Impact of Integrated Watershed Management Programme on Employment, Migration and Drinking Water in Loha Tahsil (IWMP-25) of Nanded District (M.S.)

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Abstract

India occupies approximately 2.4 % of the total geographical area of the world, while it supports over 15 % of the world population. Unprecedented population pressure and demand of society on scarce land, water and biological resources and the increasing degradation of these resources is affecting the stability and resilience of our ecosystems and the environment as a whole. Therefore, the productive agriculture lands in the country are in constant process of varying degree of degradation and are fast turning into wastelands. It is precisely to restore this ecological imbalance by developing the degraded non-forest wasteland. To harness the full potential of the available land resources and prevent its further degradation, wastelands development is of great significance. The problem of degraded land, water and its management is complex and multi-dimensional and its development aims to develop human resource in watershed development and management and generate awareness about the importance of sustainable development and maintenance of existing work force working in the watershed development and develop skill in the rural youth to work in the watershed development based on watershed management approach and developing and developing natural resources on sustainable basis.

In order to bring about integration of the entire area development programmer, a new programme with the title ***Integrated Watershed Management Programme (IWMP)*** *has been launched for integrated planning, sustainable outcomes, and rural livelihood of the communities. All the three area development programmes has been covered under Integrated Watershed Management Programme (IWMP) which is to be implemented by a Dedicated Agencies, which will be operational at National, State and District levels.*

Introduction:

Land, water and vegetation are the three basic resources of the life support system. The ecosystem tends to become fragile and precariously balanced due to rapid increase in human and bovine population, over exploitation of natural resources to meet their food, fodder and fuel requirement and unscientific management of these resources. The effective conservation and management of land, water and vegetation resources aimed at obtaining optimum and sustained return from these resources without degrading them can be achieved by adopting watershed as basic unit of development. Watershed being a natural hydrological entity, it responds most effectively to various engineering, biological and cultural treatments. Monitoring of runoff and silt at the outlet of the watershed can help assess the impact of various treatments aimed at conserving soil and water, and protecting vegetation. Watershed management involves protection of land against al; forms of degradation, restoration of degraded land, sediment control, pollutants control, and prevention of floods, etc.

Objectives:

1) To study changes in employment and migration
2) To study changes in drinking water availability

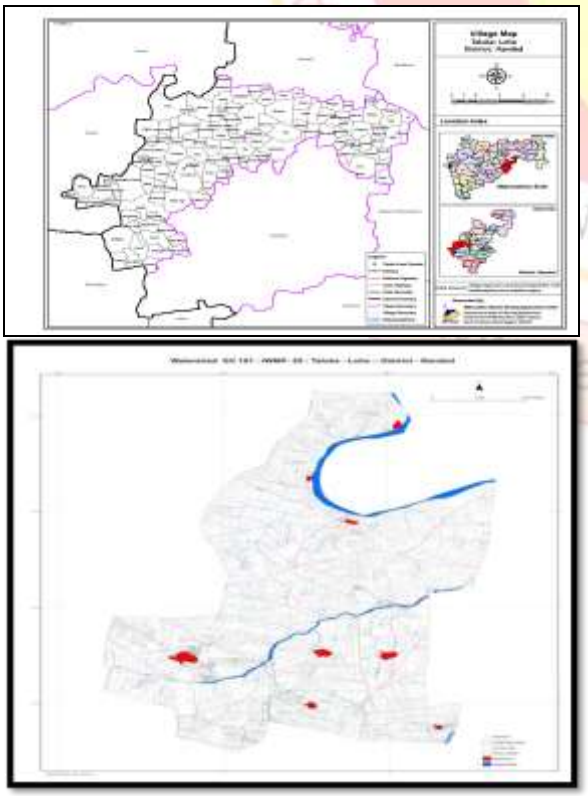
Data collection and Analysis:

During the study, primary as well as secondary data were collected from the various sources. During 2011-2012 and 2015-2016 year, the primary data were collected following focus group discussion as well as through stratified detailed

household survey. I have visited watershed villages and conducted meetings with farmers followed by field visits collect primary information on general agriculture, crops and their productivity, surface and groundwater and socio-economic, migration data. This was collected through investigation of farmers with pre-tested questionnaire. The secondary data were collected from various sources like reports prepared by the implement agencies and various government office. The data were analyzed using statistical techniques.

Location:

The study was undertaken in the Integrated Watershed Management Programmer is Number -25 is located in Loha Tahsil of Nanded District of Maharashtra State. This mega watershed is located in the catchment of Godavari River basin, Longitude of this watershed is 77^0 2'00" to 77^0 ^{8}0'00" East and North latitude of this watershed is 19^0 00'00" to $19^0$06'00". The Geographical area of this project is 6285.86 hec. consisting of 9 villages namely Bharaswada, Penur, Pangri, Adgaon, Borgaon (Aknak), Sonmanjari, khambegaon, Bhadra, Anteshwar from Loha Block of District Nanded.



