CHAPTER VIII

CONCLUDING REMARKS
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8.1 Conclusion

Agricultural land use is considered a cyclic human intervention to satisfy human needs from complex natural and artificial resources. Agricultural land use is that use of land which permits the growth of crops to obtain the needed foodgrains and other agricultural commodities. Present land use has been conceived as the result of different causes, which were directly related to nature and quantity and quality of land resources that had their origin in human, cultural, social and economic conditions of the past. The present study has been on the impact of irrigation on the socio-economic life of the people in Mandya District and related aspects from the Cauvery river project.

The process of change due to irrigation may be seen in Srirangapatna taluk since the Eighteenth Century and it is nowhere near completion, as the irrigation expansion still continues. The focus has been on the impact of irrigation on the socio-economic performance and welfare of the farmers in the Cauvery Command Area. For determining the extent of impact, the study area has been divided into two taluks-dry and wet taluks. The impact of irrigation in its various aspects has been looked at from the point of social and economic dimensions. And so, in the analyses, the focus has to be on land holding, cropping pattern, yield, inputs and output. Even the income, expenditure, and other economic aspects other than social aspects are analysed as all these are effected upon in some way by the irrigation.

The study has been based on both the primary and secondary data. Selected respondents in nine villages of two taluks have been considered as the most basic unit of the analyses. A sample of two hundred respondents has been chosen from each taluk which included cultivators, landless labourers, artisans and businessmen for the primary survey, which
was conducted with both a pre-designed interview schedule and an
observative survey record. The study data thus collected is tabulated
under different class, which is reduced from the frequencies obtained and
found percentages for the same. Thereby, the inference is drawn using the
analysed data, interpreting the information in a broader context of the
agrarian society.

The research work has reviewed important studies relating to the irrigation,
agriculture, social and economic change, impact of wet land over dry land
and, major and minor irrigation related literatures. The study tends to
examine the impact of irrigation facilities in terms of social and economic
benefits to the inhabitants over their past agricultural practices.
Srirangapatna has a history of irrigation which dates back for more than a
century, thus a comparison in itself of the dry and wet land becomes
difficult, as the respondent finds it difficult to recall the past due to the time
gap.

Irrigation has brought about a sea change in the history of agriculture. In the
present study the development of irrigation in India and in Karnataka, and
later in Mandya district is highlighted. Thus it becomes easy to know about
the progress made in the field of irrigation at different levels which in turn
helps both in agricultural production through artificial irrigation and also in
controlling floods. Irrigation is thus addressed as a productive and
protective input. The need for the present study on impact of irrigation and
its importance is discussed in detail. However, the content of the chapter
that follows is given in brief at the end of the first chapter.

The study highlights the irrigation facilities available in different forms as the
major, medium, and minor irrigation facility in the country, in the state and in
the district. This however, gives an account of the areas which are
covered with the facility and calls for the attention of the thinkers and policy
makers to look into the unequal distribution of the resources and thereby,
lead to an income disparity within a region. In the agricultural sector, irrigation occupies a prominent place as an input among all the other inputs. Thus, all other inputs follow, if there is sufficient water for cultivation. An important conclusion of the study is that there should be an equitable distribution of resource which in turn leads to an equitable distribution of income.

The study further reveals the analytical interpretation of the social aspects wherein the attempt is to find the respondents, gender, age, caste, education, marital status and residence. Thereby, a close comparison of the two taluks under study, Srirangapatna (wet taluk) and Nagamangala (dry taluk) is done. Some important conclusions on the social aspects are, firstly about the respondents gender. Here we find a large number of male respondents in Srirangapatna compared to their areas counterpart in Nagamangala. Large number of males is found in the irrigated areas whereas, in the dry areas due to either unemployment, underemployment or seasonal employment, men are away from their house. Secondly, in case of the respondents, religion, we see that more number of Hindus are found followed by the Muslims who are a negligible in Nagamangala taluk. Again among Hindus there is no much difference in the caste composition in both the taluk, we find about 63 percent of them belong to the Vokkaliga. Next is the schedule caste population which is about 17 percent. Thirdly, we find that, among the respondents both the taluks have an equal percentage of married, unmarried, widow and widower. But a difference is found in the case of divorcees, as there are none in Srirangapatna, while it is found in Nagamangala. Fourthly, we find more than half of the respondents are illiterates in Nagamangala taluk. Whereas, the percentage of illiterates is just one-third in Srirangapatna of the total respondents. Fifthly, In the wet land 99.5 percent of them own a having own house, whereas the percentage is little less in Nagamangala taluk. Even the structure of the house matters and thus while list was analysed it was found that 11 percent of the houses were with R.C.C. in Srirangapatna whereas it
is almost negligible in Nagamangala taluk as most of them use tiles. Sixthly, when the issues relating to women are looked into, the main problem they face is of the drinking water. And thus, it was found that about 61 percent of the respondent depend on public hand pumps in Nagamangala taluk but their Srirangapatna taluk counterpart is better off in this case as 50 percent of them have private tap connections and another 26 percent of them depend on public taps. It is ironical to find that there are no private wells which are in use however, some of them use water of the public well. However, we find that about 50 percent of Nagamangala women have to go long distance to fetch water which ranges between half farlong from the house to a very far off distance. Seventhly, with regards to marriage we find that both Srirangapatna and Nagamangala respondents have largely given their age at marriage between 16-25 years for both male and female, however, females in Nagamangala are found marrying even at an earlier age. Thus we find Srirangapatna taluk people socially forward than their counterpart in Nagamangala.

