

SOCIO-ECONOMIC PERFORMANCE OF GANGA
KALYANA YOJANA (GKY) IN KARNATAKA WITH SPECIAL
REFERENCE TO VIJAYAPURA DISTRICT

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CERTIFICATE

This is to certify that the thesis entitled "SOCIO-ECONOMIC PERFORMANCE OF GANGA KALYANA YOJANA (GKY) IN KARNATAKA WITH SPECIAL REFERENCE TO VIJAYAPURA DISTRICT " submitted by Ms. LAXMI K. for the degree of MASTER OF SCIENCE (AGRICULTURE) in AGRICULTURAL ECONOMICS, to the University of Agricultural Sciences, Dharwad, is a record of research work carried out by her during the period of her study in this university, under my guidance and supervision and the thesis has not previously formed the basis for the award of any degree, diploma, associateship, fellowship or other similar titles.

VIJAYAPURA
June 2015

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1. INTRODUCTION

It is a fact of Indian history that a certain section of our society was neglected for centuries, which forced them in to socio economic backwardness. But, the situation changed after India attained freedom and under the newly framed Constitution of India a new welfare era was started and measures were taken for the welfare of the backward classes. When these measures were put in letter it was required to put them in action and there was historic need for institutions to implement the welfare measures and hence Ganga Kalyana Yojana (GKY) is one among such Schemes. The GKY started during 1996-1997 as a State Government initiative to support small and marginal farmers; specifically of the backward classes of the society those like Scheduled Caste, Scheduled Tribe, OBC and Minorities in order to improve their economic wellbeing. The basic objective of the scheme is to provide irrigation facilities to the small and marginal farmers.

The scheme has been classified as:

- Individual irrigation scheme
- Group / community irrigation scheme
- Lift Irrigation Scheme

The names indicate that individual irrigation scheme is for single farmer, group irrigation scheme is for group of farmers and lift irrigation scheme included both. The scheme originated as a loan scheme that provides farmer with a subsidized bore well and pump set to irrigate their land and improve their agricultural productivity. Upon successful implementation of the scheme, the beneficiary would be required to repay the provided loan. Now, the GKY provides full financial support for the drilling of a bore well and the installation of a pump-set to SC, ST, Other backward classes and Minorities farmers across the state and the scheme also provides another facility that if the selected farm is nearer to the perennial source of water (rivers) it utilizes this facility by lifting water through pipe lines.

Presently there are four corporations implementing GKY these are

1. D. Devraj Urs Backward Class Development Corporation (DBCDC);
2. Karnataka Scheduled Tribal and Development Corporation Ltd (ST);
3. Dr .B.R. Ambedkar Development Corporation Ltd (SC) and
4. Karnataka Minorities Development Corporation Ltd (KMDC).

Particular Corporation implements the scheme for the benefit of a particular backward class of the society. The scheme is only for the targeted classes of the society which are SC, ST, OBC and minorities.

There are certain eligibility criteria for a farmer or group to be eligible for the scheme viz, farmer should be small or marginal farmer, he should be permanent resident of Karnataka, he should belong to one the categories that is SC, ST, OBC or minority as defined in the Government order and he should be holding a dry land.

Farmers who are selected to participate in the GKY scheme fall into two broad categories namely,

Individual Scheme and

Group Scheme

Each category requires the farmers to meet specific criterion in order to be considered for selection.

Procedure for selection the of Beneficiaries

Farmer should fill the application with relevant document, these application will be collected and submitted to the respective corporation D. Devraj Urs Backward Class Development Corporation (DBCDC); Karnataka Scheduled Tribal and Development Corporation Ltd (ST),Dr .B.R. Ambedkar Development Corporation Ltd (SC) and Karnataka Minorities Development Corporation Ltd (KMDC) at district office then all the records are verified and submitted to the committee chaired by MLA, these committee will select the beneficiaries later beneficiary notification order will be issued. Once a farmer is selected for an individual or group scheme borewell site is selected by a geologist or engineer and a borewellis dug. After drilling the bore well the related documents like

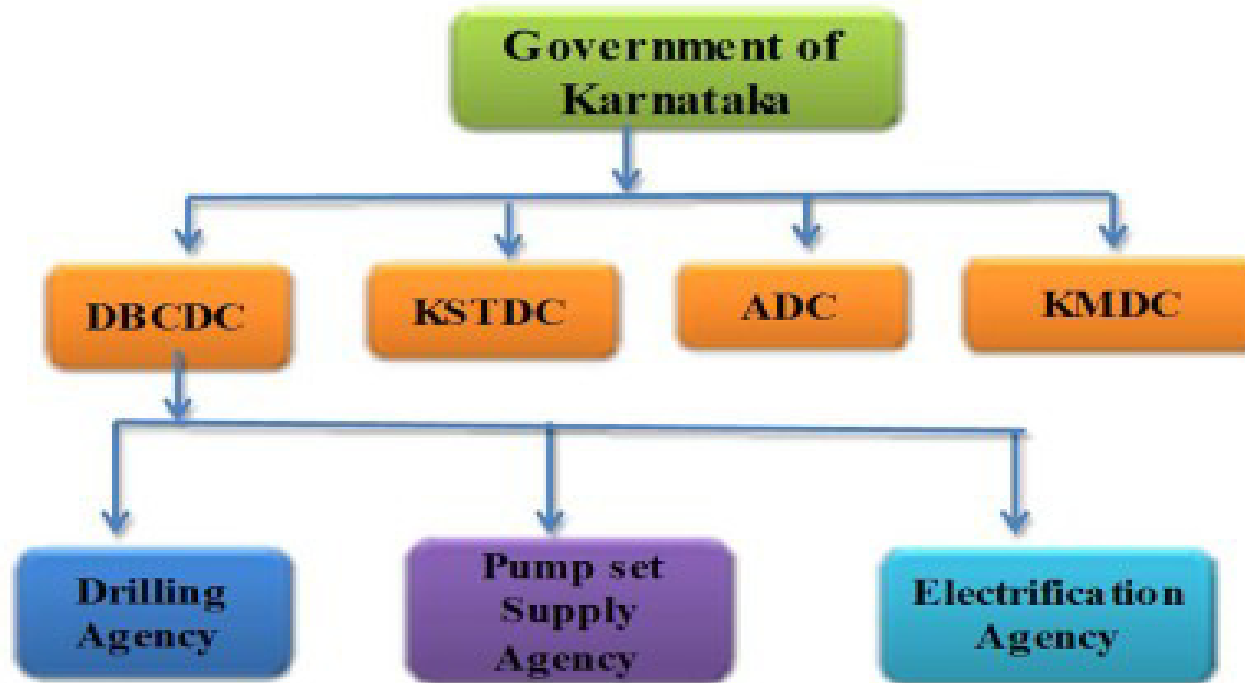


Plate 1. Schematic representation of the Scheme

Table 1.1: Criteria for beneficiary selection

Category	Land holding	Annual income of farmers	No. of participants	No. of Bore wells
Individual Farmer	Minimum of 0.8- 2 ha in one location	Must be below Rs. 22,000	1	1
Group Farmers	Minimum of 3.2 ha and up to 6 ha in one location	Must be below Rs. 22,000	3	2
	Minimum of 6 ha and up to 8 ha in one location	Must be below Rs. 22,000	5	3

- a. Water right certificate,
- b. Bore well Certificate,
- c. Caste certificate,
- d. Survey number,
- e. Bore well drilled details,
- f. Ground water depletion certificate and
- g. Receipt of the registration fee of Rs 50 is to be submitted at the sub division office .

The concerned section officers has to inspect the spot, prepare the estimate and submit it to the division office through the sub division officer to issue the power sanction letter to the consumer with a copy to the district officer of the respective corporation. The deposits for the individual pumpsets is to be paid by the beneficiaries of the corporations as detailed in the power sanction letter, after the payment of the deposits by the respective corporations work order is issued by the division office. Works are executed by the licensed electrical contractor on labour basis as per the rules and installations will be serviced by ESCOMs.

Financial provision

Government of Karnataka provides funding to these four corporation to implement the scheme to the farmers, which are distributed to the approved agencies as shown in the Plate 2.

The unit cost for the individual irrigation scheme is Rs. 1.5 lakhs and for group irrigation scheme it is Rs. 2.53 lakhs for a group of farmers holding the land of 3.2-6 ha of land. And the cost is Rs. 3.59 lakhs for group of farmers holding 6-8 ha.

Ganga Kalyana Yojana has been in operation in various forms in the last 30 years. It is perceived that it is a noble scheme for the welfare of poorer sections of the society. But, a few problems are also being faced in effective implementation of the scheme. Irrigation facilities have been responsible for the change in cropping pattern and increase in cropping intensity, change in farm income. Several research works have estimated the cost, returns and profits of individual crops where minor irrigation has been adopted. But, limited research work has been carried out to analyze the socio-

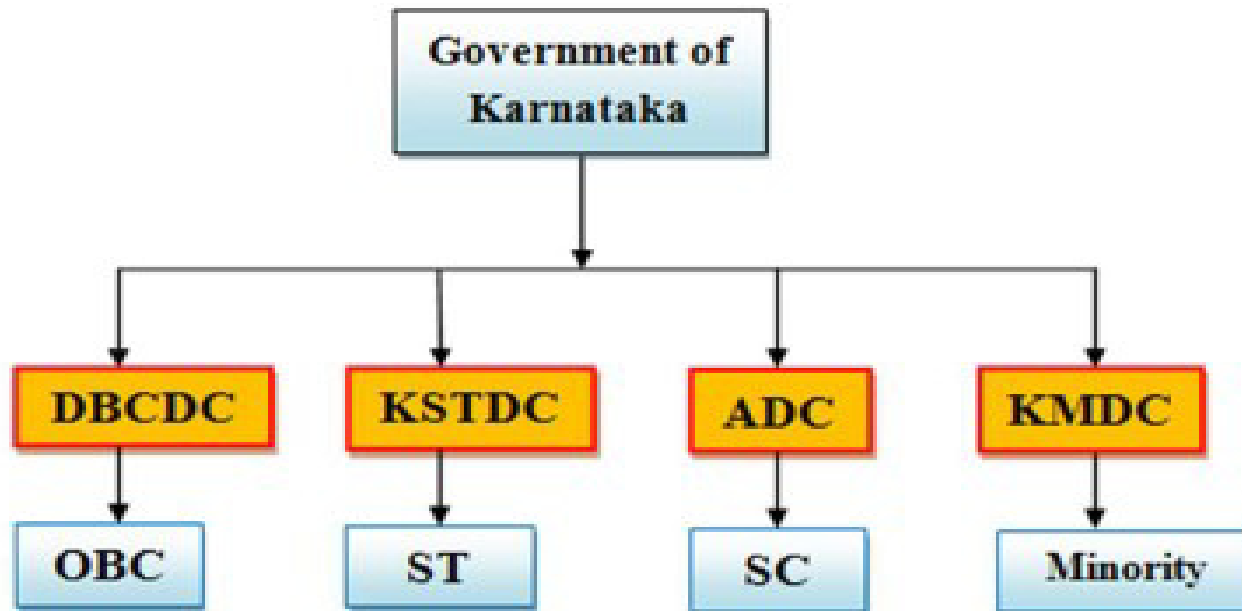


Plate 2. Schematic representation of financial provision and implementing agencies

economic impact of various minor irrigation schemes on farmers in and around the state. Moreover, there are very few studies which have analyzed the physical and financial progress, socio-economic impact and various constraints in the implementation of the scheme.

The scheme was supposed to uplift the farmers from backwardness through improved agriculture, income, employment etc. However, there was a public opinion that the implementation of the scheme has not been very satisfactory due to several reasons. Therefore, the present study was focused upon the spread of the scheme, its socio-economic impact and the constraints faced by the stake holders in implementing the scheme, based on pre and post implementation of GKY. The findings of the study are expected to provide inputs for fine tuning of policy with respect to welfare measures especially providing irrigation facility to the marginalized sections in farming sector. The scheme was supposed to help farmers improve their socio-economic conditions with the help of irrigated farming. Therefore, there is a need to learn from its experience.

Specific objectives of the Study

1. To study the extent of growth and pattern of bore wells dug and energized under the GKY in Karnataka.
2. To evaluate physical and financial progress of Ganga Kalyan Yojana in Vijayapura district.
3. To assess socio-economic impact of the Ganga Kalyan Yojana on the beneficiaries.
4. To document constraints in implementation of the scheme.

Hypotheses of the Study

1. There is a positive growth of bore wells dug and energized under the GKY in Karnataka.
2. GKY showed positive financial and physical progress in Vijayapura district.
3. There was a positive socio-economic impact of the Ganga Kalyana Yojana on the beneficiaries in Vijayapura district.
4. There were constraints in implementation of scheme.

Presentation of the study

The study has been presented in seven chapters. In Chapter-I, the nature and importance of the research problem, specific objectives of the study have been depicted.

1. Chapter-II deals with the review of the relevant past studies related to the study.
2. Chapter-III gives an over view of the study area, the nature and sources from where relevant data have been collected, the analytical tools employed for evaluating the objectives and interpreting the results and various concepts used in the study.
3. The results of the study and their analysis have been presented through a variety of tables in the Chapter-IV.
4. A critical discussion on the results obtained has been made in the chapter-V. It emphasizes on interpretation of the results and attempts to establish the relationships between certain variables and their outcomes.
5. A brief summary of the overall results and the main findings of the study have been presented in the Chapter-VI along with the policy implications that emerged from the findings of the study.
6. Chapter-VII includes the list of the referred books and journals in the study.

Limitations of the study

There were only small farmers found in the scheme at present but the scheme is limited to small and marginal farmer.

2. REVIEW OF LITERATURE

In this chapter a review of past research in the field has been compiled to enable better understanding of the problems concerned to the study. The review of literature is presented in this chapter under the following headings.

2.1 Growth and pattern of bore wells dug and energized under the GKY in Karnataka

2.2 Physical and financial progress of GKY in Vijayapura district.

2.3 Socio-economic impact of the GKY on the beneficiaries.

2.4 Constraints in the implementation of the scheme

2.1 Growth and Pattern of bore wells dug and energized under the GKY in Karnataka

Navaneeth *et al* (2008) conducted a study on performance of minor irrigation in Krishna basin of Karnataka-an economic perspective, reported that the total number of minor irrigation schemes in Krishna river basin of Karnataka was 2, 90,074. Of which about 60 per cent were located in Northern part of the state and about 40 per cent were located in southern part. Bore wells hold a unique position in the irrigation scenario of the basin with 98.68 per cent of the total minor irrigation schemes followed by tanks (0.99 per cent), barrages/pick-ups and other schemes (0.18 per cent) and lift irrigation schemes (0.12 per cent). Maximum number of bore wells, barrages and lift irrigation schemes were observed in North Karnataka with 60.91, 64.85 and 62.10 per cent, respectively. Whereas maximum number of tanks was found in southern part of the basin with 51.57 per cent of them being located there.

Jainapur (2007) conducted a study on performance evaluation of minor lift irrigation schemes in Northern Karnataka and reported that in Karnataka the number of minor lift irrigation schemes grew by about 1.4 per cent between the periods from 1990 to 2005. There were 33 lift irrigation schemes established in the pre-bifurcation Vijayapura district (1996-97). After bifurcation of the district 15 were transferred to

Bagalkot district and 20 remained with Vijayapura district. Of the total number of schemes in the two districts, about 61 per cent were non-working and the remaining (39%) were working. The performance of schemes on the banks of rivers in Vijayapura district was not encouraging. All the units (100 %) have become non-functional. But, the performance of units in Bagalkot district was much better. About 72 per cent of the schemes in Bagalkot were functioning and the remaining 28 per cent were non functional.

Anonymous (2006) reported that the ultimate irrigation potential of minor schemes in India was 14.06 million hectares in 1951 which increased to 59.38 million hectares up to the end of 1999-2000 showing an increase of 322 per cent during last 49 years. At the end of IX five year plan, as per the third minor irrigation census 2000-2001, ultimate potential created through minor irrigation is 81.4 million hectares out of which contribution of groundwater schemes is 64.1 million hectares and 17.3 million hectares from surface water.

Rawal (2001) identified the basic structure of irrigation in West Bengal and the extent of growth of irrigation in the post-land reform period. The author used the data from the mid-1970s-mid-1990s to identify certain features of irrigation development in the state. After presenting an overview of the pattern of irrigation in the state, he analysed the growth of irrigation from groundwater and canals and the changes in irrigation from ponds and river lift irrigation schemes.

Hiremath (1998) conducted a study on Ground water use in Karnataka- an economic analysis they reported that the growth in the different sources of irrigation in Karnataka during 1970-71 to 1993-94. Growth in the number of tanks during the study period for the state as a whole was negative (-5.69 per cent) where as growth in number of dug wells for the state was 1.98 per cent and significant. High growth rates were observed in all the districts and for the state as a whole in case of both bore well and lift irrigation schemes and it was 48.90 and 43.57 per cent per annum, respectively.

Dhawan (1979) conducted a study on trends in tube wells irrigation, they reported that trends in tube well irrigation observed that tube wells in India increased in number from 3,000 in 1951 to 1.75 million in 1978. Area irrigated by tube wells increased from about 0.25 million hectares to about 5.5 million hectares. The factors that vitally impinged on the economics of tube well irrigation were progress in land. Proportion of tube wells to the net irrigated area of Uttar Pradesh has increased from 21 to 52 percent during 1966-67 to 1980-81. Whereas, the proportion of wells, (32 to 9.69 per cent), tanks (5.5 to 1.96 per cent) and other sources (3.7 to 3.4 per cent) to the net irrigated area came down during this period. However, the area irrigated by the canals went up from 22.68 lakh hectares to 30-33 lakh hectares.

2.2 Physical and financial progress of Ganga Kalyan Yojana in Vijayapura district.

Singh *et al* (2013) conducted a study on performance evaluation of lift irrigation projects in Solan area of Shivalik Himalayas. They reported that physical performance of lift irrigation scheme was poor. The study was carried out from June 2010 to June 2011. The study reported that construction of lift irrigation scheme did not result in any change in cropping pattern of the command area. There were no permanent diversion head works to divert the river water. The water level of the river was going down day by day due to rampant mining of the river bed material. The Krishak Vikas Sangh was non-functional and there was little involvement of farmers in water management of the scheme. The water charges were a very low and that too were not being collected.

Anonymous (2009) Conducted a study on evaluation of centrally sponsored scheme (CSS) on Micro Irrigation. The study was conducted in six selected states on the basis of the size of operation in terms of coverage of area under MI, physical and financial achievements vis-à-vis targets, geographical spread and perceived potential. The states selected for the study were; Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Punjab and Orissa. The study covered 6 states, 18 districts, 44 Blocks and 1251 sample and control farms over the country and reported that implementation of the Centrally Sponsored Scheme in 2005-06 boosted the pace of micro irrigation development in states in which the Central and state government were already in

operation before the state of the CSS e. g Karnataka and Andhra Pradesh. In other states the implementation process has gradually accelerated e g Madhya Pradesh in terms of hectares of land covered under micro irrigation increased noticeably during

2006-07 to 2007-08. The increase in physical performance was of the order of nearly 800 percent in Madhya Pradesh in Orissa and 300 percent during the same period.

Kuscu *et al* (2009) conducted a study on performance assessment for irrigation water management: A case study in the Karacabey irrigation scheme in Turkey reported that performance of irrigation water management assessed using two physical and three financial performance indicators for six years during the period 2002–2007. Accordingly, the physical performance indicators, which were average irrigation ratio and relative water supply, were found to be 61 per cent and 0.77 per cent, respectively. And the financial performance indicators, which were the effectiveness of fee collection, the financial self sufficiency of fees collected to cover management, operating and maintenance budgets, and the staffing number per unit area were found as average 103 per cent %, 0.94 and 0.003 persons/ha, respectively. It was claimed that the management with regard to physical performance was negative; on the other hand, the management with regard to financial performance and water user satisfaction was positive.

Şener *et al* (2007) studied on evaluation of hayrabolu irrigation scheme in turkey using comparative performance indicators. The performance of hayrabolu irrigation scheme was evaluated using some agricultural, economical, physical, water-use and environmental indicators and results showed that project has been working under the capacity of real performance and has not been improved when compared to the years under government management.

2.3 Socio-economic impact of the Ganga Kalyan Yojana on the beneficiaries.

Nizamuddin (2014) in a study on impact of Ganga Kalyana Scheme on cropping pattern of minority farmers in Chickmagalur District of Karnataka reported that, before adopting the

Ganga Kalyana scheme more than 82 per cent of farmer beneficiaries were growing single crop like maize, ragi, paddy and jawar etc. After adopting the Ganga Kalyana scheme 76 per cent of farmers started growing more than two crops of dissimilar in nature like arecanut with banana and pan leaves, rubber with ginger and mango with maize etc, which improved the economic conditions of beneficiaries.

Aravinda Kumar (2013) studied on changes in cropping pattern, cropping intensity and farm incomes by adopting micro irrigation in cultivation of horticultural and agricultural crops. The cropping pattern of micro irrigation adopter and non adopter farmers showed gross cropped area of 17.16 ha and 8.82 ha, respectively and net cropped area of 4.73 ha and 4.64 ha, respectively. While the cropping intensity on adopter farms was about 363 per cent it was lower at 190 per cent on non adopter farms. The additional net returns from grape and lime cultivation under drip irrigation over furrow irrigation were 69,087/ha and 43,528/ha, respectively. Similarly, additional net returns from groundnut and maize cultivation under sprinkler irrigation over furrow irrigation method were 19,649/ha and 14,718 /ha, respectively.

