

CHAPTER VI

CONCLUSION AND SUGGESTIONS

- 6.1 CONCLUSION
- 6.2 SUGGESTIONS
- 6.3 REFERENCES

CHAPTER VI

'Tulasi Irrigation Project' is one of the significant irrigation projects in Kolhapur district that have transformed the status of agriculture especially in Karveer and Radhanagari Tahsil. The project has completed in 1978, however, came under utilization in 1982. The catchment of dam has spread over about 34 km² of an area with 3.14 TMC of water. The Tulasi river basin comprises about 165 km² area of Radhanagari and Karveer tahsil. The command area of this project has spread over about 22 villages with about 4700 hectares of land at the beginning has brought under irrigation. However, according to the more precise details according to the recent data it is about 5700 hectares of land has duly been benefited by the present project. Farmers have been getting benefit of water for perennial irrigation and drinking purpose in this region. The water discharging from the dam has been utilizing for various crops like as Sugarcane, Sunflower, and Rabi Rice etc. However cash crops like sugarcane have been flourishing phenomenally in this region, consequently the scenario of economic prosperity and standard of living of farmers is changing rapidly in this region. From the research of the same following precise conclusions have made:

6.1 CONCLUSIONS

- 1) The annual utilization of dam water as irrigation is 3.149 TMC, drinking 0.009 TMC and water losses by evaporation estimated is 0.090 TMC it is therefore total utilization of water is 3.472 TMC.
- 2) The study reveals that after the execution of Tulasi irrigation project slight increment has occurred in ownership holding of farmers especially small, medium and large farmers are more benefited.
- 3) The cultivation practice has considerably enhanced in post project period and among the category of farmers large farmers have tried to enhance their land under cultivation.
- 4) As far as irrigated land is concerned, it is observed that in pre project period the maximum land was under seasonal irrigation.

However due to the construction of an irrigation project, scenario has changed and tremendous area have been come under perennial irrigation.

5) The scenario regarding to waste land is revealed that near about 99 ha land was under the category of waste land in pre project period. After the implementation of irrigation project in Tulasi river basin the waste land has reduced by 60 %. The maximum reduction in waste land is concerned to large farmers.

6) The study signifies that, in pre project period there were 60% land to own land under cultivation in sample villages, of which above 40% was under seasonal irrigation and remaining came under perennial irrigation. Seasonal irrigation was overwhelmed in pre project time, here also small farmers played crucial role and having 55% land to own land under seasonal irrigation. Very meager proportion of land had came under perennial type of irrigation. However due to sufficient economic support large farmers were having about 22% land to own land under perennial irrigation. With regards to waste land, it is shown that large farmers had 45.64% land to own land under the category of waste land.

7) Post-Project Proportions of Changes of Land Status of cultivated, irrigated and waste land to own and of sample villages in Tulasi river basin is found that, cultivated land and land under perennial irrigation is showing increasing trend consequently considerable reduction has occurred in waste land and land under seasonal irrigation due to the construction of irrigation project. High proportion of cultivated land is belonging to large farmers i.e. 89.98% to own land. Less proportion of land is observed under the seasonal irrigation i.e. 18% to own land; small farmers are having 15.73% land to own under seasonal irrigation that is maximum one. Owing to the development of lift irrigation through irrigation project, perennial irrigation becomes dominant in this region. Near about 64% land to own land comes under the

perennial kind of irrigation. In the view of perennial irrigation, first and second rank has occupied by large farmers and marginal farmers having 67.74% and 67.61% to own land under it. The proportion of waste land has reduced after execution of irrigation project. With respect to waste land, medium farmers are showing maximum proportion i.e. 24.70% to own land.

8) In the section of 'changing area under different crops' it is emphasized that cropping pattern in the command area of Tulasi irrigation project has slightly changed owing to development of perennial irrigation. In pre project period food grain crops like as Kharip Paddy, Nachani were dominant crops but after the evolution of irrigation in post project period the farmers have been slowly steadily turning towards cash crops like as Sugarcane, Sunflower (Oil seeds) etc.

9) The area under Kharip Paddy, Nachani and Maize has reduced in the post project period where as the proportion of area under Sugarcane, Sunflower and Rabi rice have been showing increasing trend in this region.

10) The upper reaches of Tulasi river basin showing reduction of area of Jawar where as the Sunflower oil seeds are newly introduced crops in this region.

11) The assessment of the area under sugarcane cash crop of selected sample villages located in Tulasi river basin exhibits that owing to the perennial water requirement, it was very less amount of area under this crop i.e. 31.58 ha. However due to the availability perennial irrigation, significant increment has occurred in it and it becomes 103.22 ha in post project period. The all categories of farmers are showing growth in the area of this crop in post project period of which marginal farmers having maximum growth in the same.