Some of the conclusions in respect of economic aspect are viewed as follows. The land holding which is said to be a major asset in the hands of cultivators can also we seen here. A large number of people fall in category of having less than a hectare to 4 hectares, that is between marginal and semi medium. There are very few respondents who own more than 4 hectares in both the taluks. Further the yield in wet taluk is comparatively better than the dry taluk.

In case of employment a large percentage of respondent family members in Nagamangala taluk go out as agricultural labourers, however, there is an equal percentage of respondents family members involved in agriculture on their own field. When we look into non-agricultural employment we get to see that more people are employed either in government or non-government offices in Srirangapatna taluk, where as very few are found in such jobs in Nagamangala taluk. This however, is far from truth because
is almost negligible in Nagamangala taluk as most of them use tiles. Sixthly, when the issues relating to women are looked into, the main problem they face is of the drinking water. And thus, it was found that about 61 percent of the respondent depend on public hand pumps in Nagamangala taluk but their Srirangapatna taluk counterpart is better off in this case as 50 percent of them have private tap connections and another 26 percent of them depend on public taps. It is ironical to find that there are no private wells which are in use however, some of them use water of the public well. However, we find that about 50 percent of Nagamangala women have to go long distance to fetch water which ranges between half farlong from the house to a very far off distance. Seventhly, with regards to marriage we find that both Srirangapatna and Nagamangala respondents have largely given their age at marriage between 16-25 years for both male and female, however, females in Nagamangala are found marrying even at an earlier age. Thus we find Srirangapatna taluk people socially forward than their counterpart in Nagamangala.

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most of them Nagamangala taluk people are found to be well placed in both
government and non-government offices as per the researcher's
observation.

Household income, when analysed, depicted a large number of
respondent in Nagamangala had their income below rupees 10,000 per
year, whereas in Srirangapatna taluk the income level started 5000
onwards and varied even above rupees 70,000. It is amazing to see that 32
percent of the respondent family had their income above rupees 70,000 in
Srirangapatna, whereas there were just 3 percent of them who had
crossed rupees 70,000 per year in Nagamangala taluk. This income which
was analysed was from all sources.

Expenditure of the family can be viewed from different angles. Firstly, for
the food consumption again almost half of the respondent family limit their
food expenditure to rupees 500, whereas, 60 percent of them in
Nagamangala taluk spend upto rupees 1000, and another 30 percent of
them spend between rupees 1000 to 2000 in Srirangapatna taluk. This
shows that the living standard of respondents in Srirangapatna is higher
than the people of Nagamangala. The other expenditure is found to be
done on agriculture. Almost a lion share of money is found to be invested
on agriculture in Srirangapatna, when compare to the people in
Nagamangala. The difference is more than 200 percent. Consumption of
rice is more compared to ragi in both the taluks. However, a ragi is a staple
crop of the district, is use in small quantity in the present days.
Consumption of other food products like, wheat, dal, oil and meat found to
be purchased / consumed by the respondents of Srirangapatna taluk in
large number, however, even people in Nagamangala taluk consume the
same item but quantity is limited. Even in case of fruits and vegetables,
people in Srirangapatna consume more compared to their counterpart
respondents in Nagamangala taluk.
Expenditure on education is another component, here again we find Srirangapatna taluk respondents spending more for education than the dry land people, even it is the same case with health and clothing, recreation and on other non-agricultural expenses.

It is again Srirangapatna taluk respondents who spend more on asset accumulation such as land, and other household durable items furniture's, vehicles, small agricultural equipment's, large agricultural equipment's and on animals and pets.

