CHAPTER- VII
CONCLUSIONS AND SUGGESTIONS

7.1 Introduction

India is an agricultural country and major proportion of population is depended on agricultural sector directly or indirectly. Irrigation is the essential input for the development of agriculture sector. In Maharashtra state agriculture provides employment for 75% of the total population and it contributes 46.4% to the state income. The State has 231 lakh ha of land under cultivation. Around 3, 251.55 Th. ha. land is actually irrigated in the state out of this 2,111.23 Th. ha. is irrigated by major projects and 467.88 Th. ha is irrigated by medium projects. And around 672.44 Th ha land is actually irrigated by minor & lift irrigation. (State sector level).

There are innumerable references and studies in India and abroad to show that irrigation a necessary and sufficient condition for agricultural development, irrigation assures water, certainty of outcome, reduces the instability of yields, shift in crop pattern from coarse grains to commercial crops, multiple cropping, whereby the regional disparities in development could be removed.

This study aims at reviewing the Scio-economic impact of irrigation projects on farmers in Marathwada region through the irrigation development.
7.2 Conclusions

Most important findings of the present study are briefly summarized as below. All these findings are the results of analysis of both macro and micro level data pertaining to India, Maharashtra & Marathwada of the study region.

1. For agriculture development irrigation has played a vital role in agrarian economy. During the pre-independent period, the emphasis was given to drinking water resources only as protective measures against inadequate natural rainfall, crop failure and famine. In the post independence period, emphasis changed to develop irrigation as one of the main productive inputs in agriculture. The total 2, 21, 321 thousand hectares ultimate irrigation potential at the country level has been estimated out of this, 1, 39, 893 thousand hectares ultimate irrigation potential estimated (41.80 percent) from major & medium projects & 81,428 thousand hectares (58.20 percent) from minor irrigation sources at the end of ninth five year plan.

2. Irrigation potential created at the time of Pre-independence period was 22.60 million hectares from major/ medium (9.70 million) & minor (12.90 million hectares) projects. During the plan period irrigation potential created increased from 25.04 million hectares in first five year plan to 102.77 million hectares in the Tenth five year plan and estimated 108.91 million hectares in the Eleventh plan.

3. It is also observe that there is a gap between irrigation potential created and irrigation potential utilized in India. The total 1,07,238 million hectares irrigation potential was created from major medium & minor irrigation projects. Out of this total 86, 894 million hectares irrigation potential utilized from all irrigation projects in India.
4. Although plan expenditure on irrigation has increased from Rs. 441.8 crore in the First Plan to Rs. 1,00,106 crore in the X Plan, the share in total plan expenditure has decreased from 23% in the First Plan to 6% in the X Plan.

5. 287 major/medium irrigation projects have been included under AIBP out of which, 134 projects have been completed. Irrigation potential created from Major/medium projects up to March 2010 is about 62 lakh ha. So far, 12,670 Surface Water minor irrigation schemes have been included in the AIBP of which, 8,699 schemes have been reported as completed. The ultimate irrigation potential of minor irrigation schemes included in AIBP is 16.58 lakh ha of which irrigation potential of 8.578 lakh ha has been created so far.

6. There are proposals for 28 major, 32 medium and 25 ERM new projects to be taken up in twelfth plan. A requirement of Rs 3,7,672 Crores has been estimated for them during XII plan. It is to be noted that cost of as many as 79 projects are yet unapproved and their actual costs may escalate considerably at the time of actual implementation.

7. Before the formation of Maharashtra state, it is found that, position of irrigation development in the state was very slow. However, irrigation development programme got real boast since inception of the first five year plan. According to the first irrigation commission (Barve Commission) of Maharashtra (1962) overall Ultimate irrigation potential of the state was 6.10 million hectares, out of which 5.20 million hectares from surface & 0.90 hectares from ground water resources. Second water & irrigation commission Or Madharao Chitale commission (1999) of Maharashtra state has estimated the Ultimate irrigation potential of the state to be 9.7 million hectares, out of which 4.1 million hectares to be from ground water resources and 5.6 million hectares from surface water resources.
8. The Maharashtra State has undertaken various major, medium and minor irrigation projects to tap maximum irrigation potential in the State. By the end of June, 2012, the total irrigation potential created was 49.26 lakh ha, of which, 27.19 lakh ha was from major irrigation projects, 8.67 lakh ha was from medium irrigation projects and remaining 13.40 lakh ha was from minor irrigation projects (State sector).