Prasad *et al* (2013) conducted a study on sector reform impact on rural drinking water schemes - A case study from Raigad district in Maharashtra they observed that the National Rural Drinking Water Programme (NRDWP) database, the drinking water coverage status is poorer on the ground and scheme failures are more widespread. The study illustrates that in spite of changing policy guidelines in the drinking water sector there has been little change in the outcome of scheme success and it is now time to seek alternatives.

Kang'au *et al* (2012) conducted a study on performance and economic evaluation of pumped irrigation system, carried out a study on 10 different irrigation pumps to evaluate their efficiency as well as energy uses. The results implied that without proper selection of the irrigation equipments, poor designs as well as lack of operational and management skills, the farming enterprises could be rendered uneconomical.

Anonymous (2010) from an evaluation of GKY performance in HD Kote and Nanjangud taluk in Karnataka distributed over 61 villages and observed that approximately 33 per cent of beneficiaries were marginal and 63 per cent were small. In total 123 bore wells were dug under DBCDC GKY scheme from 2000-2009. Out of 145 beneficiaries 62 members were part of group scheme and 83 enrolled in individual scheme. 12 per cent of beneficiaries were female in the district. 42 per cent of the

beneficiaries in the HD Kote were Vokkaliga (OBC) and Nayaka (ST) and in Nanjangud Taluk 58 per cent belonging to Lingayat and Kuruba communities. Majority of respondents were in the age of 40-70 years in both the taluks. 50 per cent of the farmers were illiterate and 5 per cent of them completed 12th standard. In HD Kote 82 per cent of the families had greater than 5 members with 2-5 acres of land and agriculture was the source of income and in Nanjangud 81% of the households were with greater than 5 members, 2-4 acres of land and agriculture being the primary source of income.

Anonymous (2009) Conducted a study on Evaluation of centrally sponsored scheme on Micro Irrigation in the six states, the adoption of micro irrigation resulted that significant increase in yield in all major crops to the extent of 19.4 percent (Andhra Pradesh) to 50 percent (Gujarat) in ground nut, 19.1 percent in sweet orange, 33 percent (Gujarat) to 42.1 percent (A.P) in vegetables, 17.1 percent (A.P) to 25 percent (Karnataka) in banana in comparison with conventional irrigation. And it also reported by the beneficiaries that improved in the quality of produce and realization of higher price. Beneficiaries in Andhra Pradesh, Madhya Pradesh, Gujarat and Karnataka that in ground nut due to uniform pod filling; better shine in sweet orange and uniform bigger sized fruit in banana under drip irrigation, helped beneficiaries in fetching a premium of 5-10 percent in sale price. Cost of cultivation was found to have been reduced in horticultural crops like mango (13.3 percent in AP to 16.98 percent in Gujarat), ground nut (10.82 percent in Gujarat to 17.0 percent in AP). Saving have come mostly on labour component and increase in cost of cultivation of papaya and banana was due to increase in intensity of management and use of high cost seed and increased use of fertilizers to meet the significant growth in yields.

Poddar *et al* (2006) studied on evaluation of Ganga Kalyana Scheme of government of Karnataka, reported that in Bidar district (i) Maximum area is under crops during kharif season followed by those during rabi and summer (ii) There has been substantial increase in the area under net cultivation after the scheme (iii) The area under irrigation has increased substantially after the scheme (iv) Area under profitable commercial crops like sugarcane and sunflower has increased substantially (v) Water for irrigation was not sufficient to take up irrigated farming throughout the year.

Whereas in Bagalkot district although the net cultivated area in kharif season declined the area under irrigation increased as a result of irrigation facility provided under the Ganga Kalyan Project. In rabi, and summer both net cultivated as well as irrigated area increased after the introduction of the scheme. Sugarcane is a well-suited and more profitable crop in Bidar district with good arrangements for sugarcane marketing. Hence, area under some of the less profitable crops like bajra and kharif jowar was replaced by sugarcane. This brought out the trend of growing commercialization of farming of Ganga Kalyan beneficiaries in Bidar district.

Cropping intensity showed increase in Bagalkot district, Karnataka from 123 per cent before the scheme to 179 percent after the scheme, indicating about 45 percent increase. This was possible by increase in area under irrigation from the scheme bore well. But the cropping intensity in Bidar district showed marginal decline in the post scheme period due to the persistent drought over the years. However, the area under the irrigation increased along with changes in total income of the farmer and enhanced employment opportunities.

Navaneeth *et al* (2008) conducted a study on performance of minor irrigation in Krishna basin of Karnataka-an economic perspective. They reported that under borewell irrigation system, proportion of the area devoted to *kharif* crops was as high as 52.28 per cent followed by summer crops with 39.14 per cent and *rabi* crops with 8.55 per cent of the gross cropped area. It was observed that, sugarcane was the major crop grown during the *kharif* season with 19.58 per cent followed by chilli (10.65%), cotton (9.50%). Wheat was the only *rabi* crop grown under bore well irrigation and its contribution to the gross cropped area was 8.55 per cent. Chilli was the major

summer crop with 13.11 per cent area followed by sugarcane (12.54%), cotton (10.45%) and maize (3.04%).

Jainapur (2007) conducted a study on performance evaluation of minor lift irrigation schemes in Northern Karnataka and reported that the cropping intensities on the farms of the respondents was more (203%) in the case of beneficiary than non-beneficiary (100%). This higher cropping intensity reflected more number of crops grown in the same area due to irrigation facility created by lift irrigation scheme. The cropping intensity of the entire area including both beneficiary and non-

beneficiary of was 145.75 per cent. This study thus confirms the fact that irrigation facility provided through the lift irrigation enhances the cropping intensity.

2.4 Constraints in the implementation of the scheme.

Kang'au *et al* (2012) conducted a study on performance and economic evaluation of pumped irrigation system, in their study revealed that there was lack of knowledge in smallholder farmer about the modern irrigation system and lack of technical support system in irrigation system selection, design and operation. Some of the challenges affecting smallholder farmer operating pumped irrigation system were poor market, high cost of fuel and water shortage.

Anonymous (2009) Conducted a study on Evaluation of centrally sponsored scheme on Micro Irrigation the study revealed that the arrangements for institutional credit at grassroots level was lacking in all the six states and further growth would depend on bank arrangements. It was found that the commercial Banks, Regional Banks as well as Cooperative Banks were shy towards financing MIS. In AP the percentage of area covered by bank loan declined from 14 percent during 2005-06 to 2.8 percent during the year 2007-08 and 0.1 percent in the Year 2009. Similarly in Gujarat the percentage coverage of bank financed MIS system fell down from 52 percent in 05-06 to 12 percent in 08-09. On the other hand in the states of MP, Punjab, Orissa and Karnataka the bank finance supported MIS were found to be negligible. The study found that lack of coordination at BLBC and DCC level, lack of branch-wise credit planning for MI and loose role of grassroots level bankers in implementation process were the main reason.

Navaneeth *et al* (2008) conducted a study on performance of minor irrigation in Krishna basin of Karnataka-an economic perspective reported that Encroachment and siltation of the tanks were the major constraints in the growth of minor irrigation schemes which was about 94 and 90 per cent of respondents, respectively which followed by poor maintenance of minor irrigation schemes (86.67 per cent), declining rainfall (73.33 per cent) and inadequate supply of electricity (73 per cent) and lack of institutional support, inadequate allocation and mis-utilisation of funds were major constraints about 66.67, 63.33 and 70 per cent of the respondents, respectively. About 54 per cent of the respondents felt that lack of political will among the state politicians

and about 51 per cent of the respondents opined that decline in ground water level also contributed to slower development of minor irrigation schemes in the basin. Less water discharge in the bore wells and lift irrigation schemes and water related conflicts were also the important factors that were obstructing the development of minor irrigation sector in the basin as felt by about 43.33 per cent and 33.33 per cent respondents, respectively. Similarly improper cropping pattern followed by the farmers in the commands was also a major constraint in efficient utilisation of potential as expressed by about 40 per cent of the experts.

Jainapur (2007) conducted a study on performance evaluation of minor lift irrigation schemes in Northern Karnataka and reported that the constraints faced by the beneficiaries have been ranked as severe, medium and no problem. Accordingly scarcity of water, electricity and input supply and water charges fall in the severe category so, Government should ensure minimum amount of water in the river by constructing small sustainable barrages across rivers to solve water scarcity problem and special emphasis needs to be placed upon electricity problem.

Poddar *et al* (2006) in a report on survey and evaluation of Ganga Kalyana Scheme of Karnataka in Bidar and Bagalkot districts reported that most of the bore wells dug under the scheme were failure. Important reason for failure was the drought prevailing in the area for the previous four years. Secondly, although the irrigation unit was sanctioned, it failed because of poor the yield. Further, even if there was good yield of water, the supporting facilities were not provided in time to the beneficiaries to make the well functional. The percentage of functioning of the bore well could be expected to rise if there was improvement in the water table following a good rainfall.

3. METHODOLOGY

This chapter deals with the brief description of the study area and the techniques used in the selection of the sample and data analysis. The details are presented under the following sub headings.

- 3.1. Description of the study area.
- 3.2. Selection of the study area and sampling procedure.
- 3.3. Nature and source of data.
- 3.4. Analytical tools employed.

3.1. Description of the study area

Karnataka is the eighth largest state in India with a geographical area of 190 lakh ha. It is situated between 11° 5' and 18° 45' North Latitude and between 74° 12' and 78° 40' East Longitude in the Southern plateau. The state receives the average rainfall of about 1139 mm both for southwest and northeast monsoons. The temperature ranges from 14° C to 40° C. The important crops grown in the state are Sorghum, paddy, ragi, maize and wheat among cereals and pigeon pea, chickpea, green gram, black gram, among pulses, while groundnut, sunflower and safflower are major ones among oilseed crops. The crops namely cotton; chilli, Sugarcane and tobacco are important ones among commercial crops. Mango, sapota and banana among fruit crops and coconut, Arecanut and Coffee among plantation crops.

3.1.1 Location and general description

The present study was undertaken in Vijayapura district of Karnataka during 2013-14. Agro climatic features of Vijayapura district are presented under the following heads.

Vijayapura district is the 9th largest district in Karnataka and consists of five taluks. Encompassing a geological area of 10, 53,471 ha lies between 15° 20' and 17° 28' north latitude and 74° 54' and 76° 28' east longitude. It is situated in northern part of

Karnataka, bound on the North by Sholapur district (Maharashtra) and on North West by Sangli district (Maharashtra). The other sides are bounded by Gulbarga, Bagalkot and Belagavi district. According to 2011 census the total human population (Table 3.1) was 21,77,331 out of which 11,11,022 were male and 10,66,309 were female accounting for 51.03 percent and 48.97 percent respectively. It comprises of 76.95 percent of rural population and 23.05 percent of urban population. The literacy rate of the district is 67.15 percent.

Climate and Soils

The climatic condition is characterized by the three distinct agricultural season viz., kharif (July-September), rabi (November- January) and summer (April- May). The southwest monsoon commences by the end of the June or early July and continues intermittently till the end of October. The average annual rainfall in the district is 433.7 mm, temperature ranging from 16^o c to 43^oc. The number of rainy days in the district was 40 days during 2012-13.

Vijayapura district is endowed with the medium black, red loamy and sandy soils are shallow in depth and well drained.

Land utilization pattern

The land use pattern in Vijayapura district for the year 2012-13 is presented in Table 3.2

Source of irrigation

Vijayapura district have been irrigated by various source like canal, open wells, bore wells etc shown in Table 3.3

Crops and cropping pattern

The cropping pattern in Vijayapura district is depicted in (Table 3.4). In the district during 2012-13, the total net area sown was 8, 36,431 ha, out of which maize was grown on 72,246 ha, jowar on 2, 32,476 ha, wheat on 52,074 ha, paddy on 97 ha, sugarcane on 70,865 ha, cotton on 12,947 ha, and oilseeds, pulses, fruit crops on 1, 19,906 ha 2, 74,992 ha 19,163 ha and vegetables in 20,205 ha of the net sown area.

Table 3.1: Salient features of Vijayapura district and sample taluks

S I. No	Parameters	In di Taluk	Sind agi TALUK	Vijay apura TALUK	Mudde bihal Taluk	Basavan a bagevadi Taluk	Vijaya pura District
1	Geographical area (ha)	2, 22,492	2,17, 601	2,65, 749	1,49,74 4	1,97,865	10,53, 471
2	Inhabited villages (No)	1 29	149	130	149	123	680
3	Gram panchayat's (No.)	4 4	40	46	31	38	199
4	Rural population (No.)	3, 82,952	3,58, 449	3,93, 648	2,24,78 1	3,15,523	16,75, 353
5	Urban population (No.)	3 8,217	37,2 26	3,27, 427	65,910	33,198	5,01,9 78
6	Population density (No. per Sq.km)	1 89.4	181. 7	271	193.5	176.1	207
7	Literacy (%)						
	Male	7 4.14	74.6 9	79.57	80.59	76.1	77.21
	Female	5 3.27	51.4	63.28	56.31	53.42	56.72
8	Average rain fall (mm)	4 46.5	494. 2	410.4	404.1	413.5	433.7
9	Ration card holders (No.)	8 2,631	70,8 51	1,49, 348	63,059	70,323	4,36,2 12
0 1	Net irrigated area (ha)	1, 71,070	1,91, 267	1,98, 097	1,22,52 9	1,53,468	8,36,4 31
1	Hoblies (No)	3	3	5	4	3	18

Source: District at a Glance 2012-13. District Statistical Office, Vijayapura

Table 3.2 Land utilization pattern in the study area and sample taluks (area in ha)

I. No	Parameters	Indi taluk	Sindagi taluk	Vijayapura taluk	Muddebihal taluk	Basavana Bagevadi taluk	Vijayapura District
1	Geographical area	2,22,492	2,17,601	2,65,749	1,49,744	1,97,865	10,53,471
2	Area under forest	0	0	834	0	1143	1977
3	Non agriculture	1,0,429	4,312	9,986	2,487	8,919	36,133
4	Cultivable waste	834	263	3,627	623	155	5,502
5	Barren	3,773	5,726	9,975	6,064	3,521	29,059
6	Permanent pasture	1,637	1,509	4,145	1,016	1,268	9,575
7	Trees and groves	30	518	316	452	0	1,316
8	Total uncultivable land	2,501	2,290	8,088	2,091	1,423	16,393
9	Net sown area	1,71,070	1,91,267	1,98,097	1,22,529	1,53,468	8,36,431

Source: District at a Glance 2012-13. District Statistical Office, Vijayapura

Table 3.3: Irrigation status in Vijayapura district and sample taluks (area in ha)

I. No	S	Parameters	Indi taluk	Sindagi taluk	Vijayapura taluk	Muddebi hal taluk	Basavana Bagevadi taluk	Vijayapura district
1		Canals	3 1,376	48, 815	9,4 52	11,66 8	11,895	1,13, 206
2		Open wells	2 8,214	18, 315	18, 590	5,995	6,385	77,4 99
3		Bore wells	1 9,463	24, 532	23, 420	7,015	13,716	88,1 43
4		Other sources	1 1,214	1,2 58	998	562	765	14,7 97
Total irrigation			9 0,267	92, 962	52, 460	25,24 0	32,761	2,93, 690

Source: District at a Glance 2012-13. District Statistical Office, Vijayapura

Table 3.4: Area under major crops in Vijayapura district and sample taluk (In ha)

S I. No	Parameters	Indi taluk	Sinda gi taluk	Vijayapu ra taluk	Muddebih al taluk	Basavana Bagevadi taluk	Vijayapu ra district
1	Jowar	46,536	45,060	66,096	34,148	40,636	2,32,476
2	Bajra	12,026	13,666	7,666	11,297	10,783	55,438
3	Maize	17,676	17,109	18,906	4,744	13,811	72,246
4	Wheat	14,217	12,669	13,502	3,347	8,339	52,074
5	Total cereals	90,455	88,569	1,06,170	53,545	73,592	4,12,331
6	Tur	20,358	27,570	3,455	18,834	15,982	86,199
7	Bengal gram	27,533	38,922	40,697	33,274	41,225	1,81,651
8	Total pulses	50,572	67,243	45,467	53,868	57,842	2,74,992
9	Total food grains	27 1,41,0	12 1,55,8	1,51,637	1,07,413	1,31,434	6,87,323
0 1	Ground nut	10,686	11,708	2,626	11,223	3,494	39,919
1 1	Sunflower	5,845	10,934	24,941	15,307	17,154	74,181
2 1	Total oil seeds	16,907	23,584	28,524	27,801	23,090	1,19,906
3 1	Fruits	5,716	1,768	10,469	285	925	19,163
4 1	Vegetables	2,592	1,529	9,090	1,593	5,401	20,205
5 1	Sugarcane	25,009	28,151	11,421	1,617	4,667	70,865
6 1	Cotton	1,276	8,018	183	1,875	1,595	12,947

Source: District at a Glance 2012-13. District Statistical Office, Vijayapura

3.2 SAMPLING PROCEDURE.

Selection of study area and sampling procedure adopted is described below.

3.2.1 Selection of study area

Vijayapura district was purposively selected for the study to analyse the socio-economics of Ganga Kalyana Yojana. There was a public opinion that the implementation of the scheme has not been very satisfactory due to several reasons. Study area was selected also keeping in view the logistical conveniences to the researcher.

3.2.2 Selection of villages

A list of village in which Ganga Kalyana Yojana has been working was prepared through preliminary survey. The village was selected based on the highest beneficiaries recorded in that particular taluk.

3.2.3 Selection of sample farmers

Study was conducted in all the taluks of Vijayapura district comprising of 120 samples. There are 4 corporations which have implemented this scheme namely, D. Devraj Urs Backward Class Development Corporation (DBCDC); Karnataka Scheduled Tribal and Development Corporation Ltd (ST); Dr. B.R. Ambedkar Development Corporation Ltd (SC) and Karnataka Minorities Development Corporation Ltd (KMDC). From each corporation, 30 beneficiaries was selected covering all the taluks of Vijayapura district and under each corporation, 6 sample farmers was selected from all the five taluks. Impact of the Scheme was analysed based on pre and post implementation of Scheme. For the study, those farmer-respondents had been selected who have implemented the scheme for a minimum of 3 years for data enumeration.

3.3 Nature and sources of data

Both primary and secondary data were collected in order to evaluate the various objectives of the study.

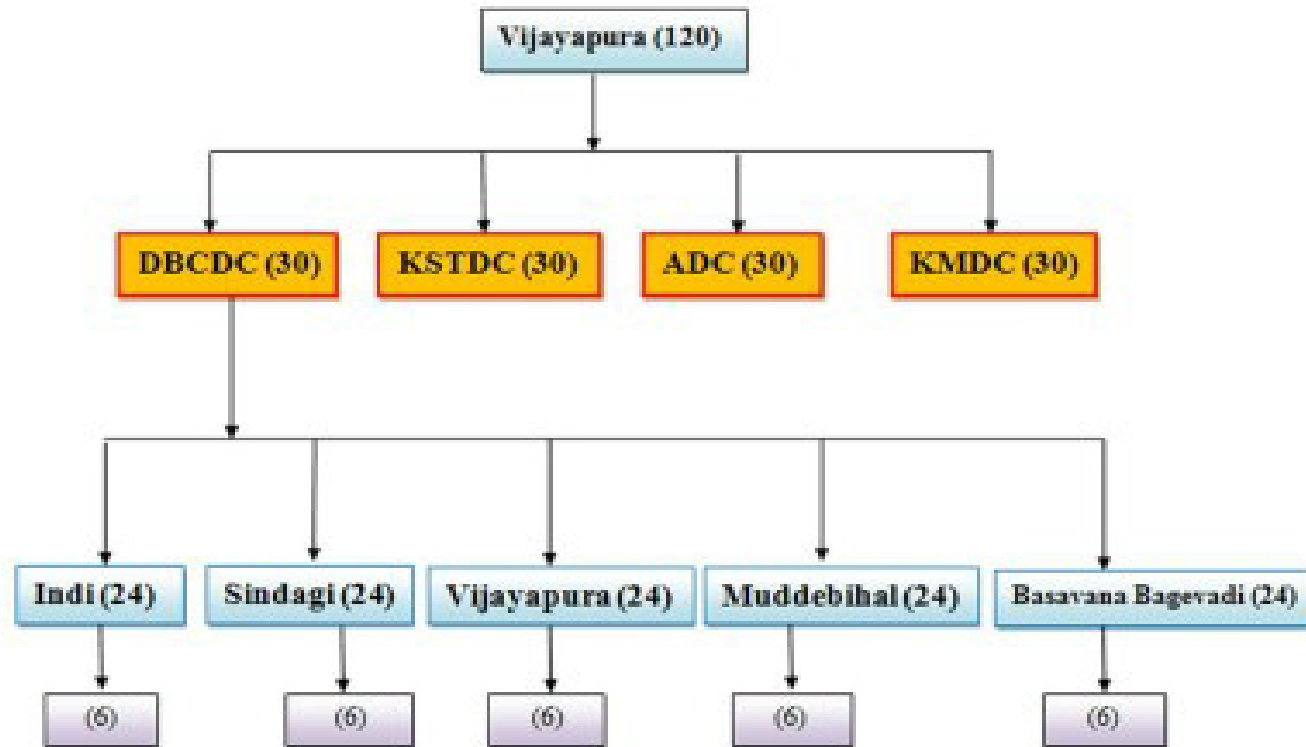


Plate 3. Sampling design of the study area

3.3.1 Primary data

For meeting the requirement of the specific objective of the study, necessary data was collected from the sample farmers through personal interview method with the help of well-structured schedule, Hence data was collected based on memory of the respondents.

