EFFECTIVENESS OF 'JALYUKT SHIVAR' A WATERSHED DEVELOPMENT PROGRAMME- A CASE STUDY

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ABSTRACT

'Jalyukt Shivar' is one of the Watershed Development Programme, released in month of December, 2014 by Maharashtra Government. Harvesting maximum rainwater in the surrounding of village itself and increasing the availability of water is the main purpose of this Programme. The Programme is all about the water conservation in rural areas. As water (Surface water or ground water) is an important resource, it affects Agricultural sector, Agro based activities and therefore economy of the area where it is implemented because the economic prosperity of land depends on the water it holds. This paper focuses the provisions made in the Programme for rain water harvesting and study of its effectiveness in the study area.

Introduction:

Sangola is Tahsil comes under Solapur District of Maharashtra state of India which is considered to be drought prone area. This Tehsil has been facing problem of water scarcity for agriculture purpose. Total 103 villages in tehsil had selected to implement this Watershed Development Programme.Majority of villagers of this area have agriculture as their primary occupation which mainly depends on monsoon rainfalls occur between June and September months. By having soil and land management along with the water management thus developing watersheds, economic development of rural area is possible.

'JalyuktShivar':

This is Government of Maharashtra's program to provide water for all and make villages scarcity-free that is to make Maharashtra a drought-free state by 2019. It is released on 5th December 2014. The Program aims to make 5000 villages free of water scarcity every year and harvest rainwater within the village boundaries, thereby increasing ground water levels. Activities to be conducted: Canal deepening / widening, repair micro irrigation structures like K.T. weir, storage dams, repair, renovate and reinstate the capacity of percolation / micro irrigation tank, extract sludge from percolation/ village/ storage tank, refill well/ bore well, implement small canal joining projects, watershed development activities, empower the drinking water sources.Establishing basic infrastructure to hold rainwater was part of the plan.

Secondary survey:

In order to understand the present position of an area of Sangola Tahsil in regard to availability ofground water, surface water, present water storage capacity and the provisions made in the Programme as watershed management, the secondary survey is carried out. This exercise was done by visiting and collecting different information from different government departments like Ground Water Storage and Development Authority, Tehsil Irrigation Department, Tehsil Agriculture Department.

Data collected through survey:

Ground water: Annual ground water availability is 16,397.38 Ham/yr. and Annual ground water draft for irrigation is 12,094.44 Ham/yr, i.e. 120.94 MCM which is equal to 95.08% of total draft.While water draft for domestic and industrial purpose is 4.91%.

Surface water:
1) Gross Storage of water = 274.75 MCM
2) Total Live Storage of water = 273.043 MCM
3) Water available for Irrigation = 274.17 MCM
4) Water available for domestic purpose = 0.58 MCM
5) Water available for industries = 0
6) Capacity of irrigation schemes and project before programme is =72,669 Ha

Agricultural land use:
1) Total Geographical area of tahsil = 1,56,432 Ha
2) Cultivable area / Agriculture area = 1,33,047 Ha
3) Net Cultivated area = 65,376.82 Ha
4) Fallow land = 67,670.89 Ha
5) Area under kharip Crops = 18,644.12 Ha
6) Area under Rabbi Crops = 41,925 Ha
7) Area under Summer crops = 598 Ha
8) Area under Horticulture and other crops = 7,188.7 Ha
9) Area under double cropping = 2,979 Ha
10) Gross cultivated area = 68,355 Ha

Increased availability of water through programme:
1) The effective storage capacity of works under the Abhiyan is 47,893.9 TCM
2) Desired ground water recharge due to different works carried out is 23,380.3 TCM in that water will be available through ground water is 18,578.2 TCM and therefore total water available through the work will be 66,472.1 TCM

Appliedtechniques of watershed management (Sample)

Image-1 Small cement weir in village Anakdhal


Image-2 Compartment Banding in village Katpal

Table 1. Table captions should be centred and placed above the table.