9. The main issue facing the state government to mobilize funds for completing the ongoing irrigation projects. As on 1-4-2009, 73 major, 136 medium, 821 minor and 21 lift irrigation schemes with a balance cost of Rs. 54,281 crores are in an incomplete state. The main reasons for this situation are: i) Spreading of budgetary resources simply over too many projects leading to many projects remaining incomplete in the past. ii) Money rose through irrigation bonds accounting to Rs. 12, 100 crores were mainly invested in new projects and not on ongoing projects.

10. The actual utilization of created irrigation potential rise from 1.98 lakh ha to 29.55 lakh ha during the period 1951-52 to 2010-11. The percent utilization of available irrigation potential has declined from about 72 percent in 1951-52 to 61 percent in 2010-11. It reveals that the gap between potential created and utilized has been widening and the position of the state in this respect is very dismal.

11. Economic- Survey of 2011-12 conducted in last 10 years records just 0.1 percent increase in the irrigation area but according to the white paper, during the last ten years (2001-02 to 2011-12) the Actual irrigation area grew from 17.08 lakh hectares to 29.55 lakh hectares i.e. the actual increase was 12.47 lakh hectares (12.47/17.08*100=73%) and also the average irrigated area increased up to 5.17 percent under the Water Resource Department
12. When Marathwada region was a part of Hyderabad province, the position of irrigation development in this region was that just about 0.25 per cent of net sown area was under irrigation. After the formation of Maharashtra state, the government of Maharashtra has given priority to development of irrigation facility in economically backward region like Marathwada. Therefore, it became possible to increase irrigated area.

13. The ultimate irrigation has increased from 1253.941 thousand hectares to 1321.684 thousand hectares in the year 2011 to 2013. Also created irrigation has also increased from 941.912 thousand hectares to 979.838 thousand hectares in the same period in Marathwada region.

14. Physical backlog is yet to be cleared in Ratnagiri, Amaravati, Akola-Washim, and Buldhana districts in Maharashtra which has been fixed to be cleared out through backlog programme. Out of this backlog the Ratnagiri district found to be cleared it backlog by the end of June 2012 year. Amravati, Akola-Washim and Buldana are districts wherein backlog still pending so in order to clear out the Physical Backlog for the year 2010-11, 2011-12 and 2012-13 Rs. 650 crores, 500 crores and 750 crores respectively have been separately recommended.

15. It can be concluded that utilization expenditure has been increased over the years.

16. Around 28.66 percent farmers are dependent on irrigation projects and 50 per cent farmers are partial dependent on irrigation projects. Remaining 21.33 percent farmers are not depended on irrigation projects. It means most of the farmers are benefited by irrigation projects through directly or indirectly.

17. It is observed that 94.94 percent farmers have irrigated land under the major irrigation projects and 81.93 percent and 78.31 percent irrigated
land under the medium and minor irrigation projects respectively. It means major irrigation projects covers largest area to irrigate rather than medium & minor irrigation projects.

18. It is observed in the study area that 88 per cent beneficiaries from irrigation projects do their farming by modern method. The highest number of beneficiaries is from major projects that do their farming by modern method. Then the beneficiaries from minor and medium projects do their farming.

19. It is observed that the most of the farmers are satisfied due to major irrigation projects rather than medium & minor irrigation projects.

20. It is found that, there is tendency to take more commercial crops like sugarcane, orange, banana, & pomegranate in irrigation areas.

21. It is also found that, averagely more than sixty percent farmers are in better socio-economic condition.

22. It is also observed almost 84.38 percent acre land got irrigation facility due to irrigation projects out of total lands of beneficiaries that comes under irrigation projects.

23. Most of the farmers are getting water of irrigation projects in sufficient manner.

24. Nearly 84 percent beneficiaries from irrigation projects are benefited by the water of canal. When thought projects-wise, it is found that the beneficiaries from Major projects are benefited in high numbers. Then the beneficiaries from medium and minor projects are benefited respectively.

25. It is found that the water of irrigation projects get available as per demands of crops. When observed projects-wise, it is found that the water of minor and major irrigation projects get available as per the demands of crops rather than medium irrigation projects.
26. When the analysis is made of the water given to crops, it is found that nearly 65 per cent beneficiaries give the water to their crops seeing the previous timing of water.

27. The source of canal is not only sufficient for the agriculture under the irrigation projects only.

28. It is found that the farmers preferred water of well and bore is better than the water of canal which are under the irrigation projects due to saltiness of the canal water.