The data pertaining to (a) general characteristics of the farm family such as age, occupation, education qualification, size of the family, distribution of land holding and its utilization and source of irrigation (b) socio-economic impact on farmers i.e. cropping patten, cropping intensity, crop yields, extent of irrigation, income levels, marketing of farm produce were collected (c) opinion survey method was adopted to know the operational problems and constraints faced by the farmers in getting benefits from Ganga Kalyana Yojana.

3.3.2 Secondary data

Secondary data pertaining to the study were collected from State Agriculture Department and D. Devraj Urs Backward Class Development Corporation (DBCDC), Karnataka Scheduled Tribal, Development Corporation, Dr. B.R. Ambedkar Development Corporation and State Minority Development Corporation at state and district levels and other Government Departments and published sources.

3.4. Analytical tools employed

Following analytical tools were used in analysis of data collected during the study.

3.4.1 Tabular presentation

Data collected were presented in tabular form to facilitate easy comparison. The presentation was adopted to compile characteristics of the sample farmers.

Data regarding number of beneficiaries involved in the scheme, bore wells dug and energized under the GKY, financial and physical progress were done analysed in tabular analysis.

Tabular analysis was also adopted for analyzing the distribution of land holding and its utilization and source of irrigation, crop loss, livestock dead, building damaged employment pattern and household items. Simple statistical tools like average and percentage were used to compare, contrast and interpret results properly.

3.4.2 Compound growth rate analysis

In order to analyse the growth of GKY, growth and pattern of bore wells dug, energized and physical and financial progress as a whole, compound growth rate was employed using the exponential function of the form:

$$Y_t = AB^t U_t \dots\dots\dots (1)$$

Where,

Y_t = Dependent variable for which growth rate was estimated (growth and pattern of bore wells dug and energized)

A = Intercept indicating Y in the base period ($t=0$)

$B = 1 + g$

t_i = Years which takes values 1, 2 n

U_t = Error term

g = Average compound growth rate

Equation (1) was converted into logarithmic form in order to facilitate the use of linear regression. Taking logarithms on both sides we obtain,

$$\ln Y_t = \ln A + t (\ln B) + \ln U_t \dots\dots\dots (2)$$

Or

$$Y = a + bxt + Ut \dots\dots\dots (3)$$

Where,

$Y = \ln Y_t$

$a = \ln A$

$$b = \text{Ln } B$$

$$t = xt$$

$$U_t = \text{Ln } U_t$$

The linear regression of the above forms was run separately for growth and pattern of bore wells dug, energized in GKY schemes. The values of 'a' and 'b' were estimated by using ordinary least square technique.

Value of 'g' was obtained as,

$$\text{Ln } B = b$$

$$B = \text{antilog } b$$

$$B = 1 + g$$

$$g = B - 1$$

To obtain the percentage of annual compound rate of growth the value of 'g' is multiplied by 100.

$$g = (\text{Antilog of Ln } b - 1) * 100$$

So equation (3) is our estimating equation for compound growth rates using time series data.

The significance of regression coefficient was tested using the students't' test which was defined as

$$t = \frac{b_i}{\text{Se}(b_i)}$$

Where,

b_i = Regression coefficient

$\text{se}(b_i)$ = Standard error of the coefficient

3.4.3 Garrett's ranking technique

This technique is useful for quantifying interval scaled data. The data pertaining to preferences and constraints were ranked using Garrett scores. This helped in identifying most important factors influencing particular choice process. Respondents were asked to assign the ranks for all the listed factors and outcome of such ranking has been converted in to score values with the help of the following formula:

$$\text{Percentage position} = 100(R_{ij} - 0.5) / N_j$$

Where,

R_{ij} = Rank given for the i^{th} factor by the j^{th} respondent

N_j = Number of factors ranked by the j^{th} respondent

By referring the Garrett's table the percentage position estimated is converted to in scores. Then, for each factor the score of each individual are added and then mean values is computed for each factor in order to assign ranks.

4. RESULTS

Results of investigation carried out for fulfilling objectives of the study are presented under following four sections.

4.1 General characteristics of the sample farmer

4.2 Growth and pattern of Ganga Kalyana Yojana (GKY) in Karnataka

4.3 Physical and financial performance of GKY in Vijayapura district

4.4 Socio-economic impact of GKY on beneficiaries

4.5 Identification of constraints in implementing GKY

4.1 General characteristics of the sample farmers

In any scientific investigation the necessity of basic information is indispensable since, it provides deeper insights into the basic aspects of the study area. The general characteristics of the respondents in the study area are presented in Table 4.1.

4.1.1 Age

The average age of a farmers acts as an important variable in decision-making ability of the respondents. In the overall study area age groups considered in the analysis were young, middle and old aged people. Among these 44.16 Per cent of the beneficiaries were middle aged followed by old age (30.00%) and nearly (26.00%) were young under the Ganga Kalyana Yojana. The study covered four types of social categories namely SC, ST, OBC and Minorities. In SC category 40 per cent of farmers were middle aged followed by (33.33%)

Table 4.1: General characteristics of sample beneficiaries

Particulars	S C	S T	O BC	Min orities	Freq uency
Age (years)					
Young <35	8 (2 6.66)	1 (3 6.66)	3 (1 0.00)	9 (30. 00)	31 (25.8 3)
Middle 36-50	1 (4 0.00)	1 (3 6.66)	1 (5 6.66)	13 (43. 33)	53 (44.1 6)
Old >50	1 (3 3.33)	8 (2 6.66)	1 (3 3.33)	8 (26. 66)	36 (30.0 0)
Total	3 (1 00)	3 (1 00)	3 (1 00)	30 (100)	120 (100)
Education					
Illiterate	1 (5 0.00)	9 (3 0.00)	1 (4 6.66)	12 (40. 00)	50 (41.6 6)
Primary	1 (3 .33)	5 (1 6.66)	4 (1 3.33)	4 (13. 33)	14 (11.6 6)
Secondary	6 (2 0.00)	2 (6 .66)	1 (3 .33)	1 (3.3 3)	10 (8.33)
SSLC	5 (1 6.66)	5 (1 6.66)	1 (3 .33)	4 (13. 33)	15 (12.5 0)
PUC	2 (6 .66)	6 (2 0.00)	8 (2 6.66)	4 (13. 33)	20 (16.6 6)
Degree	1 (3 .33)	2 (6 .66)	2 (6 .66)	3 (10. 00)	8 (6.66)
PG	0	1	0	1	2

	(0 .00)	(3 .33)	(0 .00)	(3.3 3)	(1.66)
Diploma	0 (0 .00)	0 (0 .00)	0 (0 .00)	1 (3.3 3)	1 (0.83)
Total	3 0 (1 00)	3 0 (1 00)	3 0 (1 00)	30 (100)	120 (100)
Family type					
Nuclear	1 4 (4 6.66)	1 0 (3 3.33)	1 5 (5 0.00)	9 (30. 00)	48 (40.0 0)
Joint	1 6 (5 3.33)	2 0 (6 6.66)	1 5 (5 0.00)	21 (70. 00)	72 (60.0 0)
Total	3 0 (1 00)	3 0 (1 00)	3 0 (1 00)	30 (100)	120 (100)
Family composition					
Small 4-5	1 0 (3 3.33)	7 (2 3.33)	1 3 (4 3.33)	4 (13. 33)	34 (28.3 3)
Medium 6-7	7 (2 3.33)	1 0 (3 3.33)	6 (2 0.00)	12 (40. 00)	35 (29.1 6)
Large >7	1 3 (4 3.33)	1 3 (4 3.33)	1 1 (3 6.66)	14 (46. 66)	51 (42.5 0)
Total	3 0 (1 00)	3 0 (1 00)	3 0 (1 00)	30 (100)	120 (100)

Note: Figures in parentheses indicate percentage to totals.

of old age and about 26.66 per cent were young. In ST nearly 37.00 per cent of the beneficiaries were young and middle aged, and about (26.66%) were old aged. In OBC, middle aged beneficiaries was nearly (57 %) followed by old aged (33.33%) and only 10 per cent were young and in minorities 43.33 per cent were middle aged followed by young and old aged (30 %), (26.66%) respectively.

4.1.2 Education level

Table 4.1 shows that education level of farmers was categorized into eight groups. The highest number of beneficiaries was illiterate at 41.66 per cent followed by PUC (16.66%), SSLC (12.50%), primary (11.66%), secondary (8.33%), degree (6.66%), PG (1.66%) and diploma (0.83%).

Further breakup showed that in SC category 50 per cent of the beneficiaries were illiterates followed by secondary (20.00%), SSLC (16.66%), PUC (6.66%) and primary, degree were (3.33%) respectively. (30 %) of the beneficiaries were illiterates followed by PUC (20 %), primary and SSLC were (16.66 %), secondary and degree were (6.66 %) and PG (20.00%) in ST. In OBC (46.66%) of the beneficiaries were illiterates followed by PUC (26.66%), primary (13.33%), degree (6.66%), secondary and SSLC were (3.33%) and whereas, in minorities (40.00%) were illiterates followed by primary, SSLC, PUC were (13.33%), degree (10 %) and secondary, PG, diploma were (3.33%) respectively.

4.1.3 Family type

It can be observed from Table 4.1 that joint families were predominant in the study area (60 %) and followed by nuclear type (40 %).

About 53 per cent of SC families were joint families followed by nuclear families (47 %). In ST group about 67 per cent were joint families followed by nuclear (33.33%). In case of OBC 50 per cent families were nuclear type and the remaining joint type. In case of minorities 70 per cent and 30 per cent of the beneficiaries were joint and nuclear respectively.

4.1.4 Family composition

Table 4.1 represents the family size and composition of the beneficiaries in the study area which comprised small, medium and large families. Large families were dominant (42.50 %) which consisted of more than seven members in a family

followed by medium and small families (29.16%) and (28.33%), which consisted of 6-7 members and 4-5 members, respectively.

In the sample 43.33 per cent were large families, followed by small size families (33.33%) and medium size was (23.33%) in SC category. In ST group about 43 per cent of the families were large sized followed by medium (33.33%) and small (23.33%). Among OBCs about 43 per cent group were small size followed by large (36.66%) and medium (20.00%). In minorities group 47 per cent of families were large followed by medium and small (40%) and (13.33%), respectively.

4.2 Scheme wise growth and pattern of Ganga Kalyana Yojana (GKY) in Karnataka

The growth rate of Ganga Kalyana Yojana in Karnataka in terms of number of bore wells dug and energized was analysed using annual compound growth rate formula.

4.2.1 Growth and pattern

For a better understanding of the trend in growth of GKY scheme compound growth rates were calculated. The time period considered for the analysis was from 2000-2014. Scheme wise growth and pattern of bore wells dug and energized under the GKY in Karnataka is presented in Table 4.2.

The highest growth rate in bore wells dug was seen in D. Devraj Urs Backward Class Development Corporation (DBCDC) at 21.43 per cent per annum which was significant at one per cent probability. This was followed by Karnataka Minorities Development Corporation Ltd (KMDC) of about 12.17 per cent per annum which was significant at one per cent probability. Two corporations showed a growth rate of 5.28 per cent and 5.15 per cent, under Dr.B.R. Ambedkar Development Corporation Ltd (ADC) and Karnataka Scheduled Tribal Development Corporation Ltd (KSTDC), respectively. On the other hand the number of bore wells energized, across corporations, recorded negative growth during the same period.

Table 4.2: Scheme wise growth and pattern of bore wells dug and energized under GKY in Karnataka

Year	DBCDC 1			KSTDC 2			ADC 3			KMDC 4		
	Number of bore wells dug	En-ergized	En-ergized (%)	Number of bore wells dug	En-ergized	En-ergized (%)	Number of bore wells dug	En-ergized	En-ergized (%)	Number of bore wells dug	En-ergized	En-ergized (%)
2000-01	516	516	100.00	580	580	100.00	2400	2400	100.00	440	440	100.00
2001-02	567	567	100.00	640	640	100.00	2403	2403	100.00	640	640	100.00
2002-03	388	388	100.00	780	780	100.00	1296	1296	100.00	488	488	100.00
2003-04	482	482	100.00	900	900	100.00	3524	3524	100.00	568	568	100.00
2004-05	122	122	100.00	1000	1000	100.00	3306	3306	100.00	418	67	7.80
2005-06	198	194	9.67	3218	218	0.00	6506	480	9.60	672	81	6.46
2006-07	2517	2504	9.48	4268	3915	1.73	7887	740	8.14	2190	775	1.05
2007-08	2921	2836	7.09	3214	3000	3.34	6317	323	0.09	2403	951	1.19
2008-09	2954	2842	6.21	3341	156	4.53	6337	133	6.78	1024	47	2.71
2009-10	2059	910	2.76	3842	500	5.07	6007	737	5.51	969	52	7.61
2010-11	3688	212	7.09	2010	89	4.18	5674	439	5.86	1382	25	4.17
2011-12	3909	729	9.81	2888	111	3.10	5142	557	8.62	1904	262	6.28
2012-13	3747	1000	6.69	689	00	2.57	5031	539	0.34	1542	51	9.25
2013-14	4010	500	2.47	500	00	0.00	1883	47	4.36	1831	7	.21
GR	21.43	9.68		5.15	0.69		5.28	0.87		2.17	1.96	

Note: ** Significant at 1%

1. Devraj Urs Backward Class Development Corporation (DBCDC);
2. Karnataka Scheduled Tribal and Development Corporation Ltd (ST);
3. Dr.B.R. Ambedkar Development Corporation Ltd (SC) and
4. Karnataka Minorities Development Corporation Ltd (KMDC).

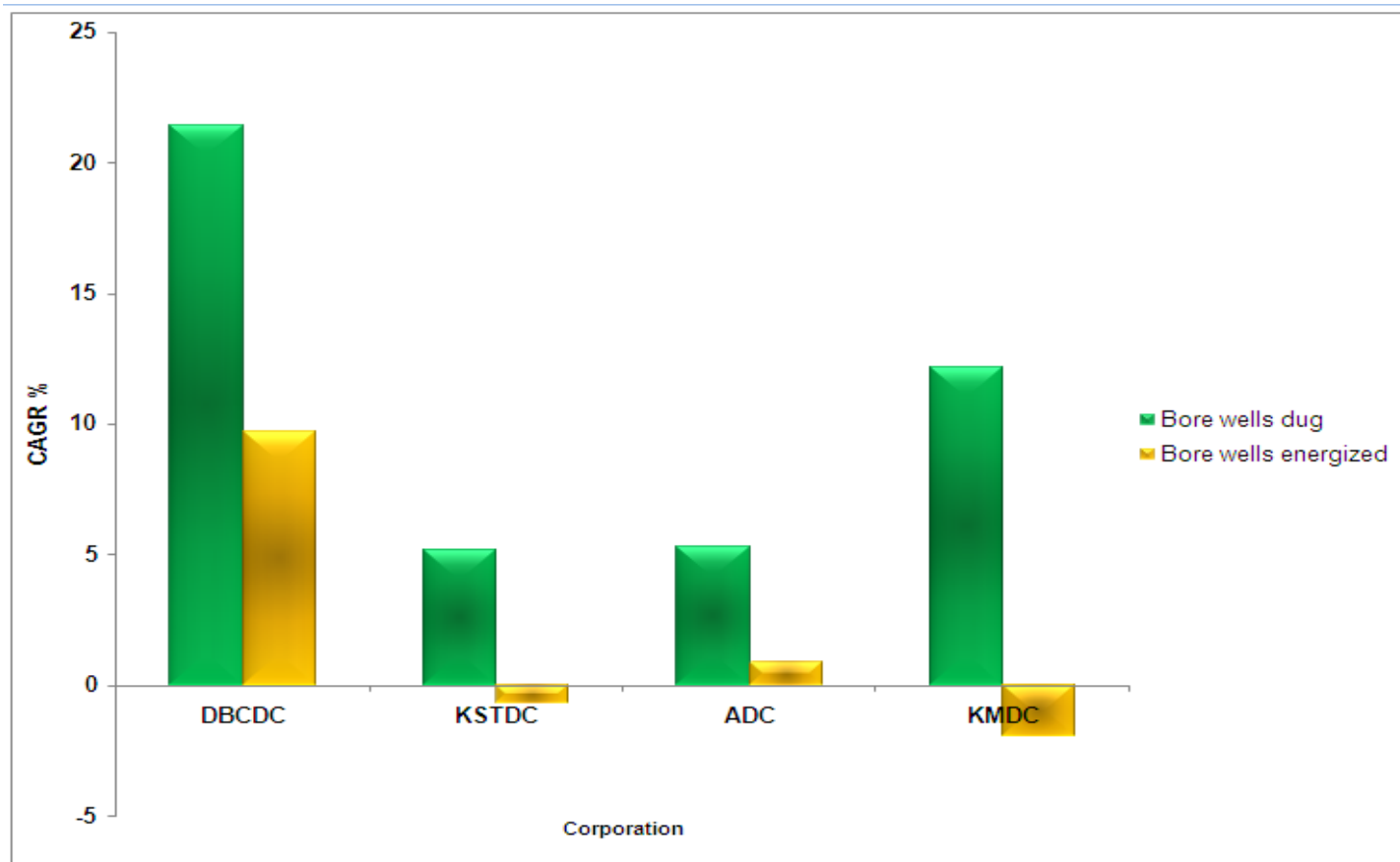


Figure 2. Growth rate of number of bore wells and energized dug in Karnataka

4.2.2 Overall growth and pattern of bore wells dug and energized under GKY in Karnataka

The growth rate of Ganga Kalyan scheme in terms of number of bore wells dug and energized was analysed using annual compound growth rate. The time period considered for the analysis was from 2000-2014 which is presented in Table 4.3.

The growth rate of number of bore wells dug during the period was found at 10.19 per cent which was significant at five per cent probability and energized was 2 per cent which was positive but non-significant.

4.3 Physical and financial progress of GKY in Vijayapura district.

The physical and financial progress of Ganga Kalyana scheme in terms of number of bore wells dug and energized were analysed using compound growth rate. In the study area the time period considered for the analysis was from 2000-2013 which is presented in Table 4.4.

In the study area the growth rate of number of bore wells dug and energized was significant in the all the four corporations. DBCDC accounted for highest growth rate of number of bore wells dug and energized at 35.31 per cent and 32.10 per cent per annum respectively. KMDC registered 31.55 per cent growth in number of bore wells dug and 30.20 per cent in number of bore wells energized. Under ADC (previously included KSTDC) the growth rate of number of bore wells dug was 27.61 per cent and energized was 27.33 per cent. Overall, the growth rates of all the corporations together with respect to number of bore wells dug was 29.59 per cent and that of energized was 28.10 per cent which was significant at one per cent probability level.