Savings are done at large by the people in Srirangapatna taluk, while Nagamangala taluk respondents too save, but the proportion is quite low.

While summarising, the chapter provides a brief description on the major conclusion. However, presented under various but relevant headings, it makes possible for understanding the impacts of irrigation. Findings, suggestions and recommendations, implications for future policy planning and research are some of the subheadings other than the concluding observation presented in this chapter emphasising what needs to be done to make the impact wholesome and efficiently equitable.

8.2 Findings

The findings of the current study underlines the following characteristic features of growth and change brought about by the impact of canal irrigation on the wet taluk over the dry taluk. The process of growth and change varies in effect from dry land to wet land with regard to social and economic aspects. The main points are highlighted as under.

Migration of labour in Srirangapatna taluk has drastically come down with the availability of irrigation facility. This is found to be true only in case of irrigated regions. However, this statement does not hold good for the
villages in Nagamangala taluk as we find through the study that a large number of people have already migrated to near by towns in search of jobs or education. Thus the hypothesis that 'due to irrigation facility, the excess labour gets absorbed, thus out migration is reduced is proved.

The hypothesis - the landless inhabitants in an irrigated village is expected to have some land in the long run and there by the class gap narrows to some extend is not true in respect of irrigated village as we find the poor gets poorer and the rich richer in the study.

Also the hypothesis that backward castes have not improved on irrigated lands, holds good as it is ironical to note that people from backward communities have not developed in the pace at which the upward caste people have developed, though owning irrigated lands as most of them have their lands at the tail end and thus do not get sufficient water. Moreover, the consumerism has disturbed the life style and thus to catch up with the others, the backward communities people sell off their lands or even let their land on lease. In terms of social change, we can see that the economic improvement has blessed the lower caste educated youth in braking the caste barrier in the wet village. However, on the other hand the lower caste elders (uneducated) are found to lose the little land they own and there by, they are still become poor by working for the upper caste as wage labour. The cast system still prevails in the villages which are said to have eliminated by the changed policies and Acts of the government. The researcher when made an informal inquiry in to the cast, the people disagreed of any castism later it was observed to sit at par with the upper cast people on the same platform in different occasions. The lower cast people are still not allowed to fetch water from the public well / hand pumps, rather they go to the out skirts of the village to take water either from the tanks or wells, are even hand pumps ment for them. Even they are not allowed to enter the temple premise. The offerings they give to the god in
the form of coconut, flowers are not used by the priests. In ceremonies and marriages conducted with in the village limit, the lower cast is bared from sitting at par with other upper cast people and thus they are served with food in a separate place. The lower cast gets their chance to dine only after the upper castes have finished. Even hotel business within the village limit, strictly adhere to these norms of castism. It was found that the lower caste people used tumblers, which was strictly kept aside for them on the top shelf corners of hotel. Even if these lower caste visit hotels they are not allowed to used the tables and bench rather they sit on the floor and take their food later they are made to wash the utensils used by them before they leave. Castism being practised in the village is not to be blamed either the upper cast or the lower cast because both the casts have accept it as their role model. However, the educated younger generations in the lower cast have started rebelling against such cast boundaries this is largely found in Srirangapatna taluk. However, educated youths in Nagamangala taluk being found in small number have little to say. As in Nagamangala taluk lower cast youths are hardly educated and those educated are not found in the village. Thus not much changes have taken place in this aspect.

Role difference of the formal panchayat systems of the village: the Gramapanchayat and the age old traditional panchayat also called the caste panchayat are brought out. The formal panchayat of the village being Gramapanchayat came into existence during the 19th century when the government decided to decentralise the governance, this resent bureaucratic setup though was a new concept for the village the inhabitants had to follow the caste / village panchayat which existed even before the advent of Gramapanchayat.