29. The beneficiaries are benefited directly or indirectly by their well or bore due to irrigation projects.

30. Most of the beneficiaries from irrigation projects pay the charges of water. The beneficiaries from major projects and secondary beneficiaries from medium and minor projects pay the charges of water as per rules and regulation of the projects.

31. The tax which is imposed on the use of water is called water charges. This charge is found proper.

32. Larger number of farmers are depend on agriculture is totally or partially depended on the projects water. Except 3.77 per cent beneficiaries are interested in farming sector due to the availability of water.

33. The beneficiaries from major, medium and minor projects have sold their land rather than purchasing the land. It means that farm selling activity is greater than farm buying activity in the study area.

34. The proportion of farm-related occupation by major, medium and minor projects is very low. The beneficiaries from minor projects (24%) do the farm-related occupation. Then the beneficiaries from major and medium projects do the related occupation.
35. Due to irrigation facilities farmers are prefer to undertake farming or agriculture as the main source of income where the major, medium and minor irrigations projects have been in process.

36. Agriculture is the only income source in rural areas which ultimately determines their growth and development. Near about 65% stated that with starting of irrigation projects they are able to enroll in vocational education, solely depending on agricultural produce and income thereof.

37. In good old days the traditional life pattern preferred first farming, then business and lastly, if possible, aimed at acquiring any job in town or city; but with changing pace of time the sequence altered in preference to first job, then, business and lastly agriculture in modern times.

38. Irrigation projects have been catering to the increasing employment needs of the beneficiaries residing in irrigated areas under major, medium and minor projects. It can be inferred that the residents living in the irrigated area are getting employment opportunities throughout the year irrespective of limited scope.

39. Beneficiaries in irrigation projects areas are occasionally unemployed due to unavailability of projects water on timely for proper season.

40. The survey clearly noted that the beneficiaries’ families found, directly or indirectly, stable income source in their own farm due to availability of water for irrigation in the study area.

41. It is also observed in the study area that except 06 (1.33%) beneficiaries irrigation projects brought economic stability among them.

42. It is found that out of total beneficiaries the highest beneficiaries have the addiction of smoking. And 14 (3.11%) families of beneficiaries
have various disease and 423 (94%) families of beneficiaries have not any type of disease.

43. Beneficiaries of irrigation projects used to private hospitals for the diagnosis of their disease rather than government hospitals.

44. It is found that major irrigation projects beneficiaries have facilities of toilet on large scale in compared to medium and minor irrigation projects.

45. The beneficiaries of irrigation projects always use the facility of toilet. There is very minor proportion of beneficiaries who do not use the toilet.

46. The beneficiaries of irrigation projects can achieve the healthy facilities through the incoming of farming. After considering each project, it is found that the beneficiaries of major projects achieve the health facilities on large scale.

47. The highest numbers of irrigation projects beneficiaries live at urban area then live, in farms. The beneficiaries of major projects live at cities on large scale. The highest numbers of medium projects beneficiaries live at urban area and beneficiaries of minor irrigation projects lives at rural area on large scale.

48. When we considered the distribution of beneficiaries by dwelling places then it is observed that more than 60 percent beneficiaries live in the house of cement. The highest numbers of beneficiaries are from major projects and below them are the beneficiaries of medium projects who live in the house of cement.

49. The highest numbers of houses are built by the income of farming by irrigation projects beneficiaries.

50. There is a change in the standard of living of irrigation projects beneficiaries. It means that their standard of living has increased. The standard of living of major projects has increased than the standard of
living of medium and minor projects beneficiaries. The standard of living of minor irrigation projects beneficiaries has increased than the standard of living of medium projects beneficiaries.

51. There is an increase in basic facilities due to irrigation projects such as electricity, water, roads, transportation, market, bank, agricultural industry and agriculture shops.

7.3 Suggestions

Important conclusions of the study are discussed in earlier section on the basis of those conclusions some suggestions are made in this section, which could be helpful for policy formulation.

1. In some parts of India rainfall is heavy and the water goes into sea wastefully. In some parts of India due to inadequate rainfall, drought, famine is occurring and poverty is increasing. As suggested by irrigation experts, Ganga River to be linked to Cauvery so that, this problem is to be attended properly.

2. Water is precious natural resource which is used for drinking, irrigation, power production etc. The population is increasing all over the world to that extent the demand for water is also increasing. Therefore water has to be used in an efficient manner.

