



EXECUTIVE SUMMARY

1.0 Overview

End of the project impact study has been conducted to examine the impact of Karnataka Community based Tank Management Project (KCBTMP) on restoration of storage capacities of the tanks and the consequent benefits to the stakeholders, in terms of increased agricultural production, income and improved livelihoods. The Final survey was conducted during February to May 2008. The study covers 182 sample villages benefited by the project, spread across 6 agro-climatic zones and 9 districts. Similarly, 35 villages from the project districts, not benefited by the project, have been selected as control. In all these sample villages, pre-project bench mark (Baseline) survey was conducted in 2003-04.

2.0 Data Collection

The primary and secondary data were collected, using three sets of structured formats. While the primary field data were collected by adopting survey method through personal interviews and focus group discussions by the experienced field investigators, the secondary data were collected from the records of TMI/CFT/DPU, depending upon the nature and type of data required. Qualitative data have also been collected through Focus Group Discussions with different stakeholders, CFT/TMI functionaries and other local leaders in the villages. Performance of demonstrations and FFS plots were collected through questionnaire from two Agricultural University Consultants, Bangalore and Dharwad.

Data have been collated and validated by the concerned specialists of M & L Team, to ensure quality and reliability. Simple statistical tools and diagrams have been used to analyze and interpret the data.

A brief account of the findings, based on survey data, is presented below.



3.0 Findings

- About 70 percent is ZP tanks, with less than 40 hectares command and the remaining 30 percent MI tanks with more than 40 hectare command. In the case of control tanks it is 82.9 and 17.1 percent, respectively. Across the zones the small tanks (ZP tanks) are more in EDZ (89.9 percent) and NEDZ (83.3 percent). In the case of control tanks, EDZ has maximum number (20) of small tanks (ZP tanks).
- About one-third of the sample and control MI tanks have received **full storage** during the year under reference. On the other hand, 25 percent of ZP tanks under the project and 17 percent of the control tanks has received full storage.
- **Average command area** per project MI tanks is 83 hectares and that of control tanks 83.7 hectares. In the case of ZP tanks, it is 17.9 hectares and 13.6 hectares respectively. **The average catchment area** of the project tanks is about 1000 hectares and that of control 904 hectares, with **command catchment ratio** of 26.5 and 32.6 respectively.
- None of the 182 sample villages have completed the **project implementation cycle** within the stipulated period of 20 months.
 - 90 sample villages (49.5 percent) completed pre-planning phase on time.
 - 98 sample villages (53.8 percent) have completed planning phase on time.
 - 13 sample villages (7.1 percent) have completed implementation phase on time.



- 47 tanks (25.8 percent) have completed post implementation phase on time.
- **The scale of implementation** of all the identified tanks in the project area has been lagging behind the targets, as upto the end of May 2008, only 56.8 percent of the identified tanks have been completed and handed over. Taking the time limit for completion of the remaining tanks into account, the task appears to be not easy. It is more so, because about 55 percent of the tanks identified for implementation during 2008-09 is still in pre-planning phase.

4.0 Tank System Improvements And Cost Effectiveness

- **Cost of civil works** was found to be between Rs.6.25 to 9.1 lakh per tank across zones. The average cost per hectare of command area varied from Rs.29000/ha in Batch I tanks to Rs.17000/ha in Batch V tanks.
- **The cost of feeder channel** rehabilitation varied from Rs.12000 to Rs.27000 per tank. Based on the feedback from the Tank User's Group and also through field observation it was observed that 60% to 90% of the tanks have benefited with higher inflows into the tanks.
- **Silt arresting structures** like check dams, boulder checks etc have been provided at a cost of Rs.31890 per tank in Batch I tanks to Rs.18000/tank in Batch V tanks. The reduction in the cost is attributed to the preference of the community to low cost interventions like vegetative checks. The quantum of silt arrested in these structures varied between 10 cu.m to 30 cu.m per tank.
- About 0.17 million **saplings have been planted** in 135 tanks at an aggregate cost of Rs.3.8 million at an average unit cost of Rs.22.3 per sapling. The results of afforestation are mixed, with survival rate of saplings varying from 10% to 70%. Some of the factors adversely affecting the rate



of survival of saplings have been (i) planting of saplings during dry season, (ii) lack of protection from grazing, and (iii) lack of maintenance of the plantation.