4.3.2 Investment on bore well of the sample farm from GKY

The results presented in Table 4.5 with respect to investment made by GKY on the bore well installation are presented here. Average investment made in installing a bore well in the study area was about Rs. 1,25,200. Among different components of investment, the cost of irrigation pump set with all the accessories formed the major item of investment with 43.13 per cent of the total investment, energization

Table 4.3: Growth and pattern of bore wells dug and energized under GKY in Karnataka

Year	Number of bore well dug	Energized	Energized (%)
2000-01	3936	3936	100.00
2001-02	4250	4250	100.00
2002-03	2952	2952	100.00
2003-04	5474	5474	100.00
2004-05	5846	5795	99.13
2005-06	11594	11473	98.96
2006-07	16862	15934	94.50
2007-08	14855	14110	94.98
2008-09	13656	11978	87.71
2009-10	12877	10899	84.64
2010-11	12754	10765	84.4
2011-12	13843	10659	77.00
2012-13	11009	5490	49.87
2013-14	8224	1424	17.32
CAGR (%)	10.19*	2.00	

Note: * Significant at 5%

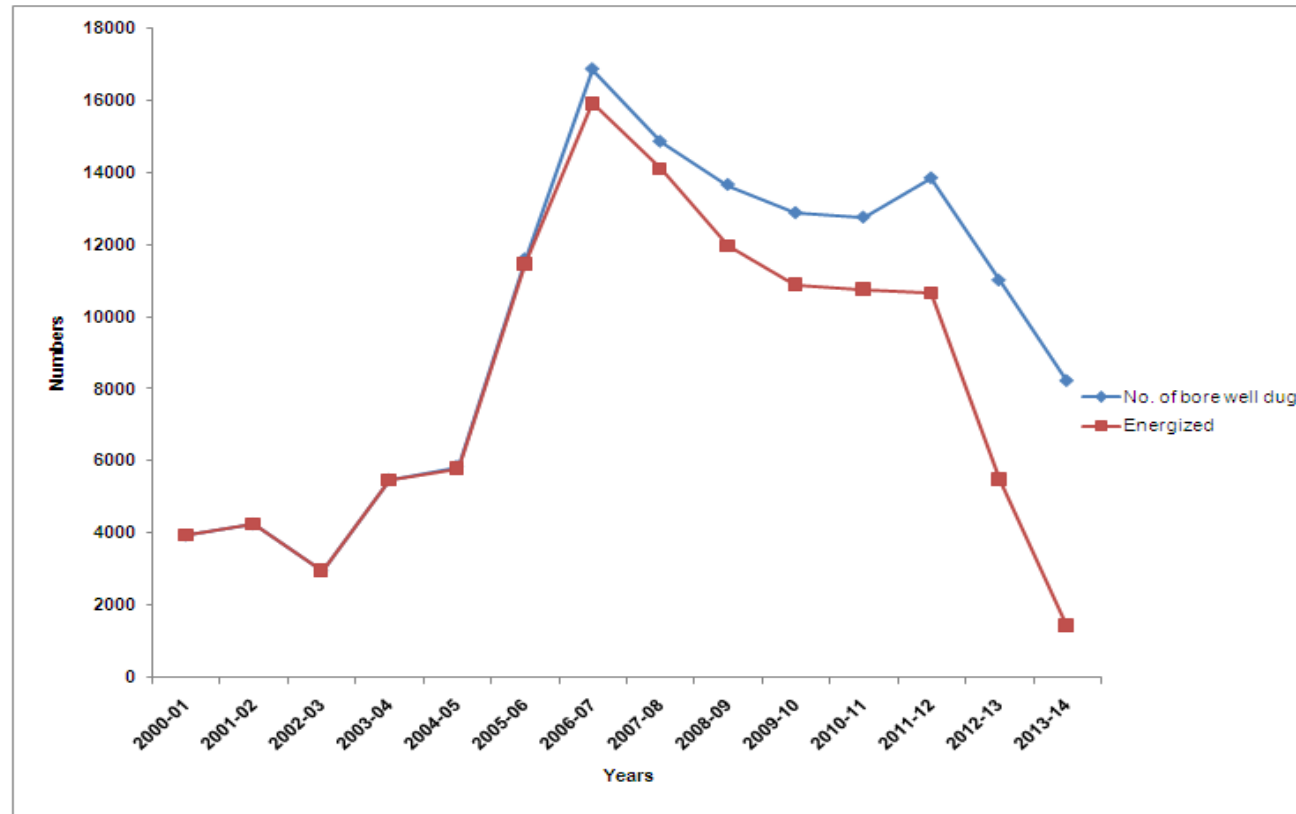


Figure 3. Overall growth and pattern of bore well dug and energized in Karnataka

Table 4.4: Physical and financial progress of GKY in Vijayapura district

Year	DBCDC			ADC			KMDC			Overall		
	Number of bore wells dug	Energy utilized	Energy utilized (%)	Number of bore wells dug	Energy utilized	Energy utilized (%)	Number of bore wells dug	Energy utilized	Energy utilized (%)	Number of bore wells dug	Energy utilized	Energy utilized (%)
2000-01	15	15	100.00	42	42	100.00	15	15	100.00	72	72	100.00
2001-02	17	17	100.00	104	104	100.00	11	11	100.00	132	132	100.00
2002-03	17	17	100.00	20	20	100.00	13	13	100.00	50	50	100.00
2003-04	21	21	100.00	158	158	100.00	15	15	100.00	194	194	100.00
2004-05	46	46	100.00	43	43	100.00	15	15	100.00	104	104	100.00
2005-06	49	49	100.00	17	17	100.00	27	27	100.00	93	93	100.00
2006-07	126	126	100.00	410	400	97.56	144	144	100.00	680	670	98.53
2007-08	157	156	99.36	168	160	95.24	142	142	100.00	467	458	98.07
2008-09	115	114	99.13	350	350	100.00	45	45	100.00	510	509	99.80
2009-10	97	93	95.88	358	358	100.00	45	45	100.00	500	496	99.20
2010-11	185	166	89.73	302	300	99.34	82	82	100.00	569	548	96.31
2011-12	325	190	58.46	230	220	95.65	166	166	100.00	721	576	79.89
2012-13	261	200	76.63	321	312	97.20	167	111	66.47	749	623	83.18
GR	35.31**	32.10**		27.61**	27.33**		31.55**	30.02**		29.59*	28.10**	

Note: ** Significant at 1%

1. ADC includes KSTD
2. Devraj Urs Backward Class Development Corporation (DBCDC);
3. Karnataka Scheduled Tribal and Development Corporation Ltd (ST);
4. Dr .B.R. Ambedkar Development Corporation Ltd (SC) and Karnataka
5. Minorities Development Corporation Ltd (KMDC).

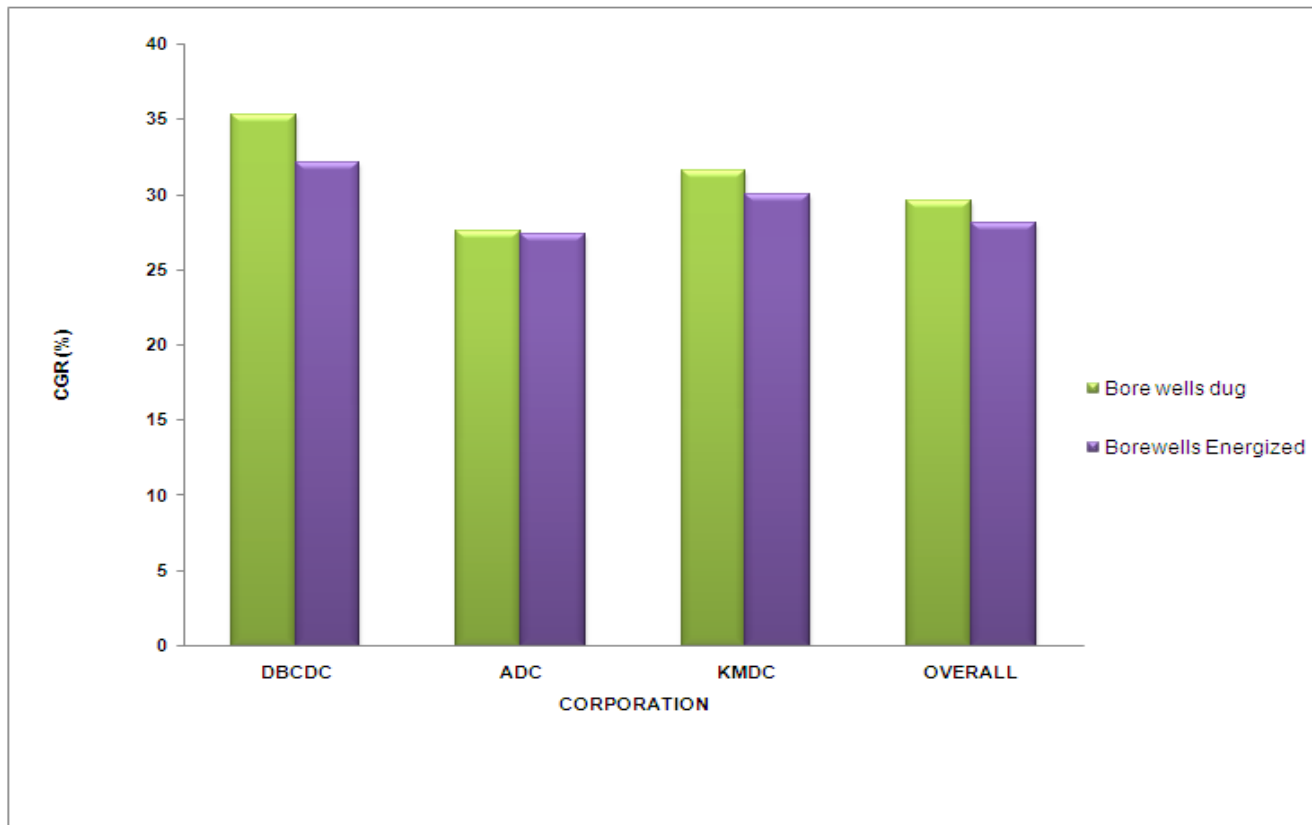


Figure 4. Growth rate of number of bore wells dug and energized in Vijayapura district

Table 4.5: Investment on bore well in sample farms from GK Y

S I. No	Particulars	Value (Rs.)
1	Drilling	15,300 (12.22)
2	Casing	11,400 (9.11)
3	Pump set	54,000 (43.13)
4	Pipe	5,000 (3.99)
5	Wire	3,000 (2.40)
6	Electricity	35,000 (27.96)
7	Miscellaneous	1,500 (1.20)
	Total	1,25,200 (100.00)

Note: Figures in parentheses indicates percentage

(electricity and wire) took 30 per cent of investment. Cost of drilling, casing and pipe were ₹15,300, ₹11,400 and ₹ 5,000 respectively.

4.4 Socio-economic impact of GKY on beneficiaries

4.4.1 Land holding of sample beneficiaries

Table 4.6 shows, land holding among different categories of beneficiaries in the study area. Average land holding was 1.68 ha. in which irrigated land accounted for 71.38 per cent and rain-fed for about 29 per cent.

The results further indicated that the average land holding of SC beneficiaries was 1.98 ha in which irrigated land accounted for 73.73 per cent and rain-fed for about 26 per cent. Among ST farmers average land holding was 1.58 ha in which irrigated land was 79.11 per cent and rain-fed was about 21 per cent. The average land holding among OBC farmers was 1.63 ha which comprised of irrigated land (65.64%) and rain-fed (34.35%). And among minority farmers average land holding was 1.52 ha, which included irrigated (66.44%) rain-fed (33.55%) land.

4.4.2 Source wise irrigated area

Table 4.7 shows the average irrigated area through all the means of irrigation like open wells, bore wells and canals overall average irrigated area across all categories was 1.2 ha in which share of bore wells was 77.5 per cent followed by canals (13.54%) and open wells (8.54%).

Among SC farmers the average irrigated area was 1.46 ha. in which bore wells contributed (65.75 %) followed by canals (33.55%) and open wells (3.28 %) Whereas, among ST farmers average irrigated area was 1.25 ha. in which bore wells contributed to about 80 per cent, followed by open wells (14.52%) and canals (5.65%) While, among OBC farmers total irrigated area was 1.07 ha. in which highest contribution was from bore wells (87.85%), followed by open wells (8.41%) and canals (3.74%), respectively and, among minority farmers total irrigated area was 1.01 ha. in which contributed to 82.18 per cent followed by open wells (8.91%) and canals (8.91%).

Table 4.6: Land holdings (ha)

Particulars	SC	ST	OBC	Minorities	Average
Rainfed	0.52 (26.26)	0.33 (20.88)	0.56 (34.35)	0.51 (33.55)	0.48 (28.61)
Irrigated	1.46 (73.73)	1.25 (79.11)	1.07 (65.64)	1.01 (66.44)	1.2 (71.38)
Total	1.98 (100)	1.58 (100)	1.63 (100)	1.52 (100)	1.68 (100)

Note: Figures in parentheses indicates percentage

Table 4.7: Source wise irrigated area (ha)

Particulars	SC	ST	OBC	Minorities	Average
Open wells	0.05 (3.42)	0.18 (14.52)	0.09 (8.41)	0.09 (8.91)	0.10 (8.54)
Bore wells	0.96 (65.75)	0.99 (79.84)	0.94 (87.85)	0.83 (82.18)	0.93 (77.5)
Canals	0.45 (30.82)	0.07 (5.65)	0.04 (3.74)	0.09 (8.91)	0.16 (13.54)
Total	1.46 (100)	1.25 (100)	1.07 (100)	1.01 (100)	1.2 (100)

Note: Figures in parentheses indicates percentage

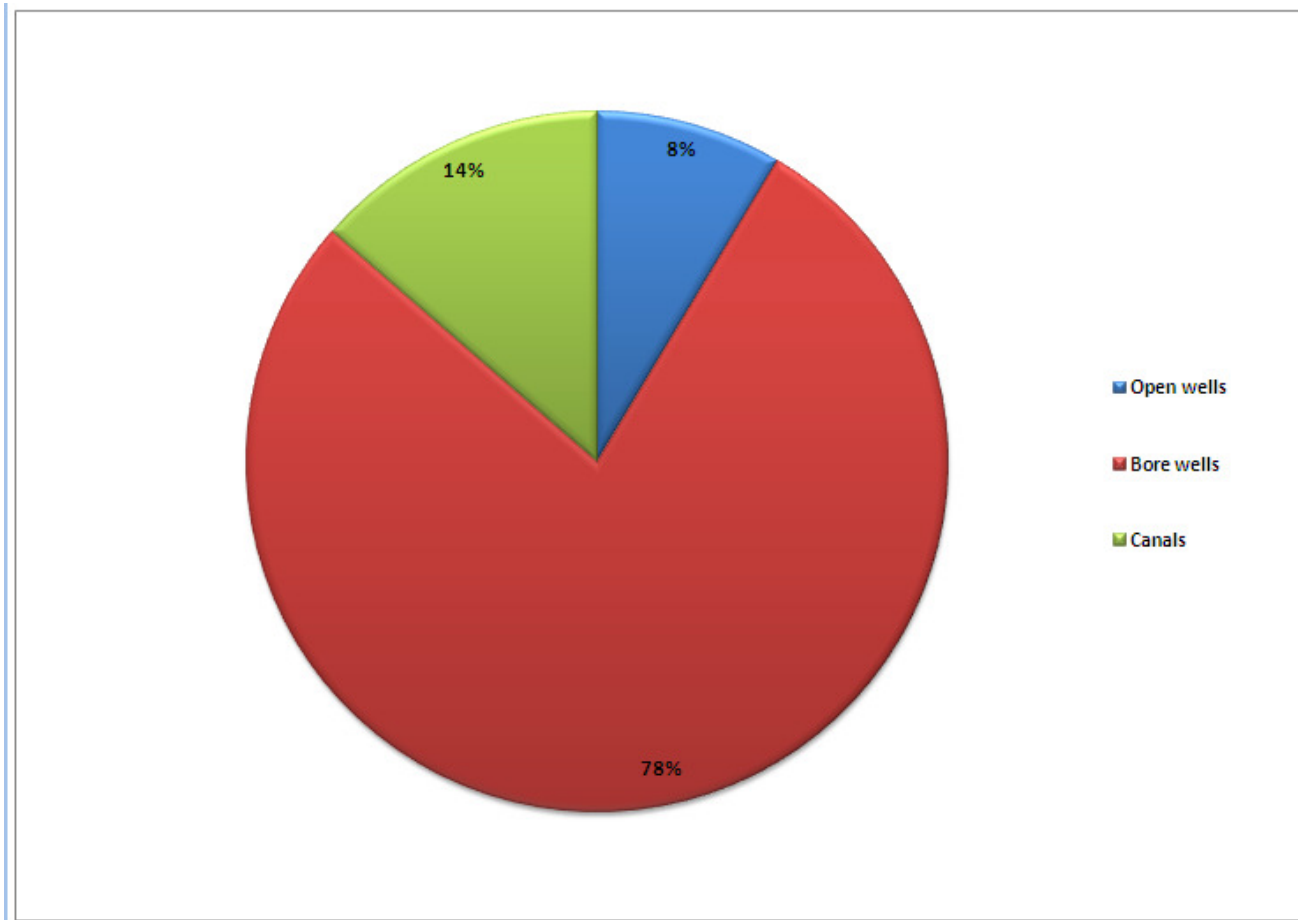


Figure 5. Source of irrigated area in study area

4.4.3 Particulars of scheme units in the study area

Table 4.8 presents basic details regarding the Ganga Kalyan Scheme. In the study area about 77 per cent of the bore wells were currently functional.

Average depth of bore wells in the study area was about 339 ft and 324 ft in case of SC beneficiaries, 340.47 ft in case of ST beneficiaries, 342.33 in case of OBC beneficiaries and 349.17 ft for minority farmers.

Another fact of serious concern revealed by Table 4.7 is that the water table in the bore wells of beneficiaries has gone down over a period. In the study area, the yield which was about 2.35 inch when the well was dug has reduced by about 37 per cent to 1.71 inch. An average period of 6 years was considered as age of the dug bore well.

Among SC beneficiaries the initial water yield was 2.35 inch which reduced to 1.70 inch. While among ST beneficiaries the initial water yield was 2.44 inch reduced to 1.95 inch. Whereas in case of OBC it was 2.20 inch which has reduced to (29.41%) to 1.70 inch and in minority farmers the initial water yield was 2.39 inch which reduced to 1.50 inch.

4.4.4 Area irrigated out of GKY

Table 4.9 focused on the area irrigated out of Ganga Kalyana Scheme. Average irrigated area per annum in the study area was about 1.2 ha, in which irrigation from GKY bore well was 0.89 ha. which showed that irrigation from the scheme dominated other sources of irrigation.

4.4.5 Asset position of sample beneficiaries in study area before and after the GKY

Table 4.10 reveals impact of GKY scheme is assessed through comparisons before and after the scheme. The total household assets composed of farm and non-farm assets. Farm assets like cattle shed, wooden plough, seed drill, harrow, bullock cart, cultivator, leveller, sprayer, tractor, pump set and sprinkler/drip set and farmers

Table 4.8: Particulars of scheme units in the study area

Particulars	SC	ST	OBC	Minorities	Average
Depth (feet)	323. 97	340. 47	342. 33	349. 17	338. 98
Initial water yield (inch) *	2.35	2.44	2.20	2.39	2.35
Present water yield (inch)	1.70	1.95	1.70	1.50	1.71
% Reduction	38.2 4	25.2 1	29.4 1	59.5 6	37.0 1
Bore wells presently working (%)	76.6 7	83.3 3	80.0 0	66.6 7	76.6 7

Note:* Average period of 6 years

Table 4.9: Area irrigated out of GKY (per household)

Particulars	SC	ST	OBC	Minorities	Average
Total area irrigated (ha)	1.46	1.25	1.07	1.01	1.2
Area irrigated GKY (ha)	0.96	0.84	0.87	0.88	0.89
Other source (ha)	0.5	0.41	0.21	0.13	0.31
% Of area irrigated out of GKY	65.75	57.53	59.58	60.27	60.95

