

## Impact of National Watershed Development Project for Rainfed Areas of Banaskantha District of Gujarat

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### ABSTRACT

*Agriculture is largely dependent on natural resources like soil, water and vegetation. Agriculture productivity depends on how efficiently these resources are conserved and managed. With a view to know the impact of National Watershed Development Project For Rainfed Areas Of Banaskantha District, the study was undertaken in three talukas of banaskantha along with six micro watersheds in six villages with a sample of 300 farmers. The statistical tools like frequency, percentage, rank, mean and "Z" test were used to analyze data. The finding reflected that after watershed project the farmers have started to changed their cropping pattern from traditional crop to more valuable or cash crops like castor, cotton, isabgol, fennel and cumin. Increase in overall average productivity of selected crops was found highly significant after watershed project. The average productivity of castor was ranked first(42.66%) followed by wheat(36.33%), green gram(31.28%) and summer bajara(30.14%). The overall percentage changed in cropping intensity was 11.5 per cent. There is a rise in water table 6.5 meter, overall employment generation, mandays and wages were increased 13.09, 61.48 and 27.27 Per cent respectively, while rate of migration was declined by 54.50 Per cent. Population of buffaloes and cows was increased 193.5 and 135.29 Per cent respectively. Thus there was a positive impact of NWDPR on cropping pattern, productivity of crop cropping intensity, ground water table, employment generation, mandays, wages, migration and animal resources*

**Keywords:** NWDPR, National Watershed Development Project for Rainfed Areas

### INTRODUCTION

Agriculture is largely dependent on natural resources like soil, water and vegetation. Agriculture productivity depends on how efficiently these resources are conserved and managed. The programme uses practice wise holistic approach and local components are soil management, water management and crop management. The NWDPR was started in Banaskantha district in the year 1987-88. This research study was undertaken with a view to evaluate the impact of NWDPR on the beneficiary farmers has been assessed through the parameters like (1) Cropping pattern (2) Productivity of different crops (3) Cropping intensity (4) Ground water table (5) Employment, mandays, wages and migration (6) Animal resources.

### METHODOLOGY

Three talukas namely Palanpur, Deesa and Dhanera of Banaskantha district were selected purposively because these talukas are having similar agro climatic condition, soil type and cropping pattern. A list of villages covered under NWDPR during 10<sup>th</sup> plan in selected three talukas was obtained from the implementing agency. Patosan-1 and Sagrosana village of Palanpur taluka, Ghada-1 and Aagdol of Deesa taluka, Shera-1 and Malota of Dhanera taluka were selected purposively. A list of beneficiary farmers of the project was obtained from respective PIA. A samples of 50 farmers was drawn randomly from UGs, SHGs and beneficiary farmers from each selected micro watershed. Thus, a total 300 farmers were selected for the study. The data were collected

with the help of pre-tested interview schedule. Cropping productivity was calculated by collecting the data of productivity of crops before and after the implementation of project. The difference was found out and per cent increased was calculated by dividing difference with the yield before watershed and multiply by 100. To know whether difference is significant or not “Z” test was applied.

$$“Z”=d/SE (D)$$

Where,

d=Mean difference

S.E. (D) =standard error of mean difference

Cropping intensity was calculated by the following formula

$$\text{Cropping intensity (\%)} = \frac{\text{Grossed cropped area of watershed}}{\text{Net area of water shed}} \times 100$$

The statistical tools like Frequency, Percentage, Rank, Mean and “Z” test were used to analyze data.

## RESULTS AND DISCUSSION

### Cropping Pattern

The data in Table 1 indicate that gross cropped area before watershed was 1398.94 ha, where as if was 1373.40ha after watershed project. The gross cropped area was slightly more (1.83%) because mixed cropping is the familiar aspect of rain fed farming. After watershed project, the land was made more productive by land leveling and terracing measures. The farmers have started to change their cropping pattern castor, cotton, isabgol, fennel, cumin and rajka bajari. Thus, farmers of watershed area have increased farm output and income through the adoption of more remunerative cropping pattern.

### Productivity of Different Crops

The result from Table 2 indicate overall average productivity of different crops. The results clearly show that overall average productivity of all the selected crops were found highly significant after the watershed project. The average productivity of castor was ranked first (42.66%) followed by wheat (36.33%) green gram (31.28%) and summer bajra (30.14%). This might be due to the implementation of watershed activities like, contour bunding, leveling, terracing, use of improved hybrid (short duration varieties, etc. would have contributed in significant increasing productivity of crops. Thus, and there was a highly significant effect of watershed project on crop productivity.

### Cropping Intensity

Table 3 shows the percentage change in cropping intensity was found 10.13, 12.74 and 11.50 per cent in GLDC, NGOs and pooled respectively. This might be due to improvement in availability of irrigation water in watershed area enabled the farmers to adopt double multiple cropping and to bring more fallow land into cultivation.

### Ground water table

Conservation of natural resources such as water, soil and bio-mass is one of the specific objectives of water shed project. Table 4 shows the changes in ground water table before and after water shed in project area. Water table was raised 6.5 meter after implementation of water shed project. This might be due to good rainfall in preceding two years and constructing water harvesting structures in project area. The water table in summer season which was 53.15 meter before has come down to 46.85 meter after implementation of water shed in the project area.

### Employment, mandays, wages and migration

One of the most important aspects that need to be considered in the assessment of overall impact of watershed for the rural poor is the employment generations as the employment opportunities for the rural population in dry land area are very much limited. The results from Table 5 indicate that overall employment generation, mandays and wages was increased 13.09, 61.48 and 27.27 percent respectively after watershed project, while overall migration was observed to be declined by 54.50 percent in the project area.

It could be concluded that NWDPR is people participatory project and project was planned and implemented by watershed committee. Thus, majority of the marginal and small farmers were engaged in the watershed development activities like contour bunding, a forestation, farm ponds, etc; and managed to earn income, While the large farmers concentrated more on their agricultural pursuits. Moreover, change in cropping pattern and increased in cropping intensity would have generated more employment, mandays, increased in wages and decreased in migration due to work pressure. Thus, water shed programme has a positive impact on employment generation, increased in wages and decreased in migration.

### Animal Resources

Development of livestock enterprise is one of the important activities under water shed development programme. It has got a special importance in the context of

generation supplementary income in the watershed area. As can be seen from Table 6 that there was increased in buffaloes and cows population to the extent of 151.63 and 125.84 percent respectively after watershed project. The probable explanation is that increased in area and productivity of fodder crops as well as grasses could have contributed to more availability of fodder and this might have motivated the farmers to keep more milch animals. Thus, it may be said that implementation of watershed project in the area has not only enabled the farmers to enhance their crop productivity but also their family income through providing more employment and keeping more milch animals.

### CONCLUSION

In light of the finding following conclusion may be drawn the farmers have started to change their cropping pattern from traditional crop to more valuable crop, overall crop productivity of all the selected crops were found highly significant, the cropping intensity was changed up to 11.50 percent, ground water table was raised 6.5 meter, employment, mandays and wages was raised 13.09, 61.48 and 27.27 percent respectively. The migration was declined by 54.50 percent. Thus, there was positive impact of watershed project on cropping pattern, productivity of crops, cropping intensity, ground water table, employment generation, mandays, wages, migration and animal resources.

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