12) The study of crop-wise production reveals that considerable growth has obtained in production of all crops in post project period. It

is ought to emphasize on the production of Sugarcane and it was only 1749 tons of sugarcane produced by farmers in pre project period. The scenario of production of this crop has changed in post project period and farmers have been produced about 7918.42 tons sugarcane. It means that production of this crop has amplified by more than four times to pre project in this region.

13) The section concerned to status of per hectare yield of main crops in pre and post project era accentuates that in post project period yield of all main crops grown in this region has tremendously increased. Particularly the average yield of sugarcane cash crop was 54.82 tons per ha in pre project period however it was very difficult to get desirable yield with inefficient irrigation facilities and poor agro-techniques. In post project period due to the construction of irrigation project in this region, the production of this crop is significantly increased. The average yield of sugarcane is reached up to 77 tons per hectare. The maximum growth is occurred in the yield of marginal farmers i.e. 59.59 %.

14) It is noted that obtained growth in production and yield of main crops in this region is the result of adoption of some how modern agro-techniques by farmers as well as use of chemical fertilizers, insecticides and pesticides however the assured water supply through Tulasi irrigation project is pivot factor governing it.

15) The study of demographical aspects shown that out of composite total sample respondents about 57% of respondents fall in the age group of 36-60 and 17% of in 19-35. It means that proportion of working population is high among the sample respondents.

16) Caste wise classification of respondents reveals that maximum respondents are belonging to Maratha community and their per cent share is about 68%. Rests of the respondents are belonging to other caste.

17) The respondents in selected sample villages have got primary, secondary, higher secondary and graduation as well as post graduation level of education. However maximum proportion of respondents have acquired primary to higher secondary level of education.

18) The nature of families in this region reveals that more than 60% of households come under the group of 'Joint family' and it is imparting typical agrarian culture of this region.

19) The availability of socio-economic amenities of selected respondents showing that in pre project period there were very few number of Television sets, two wheelers and four wheelers available in the concerned farmers' house. In post project period the number of above mentioned amenities have considerably increased in this region.

20) The increased number of Tractors in post project period is a sign of utilization of modern agro-techniques by farmers in this region. Owing to that slight development has occurred in agro-economy of people consequently structure of the house of the respondents has changed and standard of living has improved in this region.

21) Astonishingly it is been observed that there is very less number of landless persons in the command area. Whatever land less labourers in command area are seasonally migrated from near state and other parts of district. It is therefore there presence in command area is insignificant.

6.2 SUGGESTIONS

“It is not the quantity of water applied to a crop, it is the quantity of intelligence applied which determines the result - there is more due to intelligence than water in every case” (Alfred Deakin 1890). As it is very categorically quoted by Mr. Alfred Deakin there is always scope for the keen utilization of resources. Moreover to monitor and to better understanding the positive and negative impacts of irrigation development in the study area following suggestions are made:

- 1) Farmers should adopt modern irrigation techniques and methods such as drip irrigation, sprinkler irrigation, so that it would be much applicable to reduce the pressure of water distribution and also helpful to enhance crop yield.
- 2) Farmers should acquire scientific techniques of agricultural land resources management and cropping pattern, hence it would be better to obtain sustainable agro-development with irrigation in this region.
- 3) No doubt the yield of main crops has increased in post project period, yet desirable yield of cash crop like Sugarcane hasn't been obtained by farmers, so farmers should get appropriate help from regional agricultural departments to cope up such kind of agricultural problems.
- 4) There should be 'Tulasi River Basin Development Authority' established by government though it is at micro level, to review the socio-economic and environmental development in this region.
- 5) The strict vigilance (observation) team formed by irrigation department should be there to supervise the overuse and ill-use of water by farmers and other users.
- 6) Government should take special efforts to enhance level of agro-education of farmers as well as establish agricultural extension service centers.
- 7) The proportion of marginal and small farmers are significant in this region, so that there should be special attention be provided to them by government officials to uplift their status.

- 8) In order to obtain desired profit from agricultural production government should provide guaranteed price to the agriculture produces.
- 9) For the sake of improvement in the performance of available water resource for irrigating the agriculture there is need of through study in respect of agro- economy, agro-engineering, soil morphology, hydrology etc. it certainly will prove beneficial to suggest guidelines for the proposed irrigation plans and will also be use full to enhance the impact of irrigation development on economy, society and environment.