Climate:

The area of this project falls in the assured rainfall zone. Even though it is in assured rainfall zone but for the last five years, erratic and irregular rainfall is observed. Maximum rainfall in last five years is 1435.80 mm & minimum rainfall is 645.32 mm. The average annual rainfall is 763 mm. but the number of rainy days is decreasing. Intensity of rain fall in a day is increasing which resulted in heavy soil reason.

Impacts:

The watershed development programme involving the entire community and natural resources influence (i) Productivity and production of crop, changes in land use and cropping pattern, adoption of modern technologies, increase in milk production, etc., (ii) Attitude of the community toward project activities and their participation at different stages of the project, (iii) Socio-economic conditions of the people such as income, employment, health, assets, energy use and education, (iv) Use of land, water livestock and human resources. It is thus clear that watershed development is a key to sustainable production of food, fodder, fuel wood, and meaningfully addresses the social, economical and cultural status of the rural community. The watershed development programmes influence bio-physical and environmental aspects and thereby bring changes in the socio-economic condition of the people. The socio-economic indicators like changes is employment, migration and drinking water are considered for the impact assessment.

Creation of employment opportunities and mitigation of population:

The watershed program increased the employment for all categories of farmers due to various activities related to agriculture, horticulture, aforestation, animal husbandry floriculture, and small enterprises. The soil and water conservation measures like water storage structures, mini percolation pits, gully control, gabion structures and other were constructed in the fields, which provided additional job opportunities to the small and marginal farmers.

Employment:

National Resource management (NRM) activates proposed under the project (IWMP-25) in Loha tahsil will generate total 726677 working day's

employment in the project villages and self employment through livelihood activities for landless and production system. The details of employment generated for SC, ST, other and Women are furnished in table 1 and 2.

Table 1- Employment Generations (Wage Employment) of Study Area (IWMP-25 in Loha tahsil) 2015-16

Sr. No.	Name of the villages	Wage employment									
		Numbers of working days					No. of beneficiaries				
		SC	ST	Other	Women	Total	SC	ST	Other	Women	Total
1	**Bharaswada**	466200	0	6337800	2721600	37800	2590	0	35210	15120	37800
2	**Penur**	9689400	2154600	42336000	21672000	301000	53830	11970	235200	120400	301000
3	**Pangri**	2746800	0	6980400	3890880	54040	15260	0	38780	21616	54040
4	**Adgaon**	4523400	0	20638800	10064880	139790	25130	0	114660	55916	139790
5	**Borgaon (akn.)**	5178600	0	16669800	8739360	121380	28770	0	92610	48552	121380
6	**Sonmanjari**	88200	0	6337800	2570400	35700	490	0	35210	14280	35700
7	**Khambegaon**	88300	0	6564600	2661120	36960	490	0	36470	14784	36960
8	**Bhadra**	806400	0	7774200	3432240	47670	4480	0	43190	19068	47670
9	**Anteshwar**	0	0	9550800	3820320	53060	0	0	53060	21224	53060
	Total	**22780803**	**2154604**	**105865205**	**523202456**	**726677**	**131048**	**11970**	**588150**	**190679**	**726670**

Source: Socio-economic survey conducted by under DPR preparation, Agriculture office Loha Dist. Nanded.

Emigration:

There is considerable reduction in out emigration due to employment generation through the project from National Resources Management (NRM) treatment in watershed employment generated for farmers and wage labors. From livelihood activates self employment also generated at IWMP-25 in Loha tahsil.

Table 2 - Employment Generation (Self Employment) of Study Area (IWMP-25 in Loha

Sr. No.	Name of the village	Self employment				
		No. of beneficiaries				
		SC	ST	Other	Women	Total
1	**Bharaswada**	40	0	136	70	246
2	**Penur**	45	32	135	65	277
3	**Pangri**	35	00	102	50	187
4	**Adgaon**	25	00	98	35	158
5	**Borgaon (akn.)**	12	00	65	35	112
6	**Sonmanjari**	33	00	65	33	131
7	**Khambegaon**	27	00	60	29	116
8	**Bhadra**	12	00	45	32	89
9	**Anteshwar**	00	00	65	00	00
	Total	**242**	**32**	**786**	**365**	**1332**

Source: Socio-economic survey conducted by under DPR preparation, Agriculture office Loha Dist. Nanded.