Possible impacts:

Total Agricultural water demand (MCM) =
Water Demand by (Kharip Crops + Rabbi Crops +Summer Crops + Horticulture)
= 63.15 + 185.04 + 2.25 + 34.44
= 284.88 MCM

Domestic water demand (MCM) =
Per Capita Water Demand X Population of tehsil in 2015 (Projected from 2011)
= 70 lpcd(Rural area) X 3,09,557
= 21.67 MLD
= 7.88 MCM

Present availability of water in Tahsil –
1) Ground Water (Available 163.97 MCM)
a) Total Draft = 127.19 MCM
b) Draft for Irrigation = 120.94 MCM (95.08% of Total draft)
c) Draft for Domestic and Industrial = 0.58 MCM (4.91% of total draft)
2) Surface Water
a) Available for Irrigation = 274.17 MCM
b) Available for Domestic and Industrial = 0.58 MCM

Increase in availability of water due to Programme in Tahsil
1) Ground water = 18.58 MCM (Source: JalyuktShivarArakhada, Sangola Tahsil)
a) For Irrigation, it is assumed that water will be available with same percentage i.e. 95.08 %, therefore 17.67 MCM of water will be available for irrigation.
b) For domestic and Industry. = 0.91 MCM

2) Surface water
a) For Irrigation = 47.89 MCM (Source: JalyuktShivarArakhada, Sangola Tahsil)
Total = 17.67 + 47.89 = 65.56 MCM

Implication on Agriculture

1) Extra water available due to JalyuktShivarAbhiyan is = 65.56 MCM

2) Total water potentially available for irrigation = Ground water available for Irrigation + surface water available for irrigation + Water available through Abhiyan for irrigation = 120.94 + 274.17 + 65.56 = 460.67 MCM But if we observe the present usage of available water for irrigation, then it is 284.87 MCM , out of 395.11 MCM i.e. 72.09 %. Therefore, it assumed that now increased amount of water will be available with same percentage. 72.09 % of 460.67 MCM is = 332.13 MCM

3) Extra water available, which will be responsible to increase the cropping area = Water available for irrigation – Present Agriculture Water Demand = 332.13 – 284.87 = 47.268 MCM

This 47.268 MCM of water can be distributed among thecrops in different season.

Conclusion:

JalyuktShivarAbhiyan is important Watershed Development Programme carried by Maharashtra Government which helps in increasing the ground water level as well as surface water level. This Abhiyan is scheduled up to 2019. It is expected that the Abhiyan will show the results to minimize the drought situation in Maharashtra.

As this is the Watershed development project, it is going to increase the availability of assured water. Due to availability of assured water it will be responsible to increase the land under irrigation as well as increase in the cultivated area because as the water is available the farmers will surely use the opportunity of using that water for cultivation of crops.

Due to increase in availability of water for agriculture, the cultivated area will increase that will result in increase in the area under green fodder require for the cattle. And as the availability of green fodder increases, it will affect the livestock of the locality.

As the livestock increases it will affect the production of different products like milk from milk giving animals, eggs from birds as well as meat. In this way availability of water will affect the ago allied activities.

As the land under cultivation increases, it will demand for the increase in number of cultivators as well as increase in the number of agricultural labours. So in this way the availability of water will be responsible for the increase in the Working population.

As far as the study area is concern it is suggested that, as the soil present in Tahsil is suitable for production of Bajara as well as production of cash crops like pomegranate,
Custard apple, the area under these crops should be increased. While the crops like Cotton, Banana is best suited for the soil like black cotton soil and tehsil covers very less area under this black cotton soil. As the crops like Sugarcane requires plenty of water, but Sangola tehsil comes under draught prone area therefore instead of crops like sugarcane Grapes or pomegranate will be the best alternatives. In draught prone area like Sangola, area under fodder is require to increase so that demand of food for cattle will be fulfil in the Summer.

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