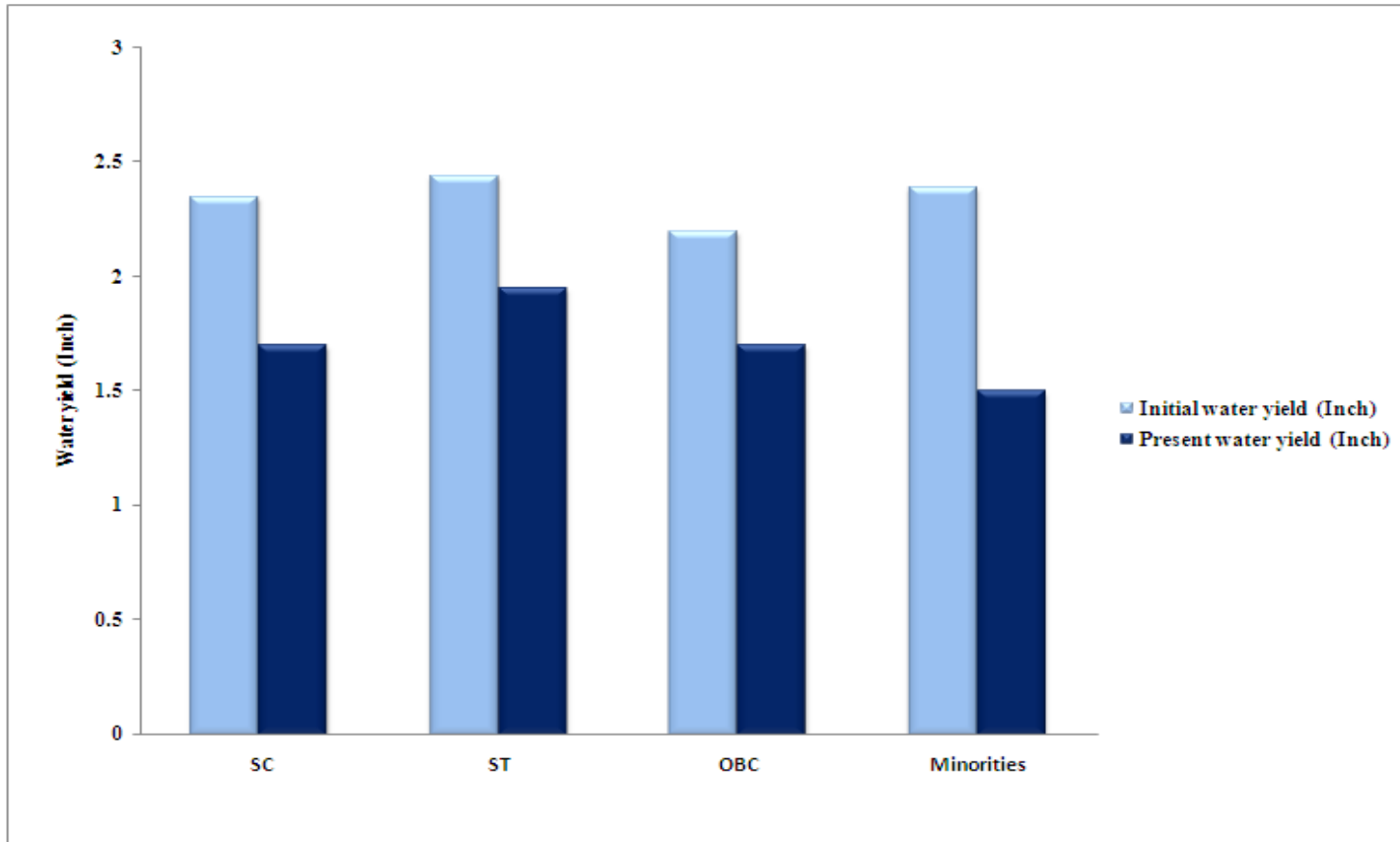


Figure 6. Bore well water yield in the study area

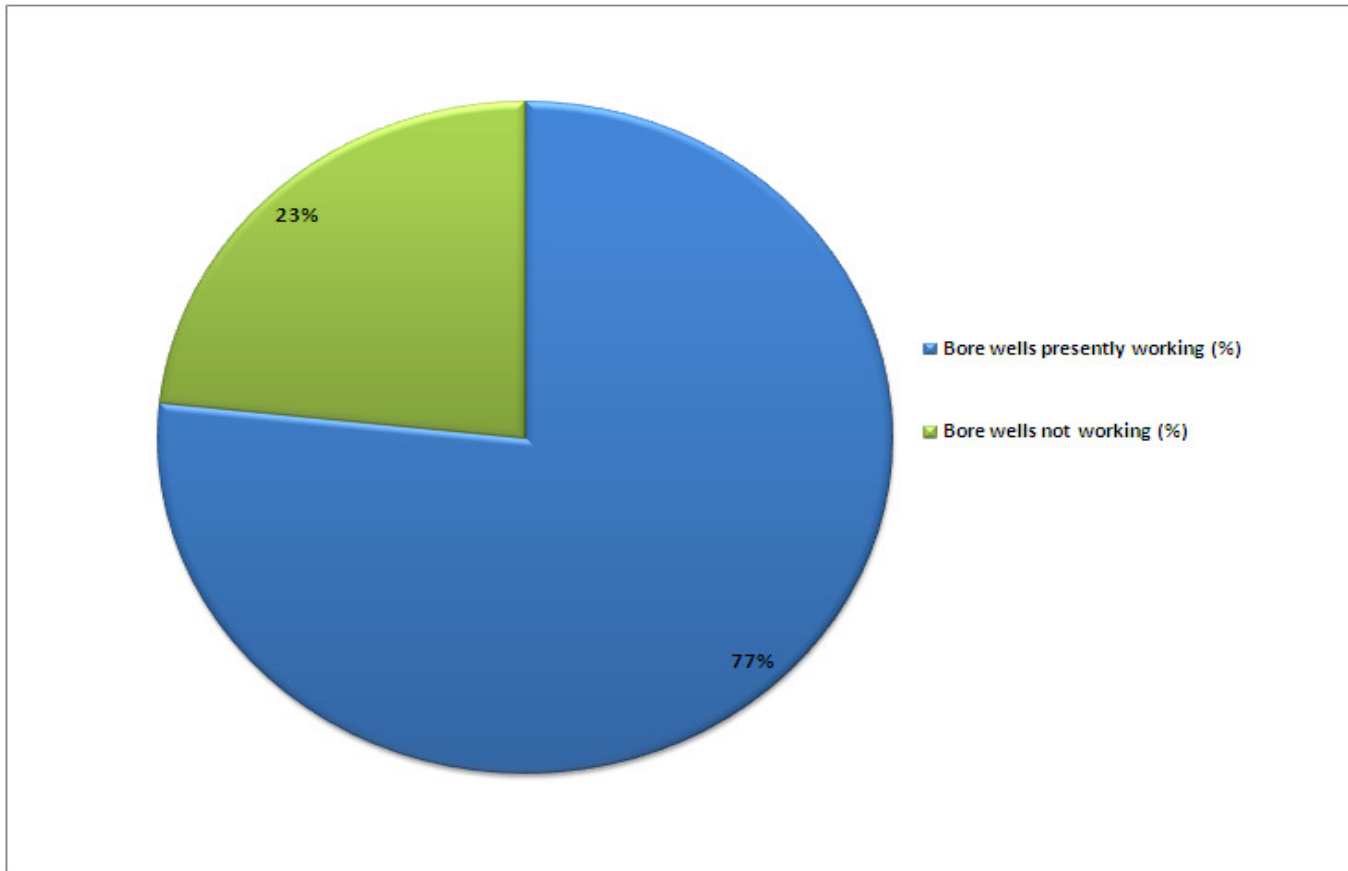


Figure 7. Status of bore wells operating in study area

Table 4.10: Asset position of sample beneficiaries in study area before and after the GKY

Particulars	Average value of asset (Rs./house hold)		
	Before (Rs.)	After (Rs.)	% change
Farm asset			
Cattle shed	15,000	15,000	0.00
Wooden plough	5,078	7,260	42.97
Seed drill	7,000	8,250	17.86
Harrows	15,000	29,714	98.09
Bullock cart	20,000	21,250	6.25
Cultivator	5,000	26,000	420.00
Levelers	15,000	22,500	50.00
Sprayer	9,000	25,800	186.67
Tractor	40,000	93,214	133.04
Pump set	30,000	90,000	200.00
Sprinkler/drip set	25,000	82,500	230.00
Total	1,30,792	4,03,462	208.48
Non-farm asset			
Two wheeler	80,000	95,250	19.06
Car	22,500	1,00,125	345.00
Total	1,02,500	1,95,375	90.61
Grand total	2,33,292	5,98,837	156.69

housing and land were not considered in the study. Non -farm assets included two wheelers and cars.

The value of assets showed an increase from Rs. 2,33,292 before implementing the scheme to Rs. 5,98,837 after implementing the scheme, thereby indicating about 156 per cent change. In the total assets, the percentage share of the farm assets was greater (208.48 %) than non-farm assets (90 %). The overall value of the farm assets after implementing the scheme was more compared to change in non-farm assets.

4.4.6 Livestock position of sample beneficiaries in study area before and after the GKY

The livestock components in the overall study area considered for analysis were cows, buffaloes, bullocks and sheep/goat (Table 4.11).

The value of livestock showed an increase from Rs. 1,70,975 to Rs. 2,66,913 thereby indicating about 51 per cent change as an impact of the GKY scheme. Among the different types of livestock bullocks (73.01%) and cows (52.44%) contributed to major share of livestock followed by buffalos (40.51%) and sheep/goat (42.01%).

Among the beneficiaries under Dr. B.R. Ambedkar Development Corporation (SC) buffalos (80 %) and cows (42.58 %) contributed to the major share followed by bullock (28.50 %) and sheep/goat (19.76 %). Among the beneficiaries under ST bullocks (366.67 %) and sheep/goat (37.36 %) contributed to the major share followed by buffalos (23.32 %) and cows (9.33 %). Under OBC cows (111.25 %) and sheep/goat (110.53 %) contributed to the major share followed by bullocks (60 %) and buffalos (5.03 %). Under minorities corporation buffalos (57.56 %) and cows (47.09 %) contributed to the major share followed by sheep/goat (40 %) and bullock (14.29 %).

4.4.7 Cropping pattern of sample SC beneficiaries

A variety of crops were grown in kharif, rabi and summer seasons on the SC beneficiary farms in the study area (Table 4.12). Important crops grown in kharif were bajra, redgram and groundnut. Jowar and wheat occupied major area in rabi season. Sugarcane, grapes and lime were taken up as bi-seasonal crops on the farms.

Table 4.11: Livestock position before and after the GKY (per household)

Particulars	Value of livestock (Rs.)		
	Before	After	% change
Cows	38,75 0	55,25 0	42 .58
Buffalo	37,50 0	67,50 0	80
Bullock	80,00 0	1,02, 800	28 .5
Sheep/ Goat	6,680	8,000	19 .76
ST			
Cows	37,50 0	41,00 0	9. 33
Buffalo	66,90 0	82,50 0	23 .32
Bullock	30,00 0	1,40, 000	36 6.67
Sheep/ Goat	7,280	10,00 0	37 .36
OBC			
Cows	40,00 0	84,50 0	11 1.25
Buffalo	47,70 0	50,10 0	5. 03
Bullock	80,00 0	1,28, 000	60
Sheep/ Goat	3,040	6,400	11 0.53
Minorities			
Cows	47,25 0	69,50 0	47 .09
Buffalo	81,30 0	1,28, 100	57 .56
Bullock	70,00 0	80,00 0	14 .29
Sheep/ Goat	10,00 0	14,00 0	40
Average			
Cows	40,87 5	62,56 3	52 .44
Buffalo	58,35 0	82,05 0	40 .51
Bullock	65,00 0	1,12, 700	73 .01
Sheep/ Goat	6,750	9,600	42 .01
Total	1,70, 975	2,66, 913	51 .37

In bi-seasonal crops sugarcane and grapes were grown because of provision of irrigation facility available from the scheme and these crops took major part among the crops grown in the study area many of the farmers changed the cropping pattern from seasonal to annual crops. The cropping intensity has decreased from 188.24 percentage to 180.38 percentage after implementation of the scheme, here cropping intensity as decreased but crop diversification took place.

In rabi season, net cultivated dry land area decreased from 0.30 ha. before the scheme to 0.20 ha. after the scheme. While no area was under irrigation before the scheme, it increased to 0.82 ha. after the scheme showing increase of about 240 per cent. jowar, wheat, sugarcane and grapes gained area under irrigation after the implementation of the scheme.

In summer, sugarcane and grapes were grown because of provision of irrigation facility available from the scheme and these crops took major part among all the crops grown in the study area. Many of the farmers changed the cropping pattern from seasonal to annual crops. The cropping intensity increased from 142.25 percentage to 188.16 percentage after implementation of the scheme

4.4.8 Cropping pattern of sample beneficiaries of ST farmers

The table 4.13 showed the important crops on the farms of beneficiaries of ST category during kharif were bajra, redgram, groundnut and vegetables. Jowar, wheat and groundnut occupied major area in rabi season. Sugarcane and grapes were taken up has bi-seasonal crops on the farms.

Table 4.13 reveals decline in total dry land area under cultivation from 0.68 ha before Ganga Kalyana Scheme to 0.5 ha. after the scheme. No area was under irrigation before the scheme. Irrigated area increased to 0.75 ha. in the post project period showing increase of 132.35 per cent change.

In rabi season, net cultivated of dry land area decreased from 0.6 ha. before the scheme to 0.35 ha. after the scheme. No area was under irrigation before the scheme. Area under irrigation increased to 0.72 ha. after the scheme showing increase of 78.33 per cent change.

Table 4.12: Cropping pattern of sample beneficiaries of SC Farmers (Area in ha)

Crops	Before						After						% change
	Dry land		Irrigated		Total		Dry land		Irrigated		Total		
	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	
Kharif													
Bajra	.60	5.80	.00	.00	.60	5.80	.40	5.45	.30	7.27	.70	5.35	6.67
Redgram	.51	9.02	.00	.00	.51	9.02	.28	1.82	.20	8.18	.48	4.24	6.09
Groundnut	.20	5.27	.00	.00	.20	5.27	.20	2.73	.11	0.00	.31	5.66	5.00
Sugarcane	.00	.00	.00	.00	.00	.00	.00	.00	.09	.18	.09	.55	-
Grapes	.00	.00	.00	.00	.00	.00	.00	.00	.20	8.18	.20	0.10	-
Lime	.00	.00	.00	.00	.00	.00	.00	.00	.20	8.18	.20	0.10	-
Total	.31	00.08	.00	.00	.31	00.08	.88	00.00	.10	00.00	.98	00.00	1.02
Rabi													
Jowar	.32	4.44	.00	.00	.32	4.44	.1	.0	.10	2.66	.20	0.20	37.50
Wheat	.40	5.56	.00	.00	.40	5.56	.1	.0	.20	5.32	.30	0.30	25.00
Sugarcane	.00	.00	.00	.00	.00	.00	.0	.0	.09	1.39	.09	.09	-
Grapes	.00	.00	.00	.00	.00	.00	.0	.0	.20	5.32	.20	0.20	-
Lime	.00	.00	.00	.00	.00	.00	.0	.0	.20	5.32	.20	0.20	-
Total	.72	00.00	.00	.00	.72	00.00	.2	.0	.79	00.00	.99	00.00	7.50
Summer													
Sugarcane	.00	.00	.00	.00	.00	.00	.00	.00	.09	8.37	.62	8.37	-

Grapes	.00 ⁰	.00 ⁰	.00	.00	.00 ⁰	.00 ⁰	.00	.00 ⁰	.20 ⁰	0.82 ⁴	.42 ⁰	0.82 ⁴	
Lime	.00 ⁰	.00 ⁰	.00	.00	.00 ⁰	.00 ⁰	.00	.00 ⁰	.20 ⁰	0.82 ⁴	.36 ⁰	0.82 ⁴	
Total	.00 ⁰	.00 ⁰	.00	.00	.00 ⁰	.00 ⁰	.00	.00 ⁰	.49 ⁰	00.00 ¹	.40 ¹	00.00 ¹	
Gross cropped area					.03 ²						.37 ⁴		
Net cropped area					.31 ¹						.98 ¹		
Cropping intensity (%)					55.05 ¹						20.48 ²		

Table 4.13: Cropping pattern of sample beneficiaries of ST (Area in ha)

Crops	Before						After						% change
	Dry land		Irrigated		Total		Dry land		Irrigated		Total		
	area	%	area	%	area	%	area	%	area	%	area	%	
Kharif													
Bajra	.21	0.88	.00	.00	.21	0.88	.30	6.14	.20	6.67	.50	1.65	38.10
Redgram	.32	7.06	.00	.00	.32	7.06	.40	8.19	.10	3.33	.50	1.65	6.25
Groundnut	.15	2.06	.00	.00	.15	2.06	.13	5.66	.20	6.67	.33	0.89	20.00
Sugarcane	.00	.00	.00	.00	.00	.00	.00	.00	.10	3.33	.10	.33	-
Grapes	.00	.00	.00	.00	.00	.00	.00	.00	.10	3.33	.10	.33	-
Vegetables	.00	.00	.00	.00	.00	.00	.00	.00	.05	.67	.05	.16	-
Total	.68	00.00	.00	.00	.68	00.00	.83	00.00	.75	00.00	.58	00.00	32.35
Rabi													
Jowar	.30	0.00	.00	.00	.30	0.00	.20	7.14	.30	1.67	.50	6.73	6.67
Wheat	.20	3.33	.00	.00	.20	3.33	.12	4.29	.20	7.78	.32	9.91	0.00
Groundnut	.10	6.67	.00	.00	.10	6.67	.03	.57	.02	.78	.05	.67	50.00
Sugarcane	.00	.00	.00	.00	.00	.00	.00	.00	.10	3.89	.10	.35	-

Grapes	.00	.00	.00	.00	.00	.00	.00	.00	.10	3.89	.10	.35	-
Total	.60	00.00	.00	.00	.60	00.00	.35	00.00	.72	00.00	.07	00.00	8.33
Summer													
Sugarcane	.00	.00	.00	.00	.00	.00	.00	.00	.10	0.00	.10	0.00	-
Grapes	.00	.00	.00	.00	.00	.00	.00	.00	.10	0.00	.10	0.00	-
Total	.00	.00	.00	.00	.00	.00	.00	.00	.20	00.00	.20	00.00	-
Gross cropped area					.28						.85		
Net cropped area					.68						.58		
Cropping intensity (%)					88.24						80.38		

In bi-seasonal crops sugarcane and grapes were grown because of provision of irrigation facility available from the scheme and these crops took major part among the crops grown in the study area many of the farmers changed the cropping pattern from seasonal to annual crops. The cropping intensity has decreased from 188.24 percentage to 180.38 percentage after implementation of the scheme, here cropping intensity as decreased but crop diversification took place.

4.4.9 Cropping pattern of sample beneficiaries of OBC farmers

Table 4.14 shows that there was decline in total dry land area under cultivation from 1.40 ha. before Ganga Kalyana Scheme to 0.40 ha. after the scheme implementation. No area was under irrigation before the scheme it increased to 1.63 ha. in the post project period showing increase of about 83 per cent. Further, many kharif dry crops were brought under irrigation.

In rabi season, net cultivated dry land area decreased from 1.30 ha. before the scheme to 0.26 ha. after the scheme. While no area was under irrigation before the scheme, it increased to 1.43 ha. after the scheme showing about 85 per cent increase.

Among summer crops, sugarcane and grapes were grown because of provision of irrigation facility available from the scheme and these crops held major part among the crops grown in the study area. Many of the farmers changed the cropping pattern from seasonal to annual crops.

On farms of OBC farmers supported under Devaraj Urs Corporation. Cropping intensity increased marginally from 192 percentage before the scheme to 198.16 percentage after the implementation of the scheme but crop diversification showed has improvement.

4.4.10 Cropping pattern of sample beneficiaries of Minorities farmers

Table 4.15 indicates decrease in total dry land area under cultivation from 0.71 ha. before Ganga Kalyana Scheme to 0.40 ha. after the scheme implementation. While farmers practiced dry farming before the scheme, irrigated area increased to 1.52 ha. in the post project period showing about 114 per cent increase. Further, many kharif dry crops were brought under irrigation.

Table 4.14: Cropping pattern of sample beneficiaries of OBC (Area in ha)

Crops	Before						After						% change
	Dry land		Irrigated		Total		Dry land		Irrigated		Total		
	area	%	area	%	area	%	area	%	area	%	area	%	
Khlarif													
Bajra	.50	5.71	.00	.00	.50	5.71	.10	5.00	.10	.13	.20	2.27	0.00
Redgram	.60	2.86	.00	.00	.60	2.86	.10	5.00	.01	.81	.11	.75	0.56
Maize	.10	.14	.00	.00	.10	.14	.10	5.00	.80	5.04	.90	5.21	0.00
Groundnut	.20	4.29	.00	.00	.20	4.29	.10	5.00	.10	.13	.20	2.27	0.00
Sugarcane	.00	.00	.00	.00	.00	.00	.00	.00	.09	.32	.09	.52	-
Grapes	.00	.00	.00	.00	.00	.00	.00	.00	.08	.50	.08	.91	-
Vegetables	.00	.00	.00	.00	.00	.00	.00	.00	.05	.07	.05	.07	-
Total	.40	00.00	.00	.00	.40	00.00	.40	00.00	.23	00.00	.63	00.00	3.16
Rabi													
Jowar	.40	0.77	.00	.00	.40	0.77	.20	6.92	.40	4.19	.60	1.96	75.00
Wheat	.90	9.23	.00	.00	.90	9.23	.06	3.08	.60	1.28	.66	6.15	1.48
Sugarcane	.00	.00	.00	.00	.00	.00	.00	.00	.09	.69	.09	.29	-
Grapes	.00	.00	.00	.00	.00	.00	.00	.00	.08	.84	.08	.59	-

Total	.30	00.00	.00	.00	.30	00.00	.26	00.00	.17	00.00	.43	00.00	4.62
Summer													
Sugarcane	.00	.00	.00	.00	.00	.00	.00	.00	.09	2.94	.09	2.94	-
Grapes	.00	.00	.00	.00	.00	.00	.00	.00	.08	7.06	.08	7.06	-
Total	.00	.00	.00	.00	.00	.00	.00	.00	.17	00.00	.17	00.00	-
Gross cropped area					.27						.23		
Net cropped area					.40						.63		
Cropping intensity (%)					92.86						98.16		

Table 4.15: Cropping pattern of sample beneficiaries of Minorities (Area in ha)

Crops	Before						After						change %
	Dry land		Irrigated		Total		Dry land		Irrigated		Total		
	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	
Kharif													
Bajra	0.20	8.17	.00	.00	.20	8.17	.10	5.00	.30	6.79	.40	6.32	00.00
Redgram	0.30	2.25	.00	.00	.30	2.25	.15	7.50	.20	7.86	.35	3.03	6.67
Groundnut	0.21	9.58	.00	.00	.21	9.58	.15	7.50	.20	7.86	.35	3.03	6.67
Sugarcane	0.00	.00	.00	.00	.00	.00	.00	.00	.12	0.71	.12	.89	-
Grapes	0.00	.00	.00	.00	.00	.00	.00	.00	.20	7.86	.20	3.16	-
Vegetables	0.00	.00	.00	.00	.00	.00	.00	.00	.10	.93	.10	.58	-
Total	0.71	00.00	.00	.00	.71	00.00	.40	00.00	.12	00.00	.52	00.00	14.08
Rabi													
Jowar	0.20	6.67	.00	.00	.20	6.67	.10	0.00	.30	6.59	.40	9.22	00.00
Wheat	0.10	3.33	.00	.00	.10	3.33	.10	0.00	.20	4.39	.30	9.41	00.00
Sugarcane	0.00	.00	.00	.00	.00	.00	.00	.00	.12	4.63	.12	1.76	-
Grapes	0.00	.00	.00	.00	.00	.00	.00	.00	.20	4.39	.20	9.61	-
Total	0.30	00.00	.00	.00	.30	00.00	.20	00.00	.82	00.00	.02	00.00	40.00

Summer													
Sugarcane	0 .00	.00	.00	.00	.00	0 .00	.00	0 .00	0 .12	3 7.50	.12	3 7.50	-
Grapes	0 .00	.00	.00	.00	.00	0 .00	.00	0 .00	0 .20	6 2.50	.20	6 2.50	-
Total	0 .00	.00	.00	.00	.00	0 .00	.00	0 .00	0 .32	1 00.00	.32	1 00.00	-
Gross cropped area					.01						.86		
Net cropped area					.71						.52		
Cropping intensity (%)					42.25						88.16		

It can be noticed from Table 4.12 On an average farm of SC farmer supported under Dr. B.R. Ambedkar Corporation, in kharif, the total dry land area under cultivation decreased from 1.31 ha. before Ganga Kalyana Scheme to 0.88 ha. after the implementation of scheme. No area was under irrigation before implementing the scheme. Area under irrigation increased to 1.10 ha in the post project period showing increase of about 51 per cent change.