Even in recent days though the Gramapanchayat has taken over in the village, the roles played by Gramapanchayat and cast panchayat may be
distinguished. In case of Gramapanchayat the village elected members represents all caste. This local government decides on the infrastructure needed for the village like roads, drinking water, electricity, drainage, schools, hospitals, collection of revenue, issue of records and license for constructions of house and business, implement government programmes, collect and disseminate local statistics, registering birth and deaths etc. On the other hand the cast panchayat which also works hand in hand with the Gramapanchayat has members who happens to be the village heads and are limited to the upper caste, they normally are economically sound people. These village heads in caste panchayat takes decision on caste related issues. Further the caste panchayat are responsible for conducting important village functions which are normally attached with gods. It is the caste panchayat who decides on the disputes in "village court". Here the caste panchayat takes decision after hearing the complaint, the villagers even today believes in settling their problems in the village itself through caste panchayat. It is hardly seen even today that an outsider (police man) entering the village to intervene in any village disputes. The cast panchayat takes other decisions regarding the use of water of separate tank specially for the rituals thus the villagers also respect their decision and do not use the water of that particular tank / well and also keep the surroundings clean. It is easier for cast panchayat to collect money from the villagers for any village related issues whereas, for a Gramapanchayat it is very difficulty to collect money for any developmental works to be under taken in the same village. While the Gramapanchayat takes care of the infrastructure facilities of the recent origin like school, hospitals, government offices, Anganawadies, the caste panchayat maintains the older assets of the village such as temples and temple assets (wells / tanks, chariot, pious trees, panchayat stage, Aralikatte, etc.). Here we see that the caste panchayat assets are better maintained than of Gramapanchayat assets.
It is largely found in Srirangapatna taluk that people are directly involved in agriculture (cultivators and agriculture labourers) do not switch on to other income generating activity. However, there are other sets of people who take over other business, or artisan's work but this aspect is not found in Nagamangala taluk. Here largely people mix-up agriculture with allied activities as the source of income from agriculture is minimal.

Women are having a better standard of living in wet land as they do not have to go out for work outside the house like dry land counterparts. This is perceived as a prestige issue for the men in wet land. We find more women educated and employed in Nagamangala taluk. Srirangapatna taluk women are better off in issues such as fetching fuel, drinking water, clothing, health facility, education, politics etc. Due to modernisation the social front is changing in the village with regards to tradition and culture. Family dimension indicates, in most cases, a change towards nuclear type, and the acceptance of the small family norm. This need not however be construed as a result of irrigation but are the general levels of development since irrigation.

The transformation in terms of better economic facility and social change in unirrigated taluk is taking place at a very slow pace. There is drastic difference in terms of the standard of living in both types of taluks under study. There is a lot of income disparity and also differences in the expenditure pattern found between the wet and dry. The wet taluk villagers are found to invest in assets and also save a part of their income compared to the dry taluk ones.

Hypothesis of the study stating that literacy rate is high for both male and female in irrigated area is proved is positive however, the data of the researcher shows a high education level in wet land while it is not true as the educated members of the dry land had migrated and only the
uneducated were found in the village. This is also supported by the government published census (Mandya at a glance 1999-2000) which clearly shows that Nagamangala taluk has the highest educated people in the district, plausibly due to the taluk's proximity to the cosmopolitan city of Bangalore.

Increase in crop production is found in the wet taluk, however, the cropping pattern differs from wet land and dry land. The dry land farmers grow the staple crop and also pulse which is not profitable as they are local variety grains which neither yield much nor is of better quality. However, a large part is retained for self consumption. On the other hand, the wet land grow commercial crops which is sold in the market, thus there is an economic gain. The hypothesis that irrigation facilities have paved way for an improvement in the socio-economic infrastructure of that particular area with regards to marketing, savings, future investment, etc., is proved some extent. This is because with regard to marketing, we do not find any Agriculture Produce Market Committee (APMC) or regulated market in Srirangapatna whereas there are few of them in Nagamangala. But, with respect to other infrastructure developments as roads, schools, Government offices, etc., Srirangapatna taluk is better off.

Side effects which have emerged due to irrigation are alcoholism, wasteful expenditure and more waste of men labour, where these men in wet village sit and chat in large number while the dry village male counter part work to earn for living.

8.4 Suggestions and Recommendations

Irrigation which is spread far and wide in the country needs some more perfection. Even till date the irrigation is in its infancy though years have
passed. Thus in order to make some improvement, few suggestions are brought fourth from this present study.

Paddy should be restricted to the kharif season and to high rainfall areas as paddy crop need not be irrigated independently. Irrigation may be given to early sowing of kharif crops in June so as to use rain water more efficiently.

Practice of Kharif and Rabi crops practice should be preferred to Kharif and summer crops since irrigation water requirement in summer is high.

Crops like groundnut, sunflower, ragi, pulses etc be grown in elevated areas than pumping water from the canal to such high places and thus reducing the available water.

People in command area are said to be interested in solving their own problems. Thus they need to be motivated and given awareness to manage their own assets and use their water resources in the best possible manner by forming a committee and managing the same. The problem of water management can be solved only when the grassroot users take interest and make use of the same property.