6.1 REFERENCES

- Aswathanarayana, U. (2001): 'Water resources Management and the Environment, A A Balkan Publishers a Members of Swets and Zeitlinger Publishers.
- Dougal, M.D. (1969); Flood Management Iowa's Experience. Iowa State University Press, Iowa.
- Government of Maharashtra, (1989), Gazetteer of Kolhapur District pp 1-31.
- Government, of Maharashtra (1960) : Kolhapur District Gazetteer.
- Government, of Maharashtra (1980), Vocational Survey Of Kolhapur District, District Vocational Education Office, Kolhapur. Pp 11-16.
- Government, of Maharashtra, District Census Handbook (1991), Government Central Press, Mumbai. (P.P.16-18).
- Govt., Irrigation Dept, (2011): District Booklet of Development and Status of all Irrigation Projects in Kolhapur District.
- Govt., of Maharashtra (1960): Kolhapur District Gazetteer.
- Govt., of Maharashtra, District Census Handbook (1991): Government Central Press, Mumbai, pp16-18.
- Gramin, Vikas Seva Sanstha, (2004): The impact of Minor Irrigation Projects on Economic Development in Selected Six Tribal Majority Districts of Jharkhand, Orissa and West Bengal, SER Division, Planning Commission, Govt. of India.
- Maharashtra, State Gazetteers, Kolhapur District (1960): Published By Directorate Of Government Of Printing, Stationary And Publications, Maharashtra State Mumbai.
- Maharashtra, State Gazetteers, Kolhapur District (1989): Published By Directorate Of Government, Printing, Stationary And Publication, Government Of Maharashtra, Mumbai.
- More, K.S. (1980): 'Changing Pattern of Agriculture Landuse In Kolhapur District (Maharashtra)' Unpublished Ph.D. Thesis Submitted To Shivaji University, Kolhapur.
- Patil, P.B., (1983): "Agriculture Land Use And Land Degradation In The Panchganga Basin: A Geographical Appraisal" Unpublished Ph.D. Thesis Shivaji University Kolhapur
- Patil, S.V.(2010): Geographical Study of Rural Settlements In Panhala Tahsil, Kolhapur District, Unpublished M.Phil. Thesis Submitted To Shivaji University, Kolhapur.
- Pawar, C.T., Pawar D.H. & et al (2008):.A Geographical Analysis of Water Quality for Irrigation in Panchaganga Basin. The Goa Geographer, Research Journal of Geographer's Association, Goa (GAG), Volume: V, No.1, December, 2008. pp. 6-13.
- Pawar, D.H. & Jadhav K.R. (2012): Agriculture Problems and Prospects of Drought Prone Region in Sangli District of Maharashtra,

- Maharashtra Bhugolshastra Sanshodhan Patrika, ISSN: 0971-6785, Vol. XXIX, No.1, January-June 2012, pp 42-45.
- Pawar, D.H. & Raskar, A.K.(2011): Linear Aspects of Basin Morphometry of Panchaganga River (Kolhapur): Western Maharashtra, Research Analysis & Evaluation, International Referred Research Journal, May 2011, ISSN: 0975-3486, Vol. II, Issue 20, pp.95-97.
- Pawar, D.H. (2012): River water pollution an environmental crisis a case study of Panchaganga river Kolhapur. International Journal of Environment and Development, ISSN:0973-3574, Vol. 8, No.1, January-June 2012, Serial Publications, New Delhi, India pp, 95-97.
- Pawar, D.H. et al (2012): Morphometric Correlation of Spatial and Linear Aspects of Panchaganga River, Proceeding of International Conference on Multidisciplinary approaches in Applied Geology, G.K.G. College, Kolhapur, 20 February 2012, pp 253-258.
- Raskar, A.K. (2011): Morphometric Analysis of Panchaganga River, Unpublished M.Phil. Thesis Submitted To Shivaji University, Kolhapur.
- Sangale, S.B. (2008): Radhanagari Wildlife Sanctuary A Study of Biodiversity, Unpublished M.Phil. Research Dissertation Submitted To The Shivaji University, Kolhapur.
- Shikalgar, A.B. (2009): Impact of Social Forestry on Economy And Ecology of Kolhapur District, Unpublished M.Phil. Research Dissertation Submitted To The Shivaji University, Kolhapur.
- Shinde, S.D. (1973): The Panchaganga Basin: An Appraisal Of Some Aspects Of Its Agriculture Geography Geographical Review Of India, Calcutta Vol.35
- Yadav, S. R. & Sardesai, M. M. (2002): 'Flora of The Kolhapur District', Shivaji University, Kolhapur.