In rabi season, net cultivated dry land area decreased from 0.72 ha. before the scheme to 0.2 ha. after the scheme. There was no area under irrigation before the scheme. Irrigated area increased to 0.79 ha. after the scheme showing increase of about 37 per cent change.

Among bi-seasonal crops sugarcane, grapes and lime were grown because of provision of irrigation facility available from the scheme and these crops held major share among all the crops grown in the study area

Many of the farmers changed the cropping pattern from seasonal to annual crops. Cropping intensity increased from 156 percentage before the scheme to 220.48 percentage after the implementation of the scheme.

4.4.12 Change in credit scenario of beneficiary farmers

Impact of Ganga Kalyana Scheme under different corporations has been analysed in terms of availing of credit by the farmer beneficiaries and it is presented in Table 4.16. Overall scenario indicates that there was about 126 per cent increased in the credit borrowed from different sources in the post project period. While there was an increase in the institutional source credit by 204 per cent, non-institutional credit decreased by 41 per cent. This clearly brought out the impact of GKY scheme on the financial status of beneficiaries under various schemes.

Further, the share of institutional sources in the overall borrowing increased from about 68 per cent to 92 per cent. On the other hand, the share of non-institutional sources decreased from about 32 per cent to about 8 per cent in the overall credit borrowing. It showed on the one hand, a jump in the quantum of total credit increase in the per cent share of institutional finance in the total credit.

4.4.13 Produce marketing by the beneficiaries

It could be seen from Table 4.17 that in the overall study area, the percentage of farmers selling their produce shifted from farm gate and village sandy sales to sales through Agricultural Produce Market Committee (APMC) and factories (Sugar factories).

Before the scheme was introduced about 54.55 per cent of farmers sold their produce through farm gate, which declined to 9.62 per cent after the scheme. There

Table 4.16: Change in credit scenario of beneficiaries farmers (Rs/Farmer)

Source	SC		ST		OBC		Minorities		Overall		% change
	Before	After	Before	After	Before	After	Before	After	Before	After	
Institutional source	75,333	2,02,500	28,333	1,55,600	40,667	1,05,500	41,267	1,00,067	6,400 (68.21)	1,40,917 (91.73)	203.70
Non-Institutional source	27,000	22,500	27,167	7,667	14,167	11,500	18,167	9,167	1,625 (31.79)	2,708 (8.27)	-41.23
Total	1,02,333	2,25,000	55,500	1,63,267	54,833	1,17,000	59,433	1,09,233	8,025 (100.00)	1,53,625 (100.00)	125.83

Table 4.17: Mode of produce marketing by the beneficiaries in the study area (% of farmer-respondents)

Particulars	SC		ST		OBC		Minorities		Overall		
	Before	After	Before	After	Before	After	Before	After	Before	%	After
Farm gate	20	5	20	2	91	5	91	7	4.55	5	1.62
APMC	12	12	31	02	31	8	71	12	5	8.46	08
Village sandy	8	4	3	1	6	3	3	2	3.99	0	1.41
Factory	1	9	0	7	0	9	0	0	1	0.70	5
Total	14	39	43	23	33	93	93	24	47	02.80	52

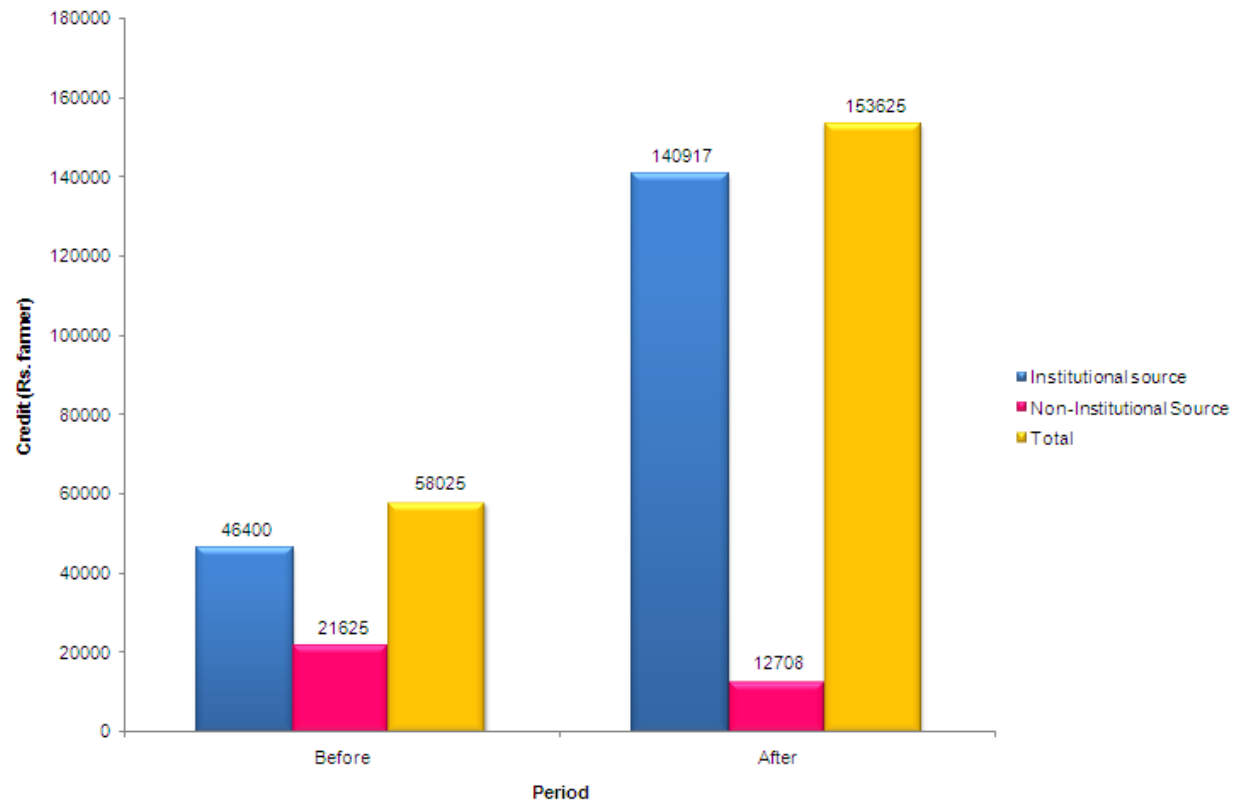


Figure 8. Credit position of sample beneficiaries

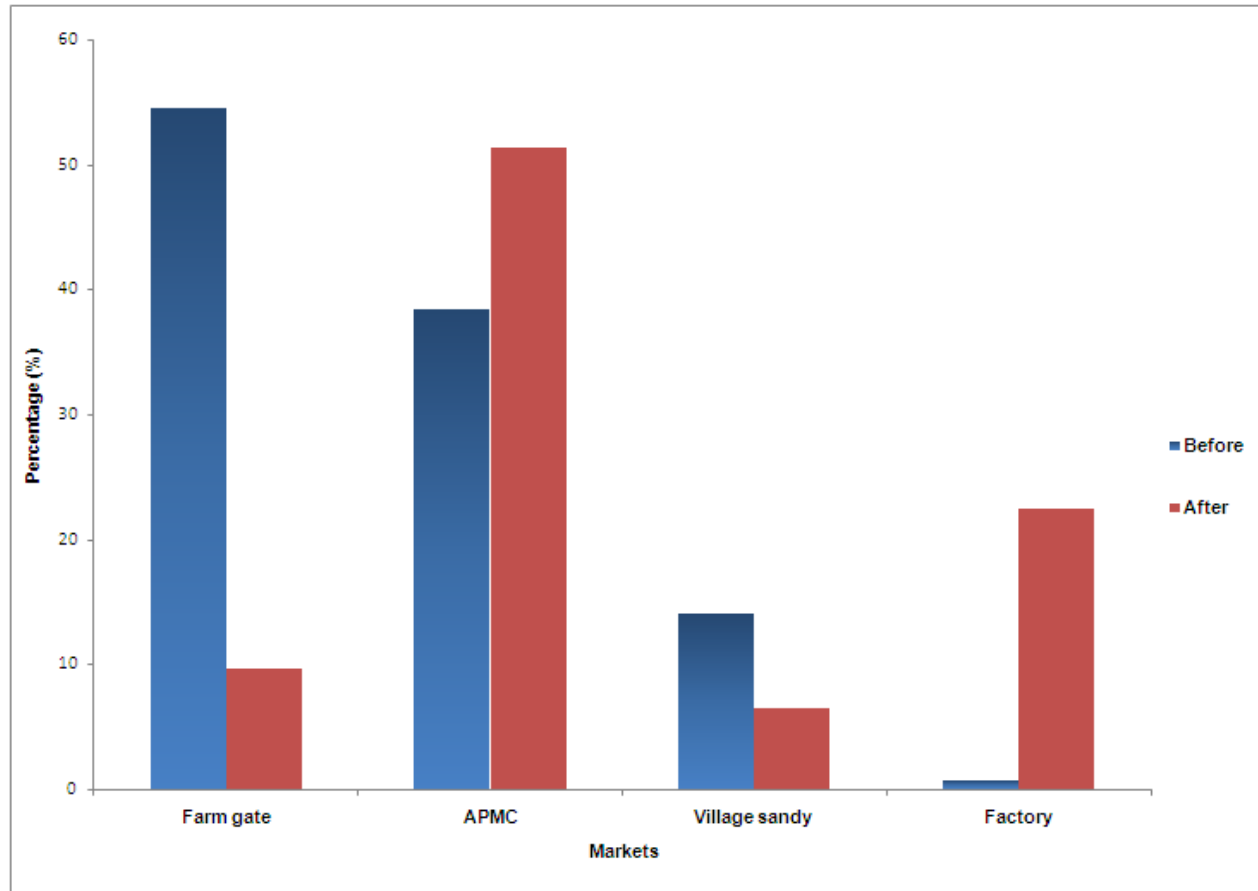


Figure 9. Modes of marketing of farm produce by the sample beneficiaries.xlsx

was substantial increase in the percentage of farmers marketing their produce through APMC after the scheme. It increased from 38.46 per cent before the scheme to 51.28 per cent after the scheme. Marketing through village sandy decreased from 14 per cent before the scheme to 76.41 per cent after the scheme. Percentage of farmers selling their produce through factories increased from 0.70 per cent before the scheme to 22.44 per cent after the scheme.

4.4.14 Changes in income levels of beneficiary-farmers

Table 4.18 depicts the picture of income levels of beneficiaries and changes effected by the intervention under different corporations of Ganga Kalyan scheme.

The total income which comprised income from crop production, subsidiary enterprises and wage incomes increased from Rs. 1,88,396 per farm to Rs. 3,35,073 per farm thereby indicating an increase of 77.86 per cent in the study area.

In the overall change in total income the share of crop production was highest (351%) followed by changes in income from subsidiary enterprises (10%). But, the income from wage earnings decreased (61 %) as farmers reduced wage hiring due to increased farm activities on their own farm.

4.4.15 Changes in employment potential of beneficiary farmers

Table 4.19 reveals changes in employment opportunities on an average farm of beneficiaries. Substantial increase in employment opportunities was noticed in the study area after the scheme. Number of man-days employed for crop production on the farms before the Ganga Kalyan Scheme was 138, which increased to 250, there by indicating 79.24 per cent enhancement. Employment under other occupations slightly increased from 111.54 man-days to 121 man-days indicating 7.50 per cent and labour hiring has reduced from 226.33 man-days to 54 man-days after the implementation to the scheme as farmers stopped working outside and started working in their own farms.

Table 4.18: Change in income levels of beneficiaries-farmer in the study area (Rs./Farmer/Annum)

Particulars	SC		ST		OBC		Minorities		Overall		
	Before	After	Before	After	Before	After	Before	After	Before	After	% change
Crop production/annum	5,844	67,563	4,508	29,238	1,936	13,557	5,061	42,778	2,837	38,284	50.98
Subsidiary enterprises	5,400	6,000	6,768	4,352	7,8425	7,8,092	5,8,240	7,0,000	6,1,958	6,8,111	9.93
Wages income	8,700	3,1,950	7,5,250	3,1,350	6,0,250	2,5,880	7,1,200	2,5,530	7,3,600	2,8,678	-61.04
Total income	1,93,944	3,59,513	1,84,526	3,24,940	1,90,611	3,17,529	1,84,501	3,38,308	1,88,396	3,35,073	7.86

Table 4.19: Employment Opportunity (Man days / household)

Sources	SC		ST		OBC		Minorities		Overall		% change
	Before	After	Before	After	Before	After	Before	After	Before	After	
Crop production	138	260	134.66	244.33	135.33	237.33	147.5	54	138.88	248.92	79.24
Other occupation	116.66	131.3	69.66	76.33	112.66	118.16	147.16	62	111.54	121.96	7.50
Hiring labours	244.33	73	227.66	34	209.66	59	223.66	0	226.33	54.00	-124.09

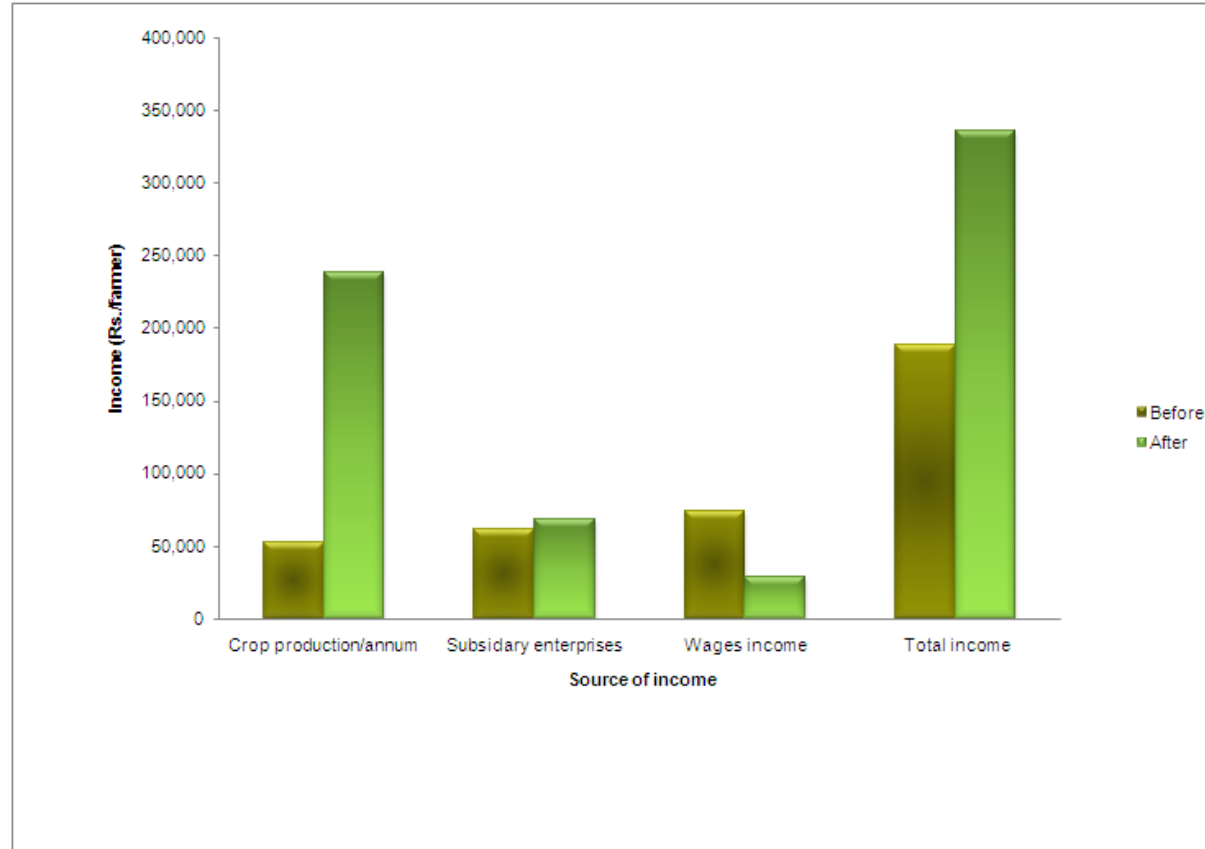


Figure 10. Income level of the beneficiaries in the study area

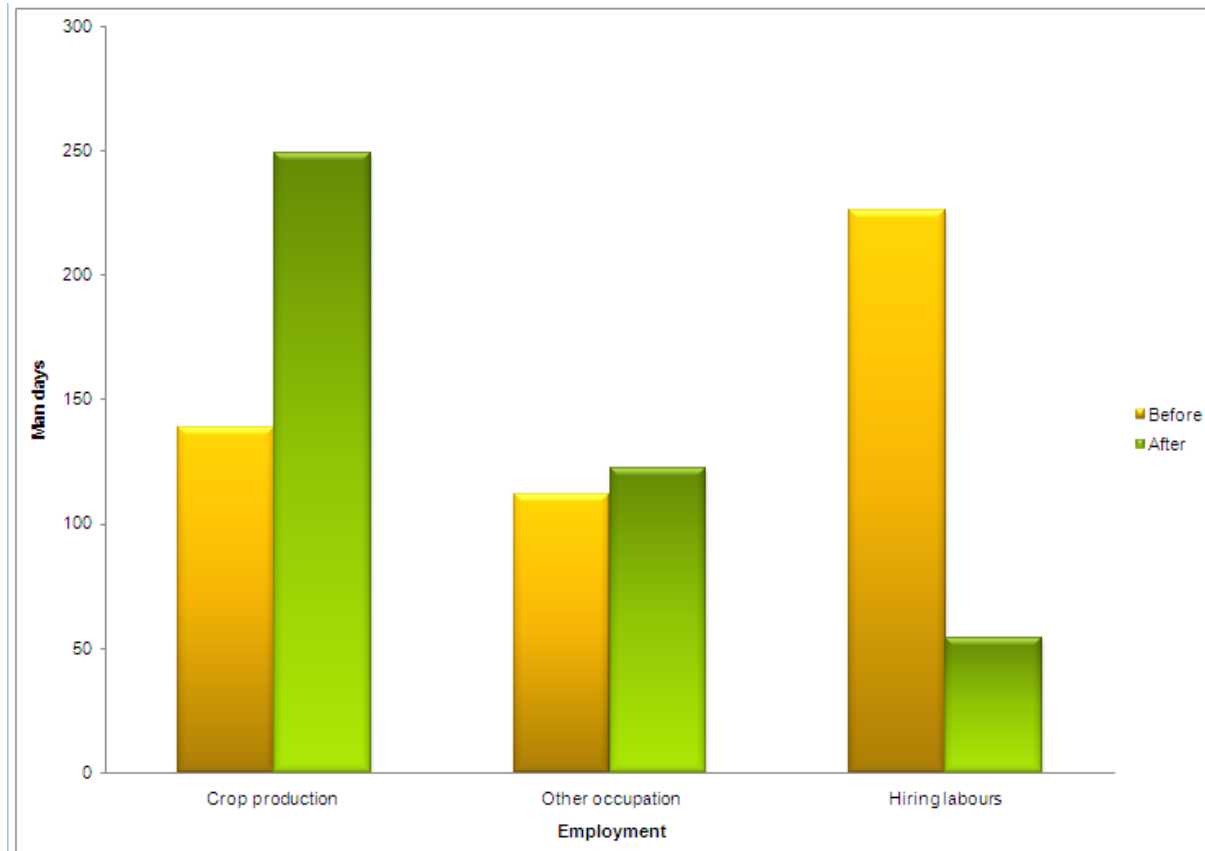


Figure 11. Employment opportunity to the beneficiaries in the study area

4.5 Constraints faced by beneficiaries

Table 4.20 presents the constraints faced by the beneficiaries in the study area. Garrett scores were used to arrive at ranking of constraints expressed by the respondents. On the basis of Garrett scores (81) and ranking (1) it can be inferred that delay in energization of pump sets was the most serious problem faced by the beneficiaries in different corporations under GKY. Bias in selection of beneficiaries of GKY was another serious problem expressed by the respondents (Rank= 2). Improper casing of bore well received a rank of 3. Poor quality supply of electricity (in term of low voltage) was another serious constraint that hindered irrigated farming (Rank=4). Lack of coordination with drilling agency was also reported as a constraint by the beneficiaries (Rank=7).

