete the works of water conservation on priority basis.

3) To protect the resource of drinking water and to bring secutiry into it.

4) During the severe drought situation to make it possible at one crop and for it to prepare source of secured irrigation and to promote the optimum and efficient use of water.

5) It also aims at an integrated planning and implementation of all equal agencies of development.

6) To get participations of the NGO's of Service Motio into implementation of this programme.

7) To consolidate all the works which are already started into this programme and to get their participation also.

8) To focus the concept of Water-planning and Water-budget and influence the mind of the rural people to create self sustainity regarding Water-wealth according to Maharashtra State Govt. Decision.

**CRITERIAS OF NWDP :-**

They are as :-

1) During the drought period of the year 1991-92, those villages which had experienced scarcity of drinking water and where drinking water is supplied by tankers/bullock cars etc.

2) On 25th May 1992, Those villages or watershed area where works of water conservation were under taken under Direct WDP.

3) The villages within 12 watershed areas which are selected by the Central Ground Water Mandal and State Ground Water Survey
Development Agency.

4) All the villages under watershed sector decided by Ground Water Survey Agency.

5) All those villages where the works into watershed areas are at progressive stage through Agriculture Dept.

Note :- The villages which come under watershed of big and medium project shall not be included into this programme.

TYPES OF WORKS UNDER NWDGRA :-

1) Nala-Plug, Check dam, Nala bunding, Cement plug, Percolation tank, Forest Tank.

2) Into non arable land counter, treching Tree plantation, land leveling Treches.

3) Diversion bandharas, under ground tank, Gabian Stretchers, stabilization stream bank.

4) Village tank and farm tank.

5) Hydrofacturing, Boaring, Blasting, Jacket well, Facture seal etc.

6) Geological boundry, supporting work at important place.

7) Forest land, Barrenland, common barren land, Gairan, planting of trees and grasses from ridge to bottom of watershed.

503 Selected villages in Aurangabad district are under taken for programme. Implementation is during 1992-93 to 95-96 in 175 villages. While the said number of villages in Vaijapur tq. Are 76 and 23 respectively in selection & Implementation.

Let us welcome our Central and Maharashtra State Govt. for the
their acceptance to the NWDPRAs and give a vote of thanks to Indo German Watershed Development Prgramme IGWDP and through N.G.O. National Bank for Agriculture and Rural Development (NABARD) and watershed organsition Trust (WOTR). A support organisation for voluntry organisation and village Self Help Groups implementing participatory Watershed Development Projects.

**REF :-**


<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Year</th>
<th>Rs. in Lacs</th>
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<tr>
<td>1)</td>
<td>1991-92</td>
<td>0.85</td>
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<td></td>
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<td>1993-94</td>
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<td>1994-95</td>
<td>12.03</td>
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<td>(1415.29)</td>
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<td>Average of 4 years</td>
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Note: Brackets figures are of Growth-Rate.
Source: Records of the office of Soil & Water conservation Dept.
TABLE NO. IX-1

The above table shows the expenditure data regarding the National watershed Development Programme for rainfall area in Vaijapur Tq. Since the beginning of the said programme i.e. from 1991-92 to 1994-95 for four years' period.

The Maximum amount expenditure is Rs. 12.03 Lacs in the year 1994-95, in comparison to the minimum amount of expenditure Rs. 0.85 Lac. in the year 1991-92. The average amount of expenditure is Rs. 6.15 Lacs per year during the said four years' period. This shows very unsatisfactory situation of the works of NWDGRA. As this Vaijapur Tq. comes under Drought Prone Area, this item ought to be undertaken for expansion with top priority. This item is an infrastructure of an agriculture and it will increase level of ground water as well as fertility and productivity of the land will be improved. In short this is a productive item and it should not be neglected into future.
TABLE NO. IX-2


From 1991-92 to 1994-95

<table>
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<tr>
<th>Sr. No.</th>
<th>Year</th>
<th>Rs. in Lacs</th>
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<tr>
<td>1)</td>
<td>1991-92</td>
<td>0.77 (100)</td>
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<td>3)</td>
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<td>4)</td>
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<td>Total</td>
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<td>Average of 4 years</td>
<td>1.42</td>
<td></td>
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Note: - Brackets figures are of Growth-Rate.
TABLE NO. IX-2

The above table shows the expenditures' data regarding the National watershed Development Programme for rainfall area in Kopargaon Tq. Since the beginning of the said programme i.e. from 1991-92 to 1994-95 for four years' period.