Steps need to be taken towards testing the type of soil in the command area and there by, recommend for a proper cropping pattern. This process need to be done by the Command Area Development Authority (CADA) after forming Water Users Association for the better management of the water resources.

Passing years the extent of land waterlogging, salination and alkalinity are expected to be far greater than they are at present. Thus efforts at lessening land degradation are necessary. Land reclamation may be taken up in these areas with necessary advises from the concerned agencies.

On-farm development, agricultural development is in the realisation of maximum farm output at minimum input cost. Care needs to be taken in the
use of appropriate innovations so that development in agriculture can be sustained. Despite years of efforts at changing the attitude of the people and more especially farmers towards things modern, there is yet an urgent need to encourage widespread attitudinal and behavioral changes in the rural society. Towards (a) mechanical technologies that make agricultural work easier and less time consuming, (b) social mechanisms that could ease conflicts and resolve social and communal differences arising out of access or lack of it to irrigation and (c) irrigation water management by farmers participation, a management of the irrigation systems, not just the field channels, of the farmers, by the farmers and for the farmers with equity and efficiency.

Most important is the need for a cropping pattern and irrigation coordination body, with representation for government officials, farmers and the private and public development agencies for the Command Area and with representative units at the local, regional contexts towards solving crop violations. On the other hand, stringent legislative measures may be taken to curb crop violations, punish the practitioners of such violations and alleviated distributional deficiencies in the irrigation system.

The yield of crops for all farmers increased by canal irrigation facilities, but at the same time, it has increased inequalities in income. The inequality of farm income can be reduced easily to achieve the objectives of growth with social justice. Otherwise some pockets will develop, amidst poverty belts leading to social tensions.

The main problem of farmers is the lack of availability of credit. For the fuller utilisation of the new technology represented by High Yielding Variety (HYV) and fertilizers, irrigation is a must. Even otherwise, in the utilisation of the new varieties of high yielding seeds, the farmers face a relative paucity of financial facilities. The institutional credit should be provided by banking and other institutions on a higher scale. Further, farmers should be properly
trained to adopt package practices and modern agricultural implements to reap the benefits quickly and continuously.

Implications for future policy planning and research

I. Policy Implications:
The following policy implications emerge from the findings of the study. These are not only useful to the policy makers and planners, but also to the executives who are involved in the day-to-day management of irrigation. The main policy implications from the present study are:

a) The findings of the study on the nature and pattern of growth as an impact of canal irrigation call for taking up actions for sharing the benefits of irrigation judiciously among rural households.

b) For raising the potentials of canal irrigation, unirrigable lands should be made irrigable in order to defuse the benefits of development in other parts of the rural areas.

c) The problem of rural unemployment and underemployment has reached wider dimensions, causing great concern among the policy makers. Irrigation has been identified as one of the major strategies to solve this problem.

d) The extent of labour absorbed per acre of irrigated land depends upon the supply of quality irrigation. This, in turn, is dependent on the adoption of an appropriate water management system which ensures an equitable distribution of water for all the farms, irrespective of location or socio-economic status of the farmers. Therefore, a proper water regulation and distribution system should be adopted under the tank and canal irrigation systems, which have been managed by the public. Apart from this, the local community should be involved in water distribution.
e) All the canals and distributaries and field irrigation channels should be lined. This will save significant water which is being wasted through seepage and percolation. This will avoid land becoming unproductive from water-logging and salinity and the same water can be used for irrigating more land. All the infrastructures like excavation of canals, distributaries, land leveling etc., should be taken up simultaneously, so that a significant proportion of the water could be used for irrigation and more area could get irrigation facility.

All this is what national economic as well as irrigation policy demand in view of the goal of growth with justice and equity to which it is adhered.

8.5 II. Future Research

i). Irrigation on land is an important factor in determining output of paddy and sugarcane; this is a very significant finding and it needs to be ascertained by studies in other regions before it could be taken as definitive.

ii). As the average size of farm is too small to mechanise the farm, it is necessary to conduct a comparative study to assess the impact of farm mechanisation on factor productivities before emphasising the same.

iii). There are conflicting findings with respect to the impact of irrigation on agricultural development. To resolve this, one would need the results of studies in various regions. It is, thus, another researchable area.

Needless to say, the findings and the suggestions made in this thesis are with reference to the study area only and hence they should be treated as suggestive rather than definitive for framing policies at state and/or national level.
The present study which throws light on the impact of irrigation on socio-economic life of Mandya district brings out few points, wherein, the researcher feels that the irrigation should be extended to all the area in a particular region, and thereby bring-in an all-round and comprehensive development of the region.