5. DISCUSSION

The results of investigation presented in the preceding chapter are discussed in detail in this chapter. Main focus here is to throw light on possible causes for the results in the study and likely impact on policy to be adopted by the farmers and policy makers. Keeping in the view specific objectives of the study, the results are discussed under following heads.

- 5.1 General characteristics of the sample farmers
- 5.2 Growth and pattern of Ganga Kalyana Yojana (GKY) in Karnataka
- 5.3 Physical and financial performance of GKY in Vijayapura district
- 5.4 Socio-economic impact of GKY on beneficiaries
- 5.5 Identification of constraints in implementing GKY

5.1 General characteristics of the sample farmer

5.1.1 Age

Average age of a farmer acts as an important variable in decision-making ability of the respondents. In the overall study area nearly 26 per cent of the beneficiaries were young, 44.16 per cent were middle aged and 30 per cent belonged to old age under the Ganga Kalyana Yojana. It can be observed that majority of farmers in all the four categories belonged to middle age category.

5.1.2 Education level

Majority of respondents in the study area were illiterate in the four categories. This reflects upon poor adoption capacity of the farmers and general backwardness of the region. The percentage of highly educated farmers was negligible.

5.1.3 Family type

In the study area joint families were predominant which accounted to 60 per cent and remaining 40 per cent were nuclear families. However, more number of families were joint type among minorities and nuclear in case of OBC.

5.1.4 Family composition

Most of the families in the study area belonged to large size families which consist of more than seven members in a family followed by medium and small families. Whereas, they were observed more in minority beneficiaries compared to SC, ST and OBC. Medium size families were more in minorities when compared to SC, ST and OBC. And small size families were more in case of OBC.

5.2 Growth and pattern of Ganga Kalyana Yojana (GKY) in Karnataka

Growth pattern of bore wells dug and energized under the GKY in Karnataka are presented in the (Table 4.2 and 4.3). Table 4.3 revealed that, among the four different corporations, DBCDC accounted for highest growth rate followed by KMDC, ADC and KSTDC. Table also indicated that more number of respondents was covered under DBCDC and hence, over the years the number of bore wells dug and accordingly the growth rates were also high. On the other hand, the growth rates under all the corporations with respect to number of bore wells dug was 10.19 per cent which was significant at five per cent probability level. This showed that overall GKY was making good efforts in increasing the bore well numbers but on the other side the number of bore wells energized recorded a negative growth during the same period.

5.3 Physical and financial performance of GKY in Vijayapura district

5.3.1 Physical performance of Ganga Kalyana schemes

The physical performance of Ganga Kalyana schemes in terms of number of bore wells dug and energized was analysed using compound growth rate. In the study area the

time period considered for the analysis was from 2000-2013 which is presented in Table 4.4.

DBCDC accounted for highest growth rate followed by KMDC and ADC. The table also indicated that more number of respondents was covered under DBCDC and hence, over the years the number of bore wells dug and accordingly the growth rates were also high. On the other hand, the growth rates under all the corporations together with respect to number of bore wells dug was 29.59 per cent which was significant at one per cent probability level. This showed that overall GKY make good efforts in increasing the bore well numbers and also energization.

5.3.2 Investment on bore well of the sample farm from GKY

The results presented in Table 4.5 with respect to investment made by GKY on the bore well installation are discussed under the following paragraphs. Total cost incurred in installing a bore well in the study area was about Rs. 1,25,200.

Among different components of investment, the cost of irrigation pump set with all the accessories formed the major item of investment with 43.13 per cent of the total investment, energization (electricity and wire) took 30 per cent of investment. Cost of drilling, casing and pipe were ₹15,300, ₹11,400 and ₹ 5,000, respectively.

5.4 Socio-economic impact of GKY on beneficiaries

5.4.1 Land holding of sample beneficiaries

On an average at present, about 71.38 per cent of the land holding was under irrigation. The percentage of area irrigated land was higher in ST farmers 79.11 per cent when compared to other three categories while, rain-fed was about 29.00 per cent.

5.4.2 Source wise irrigated area

Among the different sources of irrigation like open wells, bore wells and canals, bore wells were the dominated source for irrigation to the tune of 77.5 per cent followed by canals (13.54%) and open wells (8.54%).



Plate 4. A successful farmer in the study area



Plate 5. A grapes orchard in the study area

5.4.3 Particulars of scheme units in the study area

In the study area as a whole about 77.00 per cent of the bore wells were functional. However, the performance of ST beneficiaries was high with 83.33 per cent of the sanctioned units working as compared to the OBC (80.00%), SC (76.67%) and minorities (66.67%) of them were functional.

Various reasons have been advanced for non-functioning of wells. The major reason was the improper casing of bore well. Secondly, though the unit was sanctioned, it failed because of poor yield. Further, even if there was good yield of water, the supporting facilities were not provided in time to the beneficiaries to make the wells functional.

Average depth of bore well in the study area was about 339 ft, and it was more in minorities (349.17 ft) as compared to OBC (342.33 ft), ST (340.47 ft) and SC category (323.97 ft) which, is due to low ground water table in the particular farmer field, the farmer instead upon drilling more depth which violates the rule of the government that depth of the bore wells should be not more than 300 ft.

Another fact of serious concern revealed is that the water table in the bore wells of beneficiaries has gone down over a period the average was about 6 year. In the study area, water yield which was about 2.35 inch when the well was dug has reduced by (37.01%) to 1.71 inch. These facts highlighted the general trend of declining water table, which is a matter of serious concern for policy makers. The reasons could be on line with general reasons advanced for the decline in the total ground water situation in the state and country. Poor rainfall is one of the major reasons for the decline in the yields of bore wells. The problem of poor yields is further aggravated by the increasing number of bore wells being sunk in the study area. In fact, there is competition among farmers to dig deeper than the neighbouring farmer and harvest as much as possible. This race, in the absence of ameliorating measures has brought distress to the farmers. This problem has serious repercussions for the farm business of the beneficiaries because in anticipation of good crop yields farmer invests huge amount and if the water yield is inadequate he loses his crop as well as investments. The same result was obtained from Poddar *et al* (2006).



Plate 6. A sugarcane cultivation by the farmer at his farm



Plate 7. Beneficiary farmer in the study area

5.4.4 Area irrigated out of GKY

Average area irrigated out of Ganga Kalyana Scheme the average irrigated area in the study area was about 1.2 ha. which irrigated area out of GKY was 0.89 ha. which dominated about 61 per cent this was possible because of availability of the irrigation facility through the Ganga Kalyana Scheme.

5.4.5 Asset position of sample beneficiaries in study area before and after the GKY

There was a significant difference noticed in the value of assets which showed an increase from Rs. 2,33,292 to Rs. 5,98,837. This indicated about 156 per cent change. In the total assets, the percentage share of the farm assets was greater (208.48 %) than non-farm assets (90 %). The overall change in the value of the farm assets before and after the scheme was more compared to change in non-farm assets.

It reflected upon the immediate effect of the provision of irrigation facility, which increased the value of farm asset, which is a positive sign. Beneficiaries need to build up their non-farm assets also. The results were in line with the results obtained by Poodar *et al.*(2006)

5.4.6 Livestock position of sample beneficiaries in study area before and after the GKY

There was significant difference noticed in the value of livestock, which showed an increase from Rs. 1,70,975 to Rs. 2,66,913 thereby indicating about 51.37 per cent change. Among the different types of livestock, bullocks (73.01%) and cows (52.44%) contributed to major share of livestock followed by buffaloes (40.51%) and sheep/goat (42.01%). This was because of scheme facility available to the beneficiaries there by increasing their socio-economic well-being.

5.4.7 Cropping pattern of sample beneficiaries of SC Farmers

A variety of crops were grown in kharif, rabi and summer season on the SC beneficiary farms supported by Dr. Ambedkar Corporation, in the study area (Table 4.12). Important crops grown in kharif were bajra, redgram and groundnut. Jowar and



Plate 8. A beneficiary farm in the study area



Plate 9. A beneficiary with successful bore well in the study area

wheat occupied major area in rabi season. Sugarcane, grapes and lime were taken up as bi-seasonal crops on the farms.

It could be noticed from the Table 4.12 that in kharif, the total dry land area under cultivation decreased from 1.31 ha. before Ganga Kalyana Scheme to 0.88 ha. after the scheme implementation. No area was under irrigation before the scheme. Irrigated area it increased to 1.10 ha. in the post project period showing increase of about 51 per cent change. This enhancement could be attributed to availability of irrigation water from the Ganga Kalyan Scheme bore wells. Some crops gained area under irrigation after irrigation facility was provided under the scheme.

In rabi season, net cultivated dry land area decreased from 0.72 ha. before the scheme to 0.2 ha. after the scheme. No area was under irrigation before the scheme. Area under irrigation which increased to 0.79 ha. after the scheme showing increase of about 37 per cent change. Most of the area expansion under irrigation reflected upon the beneficial effects of the Ganga Kalyan Scheme on the cropping pattern of beneficiary farms.

In the summer, crops like sugarcane, grapes and lemon were grown because of provision of irrigation facility available from the scheme. Many of the farmers changed the cropping pattern from seasonal to annual crops.

Cropping intensity increased from 155.05 percentage before the scheme to 220.48 percentage after the implementation of the scheme.

4.4.8 Cropping pattern of sample beneficiaries of ST

The table 4.13 showed the important crops on the farms of beneficiaries of ST category during kharif were bajra, redgram, groundnut, sugarcane, grapes and vegetables Jowar, wheat, groundnut sugarcane and grapes occupied major area in rabi season. Sugarcane and grapes were taken up has bi-seasonal crops on the farms.

Table 4.12 reveals decline in total dry land area under cultivation from 0.68 ha. before Ganga Kalyana Scheme to 0.5 ha. after the scheme implementation. No area was under irrigation before the scheme. Irrigated area increased to 0.75 ha in the post project period showing increase of 132.35 per cent change.



Plate 11. Failure of bore well due to wrong choice of the site



Plate 10. Farm with failed bore well in the study area

In rabi season, net cultivated of dry land area decreased from 0.6 ha. before the scheme to 0.35 ha. after the scheme while no area was under irrigation before the scheme, which increased to 0.72 ha after the scheme showing increase of 78.33 per cent change. Most of the area expansion was under irrigation, which reflected upon the beneficial effects of the Ganga Kalyan Scheme on the cropping pattern of beneficiary farms.

In summer crops like sugarcane and grapes were grown because of provision of irrigation facility available from the scheme and these crops took major part among all the crops grown in the study area many of the farmers changed the cropping pattern from seasonal to annual crops. The cropping intensity has decreased from 188.24 percentage to 180.38 percentage after implementation of the scheme, here cropping intensity as decreased but crop diversification took place.

4.4.9 Cropping pattern of sample beneficiaries of OBC

Table 4.14 shows that there was decline in total dry land area under cultivation from 1.40 ha. before Ganga Kalyana Scheme to 0.40 ha. after the scheme implementation. No area was under irrigation before the scheme. Area under irrigation increased to 1.63 ha. in the post project period showing increase of about 83 per cent.

In rabi season, net cultivated of dry land area decreased from 1.30 ha. before the scheme to 0.26 ha. after the scheme. No area was under irrigation before the scheme, which increased to 1.43 ha after the scheme showing about 85 per cent increase. Jowar, wheat, sugarcane and grapes gained area under irrigation after the implementation of the scheme. Most of the area expansion was under irrigation, which reflected the beneficial effects of the Ganga Kalyan Scheme on the cropping pattern of beneficiary farms.

In summer, crops like sugarcane and grapes were grown because of provision of irrigation facility available from the scheme and these crops took major part among all the crops grown in the study area many of the farmers changed the cropping pattern from seasonal to annual crops. Cropping intensity increased marginally from 192.83 percentage before the scheme to 198.16 percentage after the implementation of the scheme.



Plate 12. A proud farmer with his successful pumpset



Plate 13. A wage earner turned to successful farmer

4.4.10 Cropping pattern of sample beneficiaries of minorities

Table 4.15 indicates the decrease in total dry land area under cultivation from 0.71 ha. before Ganga Kalyana Scheme to 0.40 ha. after the scheme implementation. No area was under irrigation before the scheme. Area under irrigation increased to 1.52 ha. in the post project period showing about 114 per cent increase.

In rabi season, net cultivated of dry land area decreased from 0.30 ha. before the scheme to 0.20 ha. after the scheme. No area was under irrigation before the scheme. Irrigated area increased to 0.82 ha. after the scheme showing increase of about 240 per cent. Jowar, wheat, sugarcane and grapes gained area under irrigation after the implementation of the scheme. Most of the area expansion was under irrigation, which reflected upon the beneficial effects of the Ganga Kalyan Scheme on the cropping pattern of beneficiary farms.

In summer, crops like sugarcane and grapes were grown because of provision of irrigation facility available from the scheme. many of the farmers changed the cropping pattern from seasonal to annual crops. The cropping intensity has increased from 142.25 percentage to 188.16 percentage after implementation of the scheme.

Thus, from table on cropping pattern it can be concluded that (i) Maximum area is under crops during kharif season followed by bi-seasonal crops and rabi (ii) The area under irrigation has increased substantially after the scheme (iii) Area under profitable bi-seasonal crops like sugarcane, grapes and lemon has increased substantially. This was also reported by Poddar *et al* (2006) and Nizamuddin (2014).

5.4.12 Change in credit scenario of beneficiary farmers

Credit is said to be oil for the wheels of agricultural machinery. It is a double-edged weapon. It can help as well as harm the farmer and it depends upon how the farmer manages it. It has important bearing on farm business performance, an attempt was made to analyze the quantum of credit availed before and after the scheme.

In the overall situation, the total quantum of credit availed by the beneficiaries from both institutional and non-institutional sources increased by about 125.83 per cent. It was Rs. 68,025 before the scheme and increased to Rs. 1,53,625. This was

necessitated by the commercial farming facilitated by irrigation provided under the Ganga Kalyan Scheme. It is clearly discernible from the table that this total change was effected by changes in institutional source (203.70%) and non-institutional source (-41.23%) indicating borrowing credit decreased because farmers were aware of institutional credit and they were able to repay loan early and also change in the cropping pattern. There is an important positive development in the credit scenario that the proportion share of institutional sources in the overall credit situation is more compared to that of non-institutional source. This was also reported by Poddar *et al* (2006).

5.4.13 Produce marketing by the beneficiaries

The pattern of product disposal is also an important indicator of farm business performance. As could be seen from Table 18, in the overall study area, the percentage of farmers selling their produce has shifted from farm gate sales and village shandy sales to sales through Agricultural Produce Market Committee (APMC) and factories (Sugar factories).

Before the scheme was introduced about 54.55 per cent of farmers sold their produce through farm gate, which declined to 9.62 per cent after the scheme. There was substantial increase in the percentage of farmers marketing their produce through APMC after the scheme. It increased from 38.46 per cent before the scheme to 51.28 per cent after the scheme. Marketing through village shandy decreased from 14 per cent before the scheme to 76.41 per cent after the scheme. Percentage of farmers selling their produce through factories increased from 0.70 per cent before the scheme to 22.44 per cent after the scheme.

These trends indicated that farming was commercialized due to the irrigation facility from the scheme as a result of which larger quantities of commercial produce was sold through APMC and sugar factories. The result were in line with the result obtained by Poddar *et al* (2006).

5.4.14 Changes in income levels of beneficiary-farmers

Table 4.19 depicts the picture of income levels of beneficiaries and changes effected by the intervention of Ganga Kalyan scheme.

The total income which comprised, income from crop production, subsidiary enterprises and wage incomes increased from Rs. 1,88,396 per farm to Rs. 3,35,073 per farm thereby indicating an increase of 77.86 per cent in the overall study area.

In the overall change in total income the share of crop production was highest (351%) followed by changes in income from subsidiary enterprises (10%). The share of wage income reduced in the post intervention period as the beneficiaries who were earning income through wage labour before the scheme stopped working outside farms and laboured on their own farms. These were also coated by Poddar *et al* (2006).

5.4.15 Changes in employment potential of beneficiary farmers

Table 4.20 reveals the changes in employment opportunities on an average small farm of beneficiaries. Substantial increase in employment opportunities was noticed in the study area. Crop production number of man-days on the farms before the Ganga Kalyan Scheme was 138, which increased to 250, there by indicating 79.24 per cent enhancement. Other occupation has slightly increased from 111.54 man-days to 121 man-days indicating 7.50 per cent and wage days has reduced from 226.33 man-days to 54 man-days after the implementation to the scheme farmers stopped working in outside and started working in their own farm.

5.5 Constraints faced by beneficiaries in the working of the scheme

Various constraints in Ganga Kalyana Scheme have been identified by studies like Poddar *et al*, 2006 the present study confirms the findings of these studies. Delay in energization of pump set was observed during visit to the beneficiaries. There was bias in selection of beneficiaries as reported by the farmers during the study period. This was confirmed by the beneficiaries during personal discussion. Improper casing of bore wells is another problem of GKY as reported by the respondents. Poor quality of electricity supply has reduced the water availability to the crop. Delay in issuing

pup set and procedural delay in corporation were major problem as expressed by the beneficiaries. Poor coordination by drilling agency often results in reduced bore wells in study area.

5.5.1 Constraints faced by the officials in working of the scheme

There is no permanent staff in some corporations this was the major problem faced by the corporation, so records are not up to the mark. Difficulty in conducting field inspection and follow up due to the shortage of staff and vehicles for quick movement.

5.5.2 Positive opinion regarding the scheme

Results are mixed-there are successes and failures. It needs some time to reveal the true impact of the scheme. Good scheme for the uplift of the poor backward class farmers, well suited for dry land regions, farm incomes changed, employment increased and livestock activity increased.

6. SUMMARY AND POLICY IMPLICATIONS

The Ganga Kalyana Yojana started during 1996-1997 as an initiative of Karnataka government to support small and marginal farmers; specifically of the backward classes of the society like Scheduled Castes, Scheduled Tribes, Other Backward Classes (OBC) and Minorities. The basic objective of the scheme is to provide irrigation facilities to the small and marginal farmers.

The scheme has been classified as:

- a. Individual irrigation scheme
- b. Group / community irrigation scheme
- c. Lift Irrigation Scheme

The names indicate that individual irrigation scheme is for single farmer, group irrigation scheme is for group of farmers and lift irrigation scheme included both. The scheme originated as a loan scheme that provides farmer with a subsidized bore well and pump-set to irrigate their land and improve their agricultural productivity. Upon successful implementation of the scheme, the beneficiary would be required to re-pay the provided loan. Now, the GKY provides full financial support for the drilling of a bore well and the installation of a pump-set to SC, ST, OBC and minorities farmers across the state and the scheme also provides another facility that if the selected farm is nearer to the perennial source of water (rivers) it utilizes this facility by lifting water through pipe lines.

Presently there are four corporations implementing GKY these are,

1. D. Devraj Urs Backward Class Development Corporation (DBCDC) for OBC
2. Karnataka Scheduled Tribal and Development Corporation Ltd (ST) for ST
3. Dr. B.R. Ambedkar Development Corporation Ltd (SC) for SC and

4. Karnataka Minorities Development Corporation Ltd (KMDC) for minorities.

There are certain eligibility criteria for a farmer or group to be eligible for the scheme. these are (a) farmer should be small or marginal farmer, (b) he should be a permanent resident of Karnataka, (c) he should belong to one the categories that is SC, ST, OBC or minority as defined in the Government order an (d) he should be holding a dry land.

The eligible farmers who participate in the GKY fall into two broad categories

1. Individual Farmer -Minimum land holding (0.8-2 ha), with an annual income below Rs. 22,000.
2. Group Farmers- Minimum land holding (3.2-6 or 6-8 ha), with an annual income must be below Rs. 22,000.

Government of Karnataka provides funding to these four corporation to implement the scheme to the farmers. The unit cost for the individual irrigation scheme is Rs. 1.5 lakhs and for group irrigation scheme, Rs. 2.53 lakhs for a group of farmers holding the land of 3.2-6 ha of land and Rs. 3.59 lakhs for group of farmers holding 6-8 ha. The Government of Karnataka has invested large funds to dig and energize bore wells. It was expected that the scheme would lead to changes in water management system, cropping pattern and cropping intensity and increases in farm incomes among beneficiaries. Therefore, the present study was focused upon the spread of the scheme, its socio-economic impact based on pre and post implementation of GKY. Thus, the study aims, with the following specific objectives, at assessment of impact of the scheme on farm economy in Vijayapura district.

Specific objectives of the Study

- 2.2 To study the extent of growth and pattern of bore wells dug and energized under the GKY in Karnataka.
- 2.3 To evaluate physical and financial progress of Ganga Kalyan Yojana in Vijayapura district.
- 2.4 To asses socio-economic impact of the Ganga Kalyan Yojana on the beneficiaries.