- Quantity of **silt removed per tank** was 7309 cu.m with lead and 9662 cu.m without lead. Cost of desilting with lead decreased from Rs.33/cu.m to Rs.22/cu.m from Batch I to Batch V tanks. The cost of desilting without lead has remained constant at Rs.17/cu.m over the duration of the project.
- The **aggregate storage capacity** of sample tanks has increased by 2.05 MCM. The addition to tank storage potential was between 2.2% to 7.7% of the aggregate storage capacity across all zones. The benefits due to desiltation, as reported by the TUGs, were (i) increased storage capacity and attendant availability of water for more irrigation, (ii) increase in water storage for fisheries, (iii) increase in the water availability for domestic & cattle use (iv) increased recharge of the ground water.
- **Bund strengthening was** carried out in different zones at a cost of Rs.78000/tank to Rs.122000/tank. The unit cost was Rs.40 to Rs.45 per cu.m of earthwork. Cost of revetment varied from Rs.23000/tank to Rs.70000/tank with an average cost of Rs.36000/tank. Cost of turfing varied from Rs.17000/tank to Rs.34000/tank at a unit rate of Rs.4/sq.m to Rs.10/sq.m.
- Due to bund strengthening works **extra months of water availability** in sample tanks for Rabi irrigation varied from 3 to 5 months depending upon the rainfall conditions while it was around 2 months for control tanks. The extended period of water availability for domestic & cattle use was similar for both sample & control tanks and varied between 2 to 3.5 months.
- The TUG members have identified the following **factors as adversely affecting** the impact of bund strengthening works



- Poor quality of soil compact work due to lack of proper supervision and non availability of soil compaction equipment for the desired duration;
- Poor quality of revetment work due to non availability of adequate quantity of size stones; and
- Poor quality of Turfing due to non germination of “Hemata” grass seeds.

All the above had been reported to JSYS in the various Monthly Interactive Reports.

- **Rehabilitation of canal distribution system** was carried out through repairs to sluices, installation of flow control mechanism (plug & rod system) at sluices and lining of canals. The cost of sluice repair varied from Rs.7900/tank to Rs.47000/tank across zones due to site specific repairs. Cost of fabricating & installation of flow control mechanism varied from Rs.2300/tank to Rs.11000/tank, depending upon the number of sluices and site conditions. Cost of lining varied from Rs. 84000/tank to Rs.240000/tank depending upon the length of lining and type of material used for lining. The unit cost of stone slab lining varied from Rs.180/sq.m to Rs.320/sq.m while for cement masonry lining it varied from Rs.1000/sq.m to Rs.1200/sq.m.
- Due to rehabilitation of canal water distribution system the **tail end areas of tank command suffering** from lack of water was reduced by 46% in sample tanks while no such benefit was reported in the control tanks.
- Tank rehabilitation works have resulted in **increased recharge to the ground water**. The rise in the water level in the open wells has been in the range of 0 – 36m in the sample tanks. Many of the defunct open wells have been rejuvenated in all the zones. The rise in the water level in the bore wells has been in the range of 19 – 39m in sample tanks. The aggregate area irrigated by the bore wells increased from 1085 ha to 1943 ha (79%) in the sample tanks.



- About 68% of the TUGs interviewed expressed **satisfaction with the tank rehabilitation programme** because the works were carried out as per the requirement of the community and the quality of the works was satisfactory. However, about 30% of the TUGs expressed dissatisfaction with the programme for the following reasons;
 - Lack of co operation & timely guidance from the CFT and DPU;
 - Lack of interest & involvement by the community;
 - Difficulty in mobilizing the farmer's contribution;
 - Factionalism within the community; and
 - Lack of adequate funds to cover all the repairs.

- TUGs highlighted the following **difficulties faced during the implementation** of the programme:
 - Change in CFT and weak facilitation;
 - Withdrawal of funds by DPU and delay in re-sanctioning;
 - Lack of interest within the community and their non involvement in implementation;
 - Inadequate visits & guidance by the CFT & DPU staff;
 - Inadequate guidance by the CFT due to low staff strength & heavy work load;
 - Frequent changes in the staff of CFT & DPU;
 - Interruptions due to rains;
 - Delay in the measurement of works by the CFT/DPU engineers; and
 - Delay in the release of LOAs.

All the above Findings had been duly conveyed to JSYS in the respective Monthly Interactive Reports.



5.0 Agricultural Production System Development

The salient findings of the analysis of the data collected from farmers of 187 sample tanks and 35 control tanks as well as 1030 individual households / stake holders, and Demonstrator farmers, from six agro- climatic zones are presented below:

- **Agro-climatic zones**

Among the six agro-climatic zones covered in this study viz (1) Central Dry Zone (CDZ), (2) Eastern Dry Zone (EDZ), (3) Northern Dry Zone (NDZ), (4) North Eastern Dry Zone (NEDZ), (5) North Eastern Transitional Zone (NETZ) and (6) North Transitional Zone (NTZ); EDZ has the highest number of sample tanks– 89, followed by CDZ - 40 when the least number-4 was in NETZ.

5.1 Command Area

5.1.1 Irrigated cropped area

The irrigated cropped area per tank command in the project tanks has increased on an average by about 31.06 percent from the base period, while in control tanks the increase was only 13.25 percent, indicating a net project impact of 17.82 percent. The net project impact on irrigated area increase was highest in NTZ with 61.84 percent while it was negative in (-1.18 %) in NETZ .The number of functional bore wells and open wells increased by 36.67 percent and 28.00 percent respectively per tank command with an increase in the area of irrigation by 65.00 percent and 27.64 per cent resulting in a net impact of 21.52 and 18.84 percent respectively. The net project impact on the percentage increase in the number of wells and area irrigated was highest under both these categories of wells in the zone NDZ.