3. There are many irrigation projects which are in an incomplete state. So, government should complete these projects at priority basis rather than introducing new projects.

4. Government try to reduce the gap between irrigation potential created and irrigation potential utilization at state & national levels because there is gap between IPC & IPU.
5. The Plan expenditure on irrigation has increased but the share of expenditure on irrigation projects is not increased, then it is suggested to the government that the share of expenditure on irrigation projects should increase in total plan expenditure.

6. To make optimal utilization of irrigation potential already created in the field channels need to be provided to all irrigated area on a priority basis.

7. It is found that there is wide and enormous imbalance in investment allocation between minor, major/medium irrigation during last 50 years (1951-52 to 2002-07) in India in all the five year plans, higher portion of public investment has gone in favor of major and medium irrigation projects in India. Out of total outlay increased in irrigation sector during last 50 years, major & medium irrigation projects accounted for 85.60 percent. Therefore, more efforts have to make to allocate adequate financial resources for the development of minor irrigation for the future in the India and also in Maharashtra state.

8. The government has invested huge amount of money in irrigation sector to harness the utilizable water resources but irrigation development in the state has been very tardy. It should be balance between harness of water and expenditure.

9. In low and arid region like Marathwada, the modern methods of irrigation i.e. drip, sprinklers, are most beneficial because these methods of irrigation are more efficient in adequate utilization of water. Generally, this modern irrigation method save 30 per cent to 40 per cent water and 20 per cent to 30 per cent increase in crop yields with good quality of farm produce as compared to traditional irrigation methods. But these modern irrigation methods are not found to be so popular in irrigated farm sector. Therefore, it is suggested these
modern methods of irrigation should be promoted in irrigated farm sector.

10. Government should emphasis on reducing the financial and physical backlog which was found in irrigation sector in the districts of Maharashtra state on the priority basis.

11. In agriculture sector, the infrastructure facilities like electricity to supply irrigation water to farms, road transport, communication for marketing agriculture produce, banking facility for farm activities, etc. are also useful for increasing agricultural production.

12. For fixing the time of water supply and its management. Department of Irrigation in consultation with other interested parties should take steps for the proper maintenance of the main canal and the sub-canals.

13. During the field survey it is observe that, the canals have the leakages at a wide range specially found in Jaykwadi left bank canal. It is the waste of water. Also many turn outs & field channels are broken badly specially found in medium irrigation projects. So, it should be bring out/ repaired in better position during the possible period.

14. Some farmers are complaining about the officer of the irrigation project. According to them, they don’t get water from irrigation projects for the proper season. Also, it is observed that they are unknown about the water rotation period. So, water should release at the right season period to take season wise crops.

15. The canals have to be repaired from time to time, flow of water into sea to be arrested. The rain water has to be stored properly.

16. The unauthorized utilization of water from the canals of the projects for purposes other than for what it is meant should be prevented.

17. There should be proper coordination between the Department of Irrigation, Department of Agriculture, local bodies and the beneficiaries of the project.
18. The Agricultural Scientists have to develop new variety of seeds which require low water. Information Technology has to be applied in the process of agricultural development. New methods of agriculture have to be developed, storage facilities have to be increased.

19. It was observed during field visit that farmers in the study area are not aware of the government schemes those are launch for the betterment of farmer’s community. An awareness campaign should be implemented in the regard.

20. Beneficiaries in irrigation projects areas are occasionally unemployed hence, the implementation of irrigation projects needs to be continued so that the youth gets stable employment opportunities.

21. In order to improve the agricultural productivity the farmers have to plan their cropping pattern well in advance on the basis of water availability.

22. Though, most of the agriculture in study area is irrigated, majority of the farmers are not interested in adopting modern agricultural techniques. Awareness among the farmers about use of these techniques is very much needed.

23. Sometimes farmers in the study area go for mall practices to get more water for irrigation. This practices leads to the misuse of water resources and also results in to the Stalinization of land. In view of eliminating this problem farmers are required to motivate to go rational use of water resources.

24. The responsibility of canal irrigation is not totally of irrigation department but there the participation of farmers also important.

25. Irrigation infrastructure has to be developed in the study region of Marathwada region.
26. Beneficiaries of irrigation projects go to private hospitals for the diagnosis of their disease rather than government hospitals there is scope for the health centers in the villages of irrigation projects beneficiaries.

27. Dairy industry is one of the emerging economic activities in the study area. This industry has great potential to stabilize to economic condition of the farmers. Thus the dairy industry should be strengthening.