2.5 To document constraints in implementation of the scheme.

Selection of study area

Vijayapura district was purposively selected for the study to analyse the socio-economics of Ganga Kalyana Yojana. Study was conducted in all the taluks of Vijayapura district comprising of 120 samples. There are four corporations which have implemented this scheme namely, D. Devraj Urs Backward Class Development Corporation (DBCDC); Karnataka Scheduled Tribal and Development Corporation Ltd (ST); Dr. B.R. Ambedkar Development Corporation Ltd (SC) and Karnataka Minorities Development Corporation Ltd (KMDC). From each corporation, 30 beneficiaries were selected covering all the taluks of Vijayapura district and under each corporation, six sample farmers was selected from all the five taluks. Impact of the Scheme was analysed based on pre and post implementation of scheme. For the study, those farmer-respondents had been selected who have implemented the scheme for a minimum of three years for data enumeration.

Analytical tools employed

Simple statistical tools such as mean, average and percentage were used to analyse the data. Compound growth rate technique was used to assess the growth in bore wells dug and energized. Garrett Ranking Technique was used to analyse the opinions of farmer respondents regarding constraints in operation of the scheme.

Findings of the study

General characteristics

Age

Average age of a farmer acts as an important variable in decision-making ability of the respondents. In the overall study area nearly 26 per cent of the beneficiaries were young, 44.16 per cent were middle aged and 30 per cent belonged to old age under the Ganga Kalyana Yojana. It can be observed that majority of farmers in all the four categories belonged to middle age category.

Education level

Majority of beneficiaries of all the four corporations in the study area were illiterate. The percentage of highly educated farmers was negligible. This was reflected upon poor adoption capacity of the farmers and general backwardness of the region.

Family type

In the study area joint families were predominant which accounted to 60 per cent and remaining 40 per cent were nuclear. However, more number of families were joint type among minorities and nuclear in case of OBC.

Family composition

Most of the families in the study area belonged to large size families which consisted of more than seven members in a family followed by medium and small families. Large sized families were more among minority beneficiaries compared to SC, ST and OBC groups. Medium size families were more in minorities when compared to SC, ST and OBC. And small size families were more in case of OBC.

Growth and pattern of Ganga Kalyana Yojana (GKY) in Karnataka

Growth pattern of bore wells dug and energized under the GKY in Karnataka are presented in the (Table 4.2 and 4.3). Table 4.3 revealed that, among the four different corporations, DBCDC accounted for highest growth rate followed by KMDC, ADC and KSTDC. Table also indicated that more number of respondents was covered under DBCDC and hence, over the years, the number of bore wells dug and accordingly the growth rates were also high. On the other hand, the growth rates under all the corporations with respect to number of bore wells dug was 10.19 per cent which was significant at five per cent probability level. This showed that overall GKY was making good efforts in increasing the bore well numbers but on the other side the number of bore wells energized recorded a negative growth during the same period.

Physical and financial performance of GKY in Vijayapura district

Physical performance of Ganga Kalyana scheme

The physical performance of Ganga Kalyana scheme in terms of number of bore wells dug and energized was analysed using compound growth rate. In the study area, the time period considered for the analysis was from 2000-2013 which is presented in Table 4.4.

DBCDC accounted for highest growth rate followed by KMDC and ADC. The table also indicated that more number of respondents was covered under DBCDC and hence, over the years the number of bore wells dug and accordingly the growth rates were also high. On the other hand, the growth rates under all the corporations together with respect to number of bore wells dug was 29.59 per cent which was significant at one per cent probability level. This showed that overall GKY make good efforts in increasing the bore well numbers and also energization.

Investment on bore well of the sample farm from GKY

Total cost incurred in installing a bore well in the study area was about Rs. 1,25,200. Among different components of investment, the cost of irrigation pump set with all the accessories formed the major item of investment with 43.13 per cent of the total investment, energization (electricity and wire) took 30 per cent of investment. Cost of drilling, casing and pipe were ₹15,300, ₹11,400 and ₹ 5,000, respectively.

Socio-economic impact of GKY on beneficiaries

Land holding of sample beneficiaries

All farmers in the study area were small farmers as the scheme is limited for small and marginal farmers but no marginal farmer was found in the study area.

On an average, at present, about 71.38 per cent of the land holding was under irrigation. The percentage of area under irrigated land was higher among ST farmers at 79.11 per cent when compared to other three categories.

Source wise irrigated area

Among the different sources of irrigation like open wells, bore wells and canals, bore wells were the dominated source for irrigation to the tune of 77.5 per cent followed by canals (13.54%) and open wells (8.54%).

Particulars of scheme units in the study area

In the study area as a whole about 77 per cent of the bore wells were functional. However, the performance of ST beneficiaries was high with 83.33 per cent of the sanctioned units working as compared to the OBC (80 %), SC (76.67%) and minorities (66.67%) of them were functional. Various reasons have been advanced for non-functioning of wells. The major reason was the improper casing of bore well. Secondly, though the unit was sanctioned, it failed because of poor yield. Further, even if there was good yield of water, the supporting facilities were not provided in time to the beneficiaries to make the wells functional.

Average depth of bore well in the study area was about 339 ft and it was more among minority farmers (349.17 ft) as compared to OBC (342.33 ft), ST (340.47 ft) and SC (323.97 ft) category. This was due to low ground water table in the particular farmer's field.

Another fact of serious concern is the declining water table in the bore wells of beneficiaries which has gone down over a period (average was about 6 years). In the study area, water yield which was about 2.35 inch when the well was dug has reduced by 37.01 per cent to 1.71 inch. These facts highlighted the general trend of declining water table, which is a matter of serious concern for policy makers. The reasons could be on line with general reasons advanced for the decline in the total ground water situation in the state and country. Poor rainfall is one of the major reasons for the decline in the yields of bore wells. The problem of poor yields is further aggravated by the increasing number of electric motors being sunken at the well, in the study area. In fact, there is competition among farmers to dig deeper than the neighboring farmer and harvest as much as possible. This race, in the absence of ameliorating measures has brought distress to the farmers.

Area irrigated out of GKY

Average irrigated area of farmers in the study area was about 1.2 ha, in which irrigated area out of GKY was 0.89 ha. which dominated for about 61 per cent. This was possible because of availability of the irrigation facility through the Ganga Kalyana Scheme.

Asset position of sample beneficiaries in study area before and after the GKY

There was a significant difference noticed in the value of assets before and after the scheme which showed an increase from Rs. 2,33,292 to Rs. 5,98,837. This indicated about 156 per cent change. In the total assets, the percentage share of the farm assets was greater (208.48 %) than non-farm assets (90%). The overall change in the value of the farm assets before and after the scheme was more compared to change in non-farm assets.

It reflected upon the immediate effect of provision of irrigation facility, which increased the value of farm asset, which is a positive sign. Beneficiaries need to build up their non-farm assets also.

Livestock position of sample beneficiaries in study area before and after the GKY

There was a significant difference noticed in the value of livestock. This showed an increase from Rs. 1,70,975 to Rs. 2,66,913 thereby indicating about 51.37 per cent change. Among the different types of livestock, bullocks (73.01%) and cows (52.44%) contributed to major share of livestock followed by buffalos (40.51%) and sheep/goat (42.01%).

Cropping pattern of sample beneficiaries of SC Farmers

On an average farm of SC farmer supported under Dr.B.R. Ambedkar Corporation, in kharif, the total dry land area under cultivation decreased from 1.31 ha. before Ganga Kalyana Scheme to 0.88 ha. after the scheme. No area was under irrigation before the scheme. Area under irrigation increased to 1.1 ha. in the post project period showing increase of about 51 per cent change. This enhancement

could be attributed to the availability of irrigation water from the Ganga Kalyan Scheme bore wells.

In rabi season, net cultivated dry land area decreased from 0.72 ha. before the scheme to 0.2 ha. after the scheme while no area was under irrigation before the scheme, area under irrigation which increased to 0.79 ha. after the scheme showing increase of about 37 per cent. Most of the area expansion under irrigation, reflected upon the beneficial effects of the Ganga Kalyan Scheme on the cropping pattern of beneficiary farms.

Among bi-seasonal crops sugarcane, grapes and lime were grown because of provision of irrigation facility available from the scheme. Many farmers changed the cropping pattern from seasonal to annual crops due to the availability water from GKY bore wells throughout the year.

Cropping intensity increased from 156 per cent before the scheme to 220.48 per cent after the implementation of the scheme.

Cropping pattern of sample beneficiaries of ST

As a result of supply of irrigation water from bore wells under KSTDC the cropping pattern of farms changed. Total dry land area under cultivation from 0.68 ha. before Ganga Kalyana Scheme to 0.53 ha. after the scheme implementation while, no area was under irrigation before the scheme, which increased to 0.75 ha. in the post project period showing about 114 per cent increase. Further, many kharif dry crops were shifted to irrigation.

In rabi season, net cultivated dry land area decreased from 0.6 ha. before the scheme to 0.35 ha. after the scheme. No area was under irrigation before the scheme. Area under irrigation increased to 1.07 ha. after the scheme showing increase of about 240 per cent growth. Area expansion under irrigation reflected upon the beneficial effects of the Ganga Kalyan Scheme on the cropping pattern of beneficiary farms.

In bi-seasonal crops sugarcane and grapes were grown because of the provision of irrigation available from the scheme. These crops took major part among the crops grown in the study area. Many of the farmers changed the cropping pattern

from seasonal to bi-seasonal crops. The cropping intensity decreased slightly from 188.24% to 180.38% after the implementation of the scheme.

Cropping pattern of sample beneficiaries of OBC

Total dry land area on OBC farm supplied by D. Devraj Urs Backward Class Development Corporation from 1.4 ha before Ganga Kalyana Scheme to 0.4 ha. after the scheme implementation. No area was under irrigation before the scheme. Irrigated area increased to 1.23 ha. in the post project period showing increase of about 83 per cent. Further, many kharif dry crops were brought under irrigation.

In rabi season, net cultivated dry land area decreased from 1.3 ha. before the scheme to 0.26 ha. after the scheme. There was no area under irrigation before the scheme. Irrigated area increased to 1.17 ha. after the scheme showing about 85 per cent increase. Area expansion under irrigation reflected upon the beneficial effects of the Ganga Kalyan Scheme on the cropping pattern of beneficiary farms.

Among annual/horticultural crops sugarcane and grapes were grown because of provision of irrigation facility available from the scheme. Cropping intensity on these farms increased from 192 per cent before the scheme to 198.16 per cent after the implementation of the scheme.

Cropping pattern of sample beneficiaries of Minorities

Total dry land area under which was cultivation on farms of minority farmers decreased from 0.71 ha before Ganga Kalyana Scheme to 0.4 ha after the scheme implementation. No area was under irrigation before the scheme. Irrigated area increased to 1.12 ha in the post project period showing about 114 per cent increase. Further, many kharif dry crops were shifted to irrigation.

In rabi season, net cultivated dry land area decreased from 0.3 ha. before the scheme to 0.2 ha. after the scheme. Area under irrigated farming increased to 0.82 ha. after the scheme showing increase of about 240 per cent. Increase in irrigation could be attributed to beneficial effects of the Ganga Kalyan Scheme.

Among annula/horticultural crops sugarcane and grapes were grown because of provision of irrigation facility available from the scheme. The cropping intensity has increased from 142.25 per cent to 188.16 per cent after implementation of the scheme.

Change in credit scenario of beneficiary farmers

The total quantum of credit availed by the beneficiaries from both institutional and non-institutional sources in the study area increased by about 125.83 per cent. It was Rs. 68,025 before the scheme and increased to Rs. 1, 53,625. This was necessitated by the commercial farming facilitated by irrigation provided under the Ganga Kalyan Scheme. It is clearly discernible from the that this total change was effected by changes in institutional source (203.70%) and non-institutional source (-41.23%) indicating borrowing credit decreased because farmers were aware of institutional credit and they were able to repay loan early and also change in the cropping pattern. There is an important positive development in the credit scenario that the proportion share of institutional sources in the overall credit situation is more compared to that of non-institutional source.

Produce marketing by the beneficiaries

The pattern of product disposal is also an important indicator of farm business performance. In the study area, the percentage of farmers selling their produce has shifted from farm gate sales and village shandy sales to sales through Agricultural Produce Market Committee (APMC) and factories (sugar factories).

Before the scheme was introduced about 54.55 per cent of farmers sold their produce through farm gate, which declined to 9.62 per cent after the scheme. There was substantial increase in the percentage of farmers marketing their produce through APMC after the scheme. It increased from 38.46 per cent before the scheme to 51.28 per cent after the scheme. Marketing through village shandy decreased from 14 per cent before the scheme to 76.41 per cent after the scheme. Percentage of farmers selling their produce through factories increased from 0.70 per cent before the scheme to 22.44 per cent after the scheme.

Changes in income levels of beneficiary-farmers

The total income which comprised income from crop production, subsidiary enterprises and wage incomes increased from Rs. 1,88,396 per farm to Rs. 3,35,073 per farm thereby indicating an increase of 77.86 per cent in the overall study area.

In the overall change, change in income from crop production was highest (351%) followed by changes in income from subsidiary enterprises (10%). The share of wage income reduced in the post intervention period as the beneficiaries who were earning income through wage labour before the scheme stopped working outside farms and laboured on their own farms.

Changes in employment potential of beneficiary farmers

Substantial increase in employment opportunities was noticed in the study area. Number of man-days for crop production on the farms, before the Ganga Kalyan Scheme was 138, and it increased to 250 there by indicating 79.24 per cent enhancement. Employment under other occupation slightly increased from 111.54 man-days to 121 man-days indicating 7.50 per cent. Wage hiring reduced from 226.33 man-days to 54 man-days. After the implementation of the scheme farmers stopped working outside and started working in their own farms.

Constraints faced by beneficiaries in the working of the scheme

The present study confirms the findings of the previous studies. Delay in energization of pump set was observed during visit to the beneficiaries. There was bias in selection of beneficiaries as reported by the farmers during the study period. This was confirmed by the beneficiaries during personal discussion. Improper casing of bore wells was another problem of GKY as reported by the respondents. Poor quality of electricity supply reduced the water availability to the crop. Delay in issuing pump set and procedural delay in corporation were other problems as expressed by the beneficiaries. Poor coordination by drilling agency often affected progress of the scheme.

Policy implications

1. Since electricity is a resource constraint in successful operation of the scheme, it should be linked to use of non-renewable energy source like wind and solar energy. These can be made mandatory for availing the benefit under the scheme.
2. To overcome problems of shortage of staff and office machinery the whole project operation should be automated.
3. Since the findings of the study showed many positive gains of Ganga Kalyana Scheme, it is important that the Government of Karnataka further strengthen the scheme.
4. Since there were complaints of bias in selection of beneficiaries under the scheme, the composition of the selection committee should be more broad based involving experts in the field of social welfare. Procedure for identifying the beneficiaries should be more stringent, transparent and it should be linked to AADHAR card.
5. Introduction of water saving mechanisms among the beneficiaries like sprinkler and drips systems for the judicious use of the limited quantity of water available from the bore wells, will help to achieve higher yields and expand the area under irrigation.
6. Mechanism for periodic monitoring and supervision of the performance of the scheme, to ensure effective end use of the huge amount of tax payer's money invested in the scheme, field inspection by the staff of the Corporation and periodic progress report by the Revenue or Agriculture field staff should taken up.
7. Agriculture extension efforts in collaboration with the Department of Agriculture or the Universities of Agricultural Sciences in the state for scientific technology transfer to the beneficiaries should be strengthened.
8. A contribution of 10 per cent of the unit cost would make the beneficiary more responsible towards the scheme. Hence, the contribution of the beneficiary needs to be ensured. If the beneficiary is too poor, the corporation can extend a loan facility at cheap rate of interest.
9. Creating awareness about the details of the scheme through all means of communication like awareness camps, mass media etc. so as to avoid bias in the selection of beneficiaries.

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**UNIVERSITY OF AGRICULTURE SCIENSCCE, DHARWAD COLLEGE OF AGRICULTURE,
VIJAYAPURA**

“Survey schedule”

On

**Socio-Economic Performance of Ganga Kalyan Yojana (GKY) in Karnataka with
special reference to Vijayapura District**

Date: _____

Respondent No: _____

A. General Information

1. Name of the Beneficiary _____

2. Village: _____ 3. Taluka: _____

4. District: _____ 5. Age (Years): _____

6. Education: Illiterate / Pri / Sec / SSLC / PUC / Deg / PG / Dip

7. Caste: SC / ST / OBC / Minority

8. Type of family: Nuclear / Joint

9. Association with special organization: ZP/TP/VP/NGO/SHG/TUGs/WUGs

B. Family Composition and Occupation:

Particulars	Number	Working on farm (No.)	Working outside farm (No.)
Adult Male			
Adult Female			
Children			
Total			

C. Land Holding and Use Pattern

RF / IR	Own	Leased-in*	Leased-out*	Total	Field crops	Horti-culture	Permanent fallow	Others
Rainfed								
Irrigated+								
Total								

* If leased-in / leased-out, rent paid / received (Rs/acre): (per season / per year)

+ If irrigated, source of irrigation: (open well, borewell, tank, canal, others)

D. Sources of Irrigation

Sl. No	Source	Area Irrigated (ha)		
		Kharif	Rabi	Summer
1	Open well			
2	Bore well			
3	Canal			
4	Tank			
5	Farm pond			
6	Other			

E. Livestock position

Period	Bullock	Cows		Buffalos	Others	Total	Total income /year
		Local	Hybrid				
Before							
After							

About the Scheme

- a) Date of well Drilled: _____
- b) Depth of well: _____ (in meter)
- c) Water yield when drilled: _____ (inch /gallon)
- d) Water yield as on today: _____
- e) Electricity (energized) date: _____
- f) Reason for not energized _____

III. Area irrigated

- a) Total area irrigated:
- b) Area irrigated out of GKY (borewell):

IV. Annual income

Main Occupation: _____ Subsidiary _____ Total _____

F. Asset Position

Sl. No	Particulars	Before		After Before Before	
		No/Qty	Present value	No/Qty	Present value
1	Farm house				
2	Cattle shed				
3	Pump house				
4	Storage godown				
5	Iron plough				
6	Wooden plough				
7	Seed drill				
8	Harrows				
9	Bullock cart				
10	Cultivator				
11	Levelers				
12	Sprayer				
13	Tractor				
14	Duster				
15	Pump set				
16	Rotovator				
17	Sprinkler/drip set				
18	Combined harvesters				
19	Power tiller				
20	Thresher				
21	Cycles				
22	Two wheeler				
23	Three wheeler				
24	Car				

G. Asset Position of livestock

Sl.No	Particulars	Before		After	
		No/Qty	Present value	No/Qty	Present value
1.	Cows				
2.	Buffalo				
3.	Bullock				
4.	Sheep				
5.	Goat				
6.	Poultry				

J. Barrowing pattern of beneficiaries

Sl. No	Sources	Before		After	
		Total amount	Remaining loan	Total amount	Remaining loan
1	Public sector				
	a.				
	b.				
	c.				
2	Private				
	a.				
	b.				
	c.				

K. Income

Sl. No	Sources of income	Total income(Rs.)	
		Before	After
1.	Crop production / year		
2.	Other occupation		
3.	Wage income		
4.	Others		
5.	Total income		
6.	Land value (Rs./acr)		

L. Marketing

Sl. No	Method and market place	Before	After
1.	Farm Gate		
2.	APMC		
3.	Village Shandy		
4.	Factory		
5.	Others		

M. Employment

Sources	H	
	Before	After
Crop production		
Other occupation		
Wage earning		
Others		
Total		

N. Constraints and opinion of beneficiaries of scheme

Sl. No	Constraints	Opinion
1.	Physical	
	a.	
	b.	
	c.	
	d.	
2.	Administration	
	a.	
	b.	
	c.	
	d.	
3.	Finance	
	a.	
	b.	
	c.	
	d.	
4.	Others	
	a.	
	b.	

SOCIO-ECONOMIC PERFORMANCE OF GANGA KALYANA YOJANA (GKY) IN KARNATAKA WITH SPECIAL REFERENCE TO VIJAYAPURA DISTRICT

LAXMI K.

2015

**R. S. PODDAR
MAJOR ADVISOR**

ABSTRACT

A study on socio-economic performance of Ganga Kalyana Yojana (GKY) in Karnataka with special reference to Vijayapura district was conducted. Both primary and secondary data were used for the study. Total sample size of the study was 120 farmer- beneficiaries. The GKY was started as an initiative of Government of Karnataka during 1996-97 to support small and marginal farmers by providing irrigation through bore wells. The results revealed that number of bore wells dug increased during the study period (2000-2014) at 10.19 per cent in state. While the increase was at 29.59 per cent in Vijayapura district during 2000-2013. As a result of implementation of the project there was a positive impact on asset and livestock position of the beneficiaries. Cropping pattern changed from seasonal agricultural crops to high value crops because of the irrigation facilities provided through the scheme. Credit borrowings of farmers observed a shift from non-institutional to institutional sources. Income of beneficiaries from farms increased with adoption of high income crops like sugarcane and grape. Employment opportunities on farms doubled after adoption of scheme. Before adoption of scheme farm produce was sold at the farm gate and local shandys but after adoption it changed to organized markets and processing unit like sugar factories. Bias in the selection of beneficiaries, delay in energization of the pump sets and unscientific casing of the bore wells were some of the constraints faced by the beneficiaries. The scheme needs thorough post implementation follow-up, selection procedure of beneficiaries needs improvement which should be made more stringent and transparent. There is a need for proper training of beneficiaries in judicious use of water by introduction of water saving mechanism like sprinkler and drip irrigation syst