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ROLE OF JALNA KRISHI VIGYAN KENDRA IN WATERSHED MANAGEMENT AND AGRICULTURE DEVELOPMENT –A CASE STUDY OF KADWANCHI VILLAGE.

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Introduction :

Agriculture sector is dominent sector in any economy. So it is very necessary to develop. America, England, Japan, Such countries develope in industries and services through agricultural progress. Economic development of agro-based economy depends on agricultural development.

Indian economy known as agro based industry. Agriculture is the backone of Indian economy. “In year 2001-02 53.29% population engaged in agricultural sector”. It shows us that agricultural plays very important role in Indian economy. In Indian agriculture National income, Lateral trade, supply of food, raw material supply, capital expanded market, employment generation, impact on economy such things are very important. In all five years plans priority has been given to develop agricultural sector various schemes & program’s were planed. Effect of above plans investment was done in agricultural sector. In planning years, agricultural production & productivity was increases by considering developed country and their agricultural condition. Indian farmers are very backword in all respect.

By conserving water & soil it is necessary to developed in irrigation sector. After the independence priority was given to irrigation in the development scheme of the country. Considering the need of the water for agricultural, it was a proper step. A country has made a good progress in the supply of water to agriculture through water & soil conservation. Indian government has been implemented the scheme in the watershed management programme.

CONCEPT OF WATERSHED DEVELOPMENT

Definition of Watershed :

Watershed is synonymous to catchment area. It refers to "a hydrological unit area draining the run-off into a river or a reservoir or a pond or a common point. It has its own natural drainage system and respond more effectively to the various management techniques to maximize production."

According to padmanabhan. "Watershed is a natural hydrologic entities that cover a specific are expanse of land surface from which the rainfall run-off flows to a defined drain, channel, stream, or river at any particulars point. It has its own, natural drainage system and responds more effectively to the various management techniques to maximize production."

Watershed development refers to the conservation, regeneration and the judicious, use of all the resources natural (land, water, plants, and animals) and human within a particulars watershed. Watershed management tries to bring about the best posible balance in the environment between natural resources on the one side, and human and other living beings on the other.

Selection of the present study :

Out of 307.50 lakh ha- of the geographical land on Maharashtra 180.64 lakh ha. is under agriculture. 84% of there is under dry farming. Naturally economical management of the state depend on dry farming, irrigated area is 16% in the state. Above as the National ratio 41%, 52% land of the state is under drought prone area. Which stands as a challenge before the state. Watershed Management development plan is being implemented through many permanent spooned scheme. In order to grow agriculture product to retain the product ratio and to avoid. The loss of natural resources in the state.

77.33% of the population depends on agricultural as the main occupation of the Jalna district. As the 85% of the geographical area under agriculture use. Out of the total 7612000 ha. of the geographical area 6,51,533 ha. of land is under agriculture use. That is why agricultural economy has an important place in the district economy. The ratio of the total irrigated land with total agricultural land is 14.06%. The crops product

in the district depends mostly on monsoon. Much land of the district cover under drought prone area & so the Watershed Development is necessary and it is got a lot of scope in the district.

The government policies encouraged governement, semi government institution as well as NGO'S to work for Watershed Development. A some NGO'S are helping in this works. Marathwada Sheti Sahayya Mandal is one of such NGO'S which has contributed significantly in the Watershed Development Programme. It has implemented this program at Kadwanchi village with help of IGWADP & FEW NABARD) through Jalna Krishi Vigyan Kendra of the institute. This center has an important role in Watershed Development in the district. To illustrate the working way of this center in details this research study has been selected.

Kadwanchi Village situated in Jalna tahsil 18 km. away from Jalna city having population of 2689 and 1548.52 ha. of cultivable land. The soils are shallow (5.25 cm) and undulating and rainfall ranges from 220-100 M. Kadwanchi watershed consists of three villages namely Kadwanchi, Waghrul and Nandapur with area 1607.64, 28.40 and 252.03 hectare respectively.

Objectives of the present study :

1) To study the Watershed Management and Agricultural Development in Kadwanchi village.
2) To analyze change in water table.
3) To examine the increase in seasonal and perennial irrigated area.
4) To examine the change in land use pattern.
5) To analyze change in crop pattern, production, productivity and gross income.
6) To analyze impact of the Krishi Vigyan Kendra Watershed Management programme on soil and water conservation.
7) To examine the effects of Watershed Management on the farmers on the basis of case studies of selected farmers.