The Maximum amount expenditure is Rs. 4.50 Lacs, in the years 1992-93, in comparison to the minimum amount of expenditure Rs. 0.77 Lac. in the year 1991-92. The average amount of expenditure is Rs. 1.90 Lacs per year during the said four years' period.

Even though the Kopargaon Tq. is partly (most) irrigated and partly (less) under Drought Prone Area, this item should be undertaken for expansion as an productive and infrastructure item of the agriculture.
TABLE NO. IX-3


From the years 1991-92 to 94-95.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Year</th>
<th>Vaijapur Tq. Rs. in Lacs</th>
<th>Kopergaon Tq. Rs. in Lacs</th>
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<td>0.85 (100)</td>
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<tr>
<td>4)</td>
<td>1994-95</td>
<td>12.03 (1415.29)</td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>24.61</td>
<td>5.70</td>
</tr>
<tr>
<td></td>
<td>Average of 4 years</td>
<td>6.15</td>
<td>1.42</td>
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</table>

Note :- Figures Bracket are of Growth-Rates.
Source :- Records of the office of Soil & Water conservation Dept.
Sub. Div. Vaijapur Tq. & Kopargaon Tq.
TABLE NO. IX-3

The above table shows the data of comparative expenditures regarding the National watershed Development Programme for rainfall area between Vaijapur Tq. Aurangabad district and Kopargaon Tq. Ahemadnagar district during the period of four years i.e. from 1991-92 to 1994-95.

From the above figures of the comparison table, it is obvious that the Govt. has rightly done more expenditure in drought prone Vaijapur Tq. Than in Irrigated Kopergaon Tq.

However these efforts for the area are very small and few; after taking in to consideration the need of the drought prone Tq. in particular and the need of the farming in general.

Being the main and important infrastructure item of agriculture it ought to be taken on large scale with priority for expansion into each and every taluka of the country.
PROBLEMS OF THE WORKS UNDER NATIONAL WATERSHED DEVELOPMENT PROGRAMME FOR RAINFALL AREA :-

1) QUANTITY & QUALITY OF WATERSHED :-

The district Rural Development Agency; Aurangabad has selected 76 out of 164 villages for Watershed Development programme in Vaijapur taluka and just started the implementation of the said programme into only 23 villages of the Vaijapur taluka. The total amount of expenditures is Rs. 24.61 Lacs only during four years' period ending in 1994-95 and the average expenditure is Rs. 6.15 Lacs. Per year during that period. Hence the quantity and the quality of the works of the above said programme is very low.

Therefore, the watershed development programme should be implemented at least into the remaining selected 53 villages of the drought prone Vaijapur taluka, as early as possible.

2) PEOPLE'S PARTICIPATION & TENDENCY :-

It is one of the elements of National Watershed Programme that the concerned rural people should participate into the planning organizing, Implementing and controlling activities of their Watershed Projects. The tendency of the concerned village people is not according to the objectives of the programme. In actual practice; such participation of the concerned people is not available. The tendency of them is not good. They expect all things from the Govt. Free and without trouble, labour. They are not ready to change their tendencies to have the success of the Watershed Project; which is for their benefits in the long run.

The real and constructive participation of the concerned people
should be developed through the Seminars, Exhibition. Economic Incentives etc. In order to create the constructive Tendency of the people, the "Mental & Religious Revolution and "Work-Revolution", must be made from the Top Class of the people to the Low class of the people into society.

3) **NON GOVERNMENT INSTITUTIONS :-**

NGOs are the main to play role into Watershed Development Project through support. Either DRDA or Indo German Watershed Trust and financed by the NABARD. But they are few in number and not actually interested to participate the said programme to have success of it. Those NGO who are participating are not honest upto the optimum level and working with Business Minded and also they are exploiting their employees.

Young honest persons who are Technically Qualified for W.D.P. Must establish the concerned. NGOs and Govt. Must give priority to such non political NGO's for the necessary grants.

4) **EMPLOYEES :-**

The employees of the NGOs are in dark; regarding to their job and service Technical Qualified persons do not get jobs into said NGOs. Employment Office, at taluka Level should be established by the Govt. All the concerned employees of the NGOs should be appointed by through this taluka Employment Office. Salary and Service of the employees should be as per Govt. Rule for the service cadar.

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