5.1.2 Land use intensity

Land use intensity / crop intensity has increased from 89.16 percent during the base period to 121.00 percent during the project intervention showing an increase of 31.83 percent in project tank commands. But in control tanks the land use intensity increase was from 83.53 to 93.53 percent indicating an increase of just 10.00 percent; thus reflecting a net project impact of 21.83 percent on crop intensity. The percentage increase in land use intensity across zones was highest in NTZ with 55.10 percent while it was lowest in NETZ (18.10 %). Similarly the net project impact in land use intensity was highest in NTZ (81.69%) while it was negative (-1.19 %) in NETZ.

5.1.3 Cropping pattern:

In general, no significant crop diversification was observed, as the area under non-paddy crops increased marginally by 0.5 percent while paddy reduced by 1.29 percent on an average per tank command during project period. The percentage increase in area under paddy during the project period was highest in CDZ (86.10%) while it was least in NEDZ (11.68 %). The net project impact per command in respect of non paddy area was highest with 94.36 percent in NTZ while it was least (-1.18 %) in NETZ. When tanks receive full storage capacity, farmers prefer to grow paddy only as it is a staple food crop.

5.1.4 Production and productivity of crops

(a) **Kharif:** The productivity of paddy has increased from 39.93 q/ha in the base year to 48.91 q/ha at the end of project period, reflecting an increase of 22.48 percent and a net project impact of 17.37 %. Productivity of cereals and millets together has increased from 32.19 q/ha to 36.14 q/ha during the project period registering a net project impact of 8.51 percent. Similarly the productivity of oil seeds increased from 18.38 q/ha to 21.00 q/ha indicating a net project impact of 7.98 percent. Pulses and vegetables performed better with the increases in productivity by 19.00 percent and 35.29 percent



respectively over the base year. Except in the zones NETZ and NDZ, in all other zones the production levels of different crops were found to be better at the end of the project period.

- (b) **Rabi / summer:** The productivity of paddy rose from 42.27 q/h to 48.07 q/h during the project period when the productivity of cereals and millets combined rose from 31.07 q / ha to 39.68 q/ha with the net project impact of 10.48 percent. The productivity of oil seeds and vegetables also registered a net project impact of 19.06 and 13.80 percent respectively. Millets did not make a dent in production in NDZ and NEDZ when vegetables failed to improve except in zones CDZ and EDZ.

5.1.5 Net income

The net income gained per tank command per annum from agriculture and horticultural crops on an average was Rs. 32,68,712 and Rs.13,77,934 respectively at the end of the project period , with the net project impact of 9.45 and 17.84 percent respectively. The share of net income from agriculture was 70 percent while it was 30 percent from horticulture in project area, when their share was 55: 45 in control areas.

During kharif, agricultural income was highest with Rs.5,32,492 in NTZ followed by Rs.4,30,998 in CDZ after the project intervention; while in Rabi / summer agriculture income was highest in NETZ with Rs.4,34,358 followed by Rs.2,24,282 in zone CDZ. Impact of project in deriving net income from agriculture and horticulture combined was found to be highest in the zones NTZ (45.05%) and NDZ (30.57%) during kharif, when it was highest in the zones CDZ (35.18%) and NEDZ (31.96 %) during Rabi / summer.



5.2 Catchment area

5.2.1 Well irrigation

The percentage increase in the number of functional bore wells and open wells combined per catchment area was more in NDZ (42%) and CDZ (41%) while the average area irrigated by bore wells and open wells was highest per catchment at the end of the project in NDZ with 26.27 ha, followed by CDZ with 21.06 ha. The percentage increase in area under irrigation under both the category of functional wells ranged from 10.63 (NETZ) to 63.33 percent (NDZ).

5.2.2 Production and productivity of crops

- (a) **Kharif** : The productivity of paddy has increased by 20.86 % from base year, while the productivity of cereals and millets combined rose from 32.46 q /ha to 37.92 q /ha by the end of project period marking an increase of 5.46 percent. The productivity of oil seeds and vegetables increased marginally by 2.37 and 4.28 percent respectively. Paddy was popular in all zones except in NETZ while millets and maize were cultivated in all zones.
- (b) **Rabi/Summer**: Though productivity of paddy performed better with an increase of 10.14 percent, cereals and millets combined showed a marginal increase from 40.27 to 43.13 q/ha with an increase of 2.88 percent. Vegetable crops productivity increased from 201 q /ha to 208 q /ha indicating an increase of 7.0 percent while the oil seed showed a rise of 2.95 percent. Paddy, oilseeds and vegetables were grown in all the Zones except in NETZ.

5.3 Agricultural Households

5.3.1 Area

The crops grown by majority of households were less than one hectare both before and after project intervention, except in case of paddy and oil seeds which were grown in an area of more than one hectare, on an average. With regard to change during the Project Implementation Period, the area