Research Methodology :

The study is based on primary data & secondary data. The sources of the data for the persent study are given below :

1) Primary data : Primary data for the research has been prepared by the support material of a interview schedule of a beneficiary farmers. Small farmer medium farmers and large farmers. These three categorized have been selected for interview. Out of the 300 beneficiaries only 5% of the sample farmers i.e. 15 of them were interviewed.

2) Secondary data : Secondary data collection annual report of the Krishi Vighan Kendra, Economic survey of Maharashtra 2005-06. Hand book of basis statistics of Maharashtra state of 2003, Panlot Keshtra Vikas Marga Darshika – Krishi Ayuktalaya, Maharashtra Rajya, Pune. A agricultural development of Government of Maharashtra, these reports have been utilized collected from the district agricultural office Jalna.

The following report have been consider for the help in the research study.

1) Socio-economic review of Jalna district 2004-05.
2) District planned for Marathwada regional development borard-collector of Jalna district. 19 Sept. 1995.
3) District wise Agricultural statistical information of Maharashtra – Commissionerate of Agricultural Maharashtra State, Pune.
4) Government publications, journals articles.
5) Review of reports.
6) Books & related themes.
7) Review of the thesis of similar title.
8) Website – www.agri.maha.gov.in

The research period has been fixed from 1996-97 to 2005-06 i.e. ten years.

Statistical technique has been used in the research which includes average, percentage, growth & loss.

Main Conclusion :

1) Marathwada Sheti Sahayya Mandal, Jalna is a voluntary organization working for the farmers of the Jalna and Aurangabad district since 1969, It was initially involved in watershed development and blasting of wells, at present is mainly involved in watershed development work. Adgaon watershed project in Aurangabad district is an ideal example of success of the organization.

As a result of previous impact of the work of host organization council of Agricultural Research (ICAR), New Delhi sanctioned a Krishi Vigyan Kendra to this

organization in September, 1992, which has started its functioning from march 1993 in the selected villages of Jalna district. The major objectives of KVK are to transfer the technology.

2) Form very beginning Krishi Vigyan Kendra has its pioneering role in watershed activities. Krishi Vigyan Kendra has developed Kadwanchi watershed model, which consists an area of 1882 ha. Kadwanchi watershed is developed with financial support of NABARD and Indo-German watershed Development Programme. As the watershed activities are combined with other multidisciplinary activities of Krishi Vigyan Kendra in Kadwanchi Village.

3) Krishi kVigyan Kendra has very good image in the peoples mind so villagers have faith on Krishi Vigyan Kendra.

4) The total geographical area of Kadwanchi waershed is 1882.97 ha., in which public land is 38.45 ha. (17.97%), in which government forest land occupied 142.19 ha., other revenue land 93.61 ha., Panchayat land 3.83 ha., habitation land 12.79 ha., institutional land 57.21 ha., submergence area (due to tank, ponds, Nala bund) 28.82 and privately owned land area occupied 1544.52 ha. (82.03%), in which irrigated cultivated area occupied 168.14 ha., non irrigated cultivated area 11.93 ha., cultivable waste area 147.03 ha., and area not available for cultivation 35.54 ha. It is show that there is large scope for watershed management on government area, non irrigated cultivation area and cultivable waste area.

5) In Kadwanchi village the farm bunding activities has been completed on 995.34 ha. area under the programme of watershed management. This activity is more effective because, the velocity of water has been decreased in farm and the flow of soill also stopped and it resulted in increasing of land fertility and land leveling.

WATER CONSERVATION TREATMENT :

These treatments were implemented step by step from ridge to outlet to watershed drain in congruency with hydraulic conditions.

In Kadwanchi village the work of gully plugs & gabions has been implemented on 4620 m. 54 m are respectively and ten check weir, Nine check dams has constructed, it results that is tis very useful for runoff collection and recycling, stabilization of water in wells and recharge of ground water in the area.