Table 3 - Seasonal Migrations from Study Area: (IWMP-25 in Loha tahsil) Pre-project Status 2011-2012

Sr. No.	Name of the villages	No. of persons migrated	No. of days per year of migration	Distance of destination from the village (Km.)	Occupation during migration	Major reason (s) for migrating
1	**Bharaswada**	180	120-150	150-300	Labour	After kharif season there is no work hence there is such migration
2	**Penur**	860	120-150	150-300	Labour	
3	**Pangri**	154	120-150	150-300	Labour	
4	**Adgaon**	399	120-150	150-300	Labour	
5	**Borgaon (akn.)**	347	120-150	150-300	Labour	
6	**Sonmanjari**	102	120-150	150-300	Labour	
7	**Khambegaon**	106	120-150	150-300	Labour	
8	**Bhadra**	136	120-150	150-300	Labour	
9	**Anteshwar**	152	120-150	150-300	Labour	
	Total	**2436**				

Source: Socio-economic survey conducted by under DPR preparation, Agriculture office Loha Dist. Nanded

During pre-project 2364 persons out migrated for details of pre and post project migration status are furnished in table 3 and 4.

Table 4 - Seasonal Migration from Study Area: (IWMP-25 in Loha tahsil)

Post-project Status 2015-16

Sr. No.	Name of the villages	No. of person migrated	No. of days per year of migration	Major reasons for migrating	Distance of destination from the village (Km.)	Occupation during migration	Income from such occupation (Rs. Lakhs)	For reduced migration major activities of IWMP	
								Structure	**Livelihood**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	**Bharaswada**	90	60-80	For getting good livelihood, opportunities, meetings, daily needs etc.	150-300	Labour	4000	Land development, Horticulture development, Vermi-compsting	Fisheries cultivation, Sericulture, Agri. Based processing units, Dairy
2	**Penur**	760	60-80		150-300	Labour	4200		
3	**Pangri**	99	60-80		150-300	Labour	3800		
4	**Adgaon**	250	60-80		150-300	Labour	3450		
5	**Borgaon (akn.)**	290	120-180		150-300	Labour	3500		
6	**Sonmanjari**	98	120-180		150-300	Labour	3500		
7	**Khambegaon**	88	120-180		150-300	Labour	3500		
8	**Bhadra**	105	120-180				3500		
9	**Anteshwar**	111	120-180				3500		
	Total	**1891**							

Drinking water availability:

The search for potable water especially in summer breaks the backs of women who have to trudge long distances and spent several hours each day to get water is often unfit for consumption.

Photographs Drinking water Shortage is the Pre-Project of IWMP-25

Table 5- Status of Drinking Water of the Study Area (IWMP-25 in Loha tahsil) pre and Post Project (2011-12 and 2015-16)

Sr. No.	Names of the villages	Availability of drinking water (No. of months in a year)		Quality of drinking water	
		Pre-project 2011-12	**Post-project 2015-16**	**Pre-project 2011-12**	**Post-project 2015-16**
1	**Bharaswada**	9 Month	11 Month	No Satisfied	Semi Satisfied
2	**Penur**	8 Month	10 Month	No Satisfied	Semi Satisfied
3	**Pangri**	9 Month	10 Month	No Satisfied	Semi Satisfied
4	**Adgaon**	9 Month	11 Month	No Satisfied	Semi Satisfied
5	**Borgaon (akn.)**	10 Month	11 Month	No Satisfied	Semi Satisfied
6	**Sonmanjari**	9 Month	10 Month	No Satisfied	Semi Satisfied
7	**Khambegaon**	8 Month	10 Month	No Satisfied	Semi Satisfied
8	**Bhadra**	8 Month	11 Month	No Satisfied	Semi Satisfied
9	**Anteshwar**	9 Month	10 Month	No Satisfied	Semi Satisfied

Source: Socio-economic survey conducted by under DPR preparation, Agriculture office Loha Dist. Nanded

Photographs Drinking water Availability is the Post-Project of IWMP-25

In drought prone areas, tankers with dirking water come once in two days during the months of February to August, depending on the rains. However, from the second year itself, in treated areas which have experienced a reasonable monsoon three is an appreciable increase in the groundwater table which is reflected in an increased water level in the village is wells. The details of pre and post project drinking water status are furnished in table 5.

Clean drinking water is now available as well as water for protective irrigation. This has considerable impact not only on agriculture but also and particularly so on the quality of life and health of women and the family. Its anxiety and work load are reduced to a considerable extent.

Observation and Conclusion:

It has been observed from the table 1 and 2 that the employment and self employment generated during 2015-2016 is considerably good in the study area. The generation of employment has helped all sections of the society including women. It has also helped in the generation of self employment catering opportunity to the youth of the region and mitigating out of the population. So for as drinking

water is concerned situation improved from not satisfied in 2011-2012 to semi satisfied in 2015-2016.

Today watershed development has become the main intervention for natural for resource management and rural development. Integrated Watershed Management Programmer not only protects and conserves the environment, but also contributed to livelihood security. The importance watershed development as a conservation programme is being recognized, not only for rain fed areas, but also for high rainfall areas, coastal regions, and catchment areas of dams. Experiences show that the watershed development programme has produced desired results and there are differences in their impacts. Hence, the watershed impact assessment should be accorded due importance in the future planning and development programmers.

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