The total area under the crops was 1287.04 ha., in pre-watershed Management which has increased to 1660.2 ha. in post watershed Management (2001-02) before watershed Management, mainly Bajari, Jowar (Rabbi), Green gram, black gram. Tur, Cotton were taken, after watershed Management mainly Soyabin, Mize, Jowar (Rabbi), wheat, grapes, Pomegranate and sweet orange are taking specially, Grapes and pomegranate, sweet orange, crops. It is clear that attitude of the farmers has changed from the traditional crops to the cash and horticulture crops.

7) The total production was 902.57 tons in pre-watershed Management (1996-97) by various crops, but in post-watershed management it has increased to 3413.10 tons because the increasing of grapes and pomegranate crops and it is 2259 tons. (66.19%)

8) The productivity of all crops has been increased after Watershed Management (2001-02) It is found between 25% to 50%. The main causes of increasing productivity are, seasonal and perennial irrigated area has been increased, modern technology of production, improved seeds, and the scientific guidance by form Krishi Vigyan Kendra.

9) The gross income was 79.50 lakh rupees from agriculture but after Watershed Management it has increased to 461.60 lakh rupees. It is clear that the gross income has been tremendously increased from agriculture.

10) The per capita income was Rs. 2365 in pre watershed management, but it has increased in post watershed management to Rs. 16,280.

11) Rise in water level as seen in wells. Carried out soil conservation treatments.

12) Agriculture development depends upon the availability of farm equipment's, specially modern equipment's, in Kadwanchi village before and after waershed Management during the period 1996-97, the use of the equipment's such as tractors, tractor operated seed drill, threshers, power sprayers, chaff cutters, drip and sprinkler irrigation set, electric pump set has increased significantly.

13) The total area under horticulture was only 3.00 ha. in pre-Watershed Management.

14) But it has increased to 210 ha. in post Watershed Management (2005-06) it is clear that due to the Watershed Management, the area under horticulture crops has been increased.

15) Savings and credit habits are very essential today and it plays very important role in our life, in Kadwanchi village 79 women's are member of SHGs. They have built their core incrementally & also participate in household decision making.

16) After completion of Watershed Management, the change has been observed that most of the families migrated from the village again came back to their own village and now they are fully engaged in agriculture activities. They are getting potential work in the Kadwanchi village.

17) Cropping pattern of sample farmers has definitely changed during the Watershed Management. The total area under crops was 224 acre, in which, under occasional cropping area was 22 acre (9.82%) under single cropping area was 98 acre (43.75%) , under double cropping area was 101 acre (45.09%) under vegetable area was 0, under horticulture crops area was 3 acre (1.34%), but after Watershed Management (survey year 2005-06) it has changed to 10 acre (4.46%), 56 acre (25.00%) 63 acre (28.13%), 83 acre (37.05%). 12 acre (5.36%) respectively.

Hence it is clear that the area under vegetables and horticultural crops, specially grapes pomegranate, sweet tremendously increased after the decreasing of the area under cereals and pulses crops. It means, the attitude of sample farmers has changed from the traditional crops to the cash and horticultural crops.

18) The farmers from this village have a special identity in the government offices.

19) The study clearly established that Watershed Management Programme is economically viable, environmentally sustainable and socially desirable.

RECOMMENDATIONS :

1) Saving water the following solutions should be carried out so as to increase the irrigated area :

a) Use of Micro-Irrigation system.
b) Selection of the crops effecting more income in the minimum water.
c) Implementation of multiple cropping.

2) While planning the drinkable water, special attention should be paid to the livestock water and its management.

3) Through the schemes like 'Public Awareness, "Public Participation and governmental schemes "Community Farm Pond" should be launched as a development programme under water supply.

4) The farmers should select the crops as per the fertility of land.

5) To retain fertility of the land the farmers should implement crop rotation more and more.

6) The farmers should carry out the cultivating methods like inter-cropping, strap sowing, etc. to the maximum.

7) The farmers should launch agriculture subsidiary and agriculture-based industries, dairy, goatry, poultry, fishery, apiculture, sericulture in particular.

8) Women self-help group should invest more and more in the agri-process industry. It should, in particular, comprise fruit-processing, ghee, butter, milk powder, etc from milk, silken thread and cloth production, seed-processing, etc type of business.

9) The farmers are inclined towards cash crops rather than the traditional ones. Consequently there is a decrease, day by day, in the area under oilseeds and pulses. Therefore, to encourage the crops of oilseeds and pulses, the government should increase the minimum support price.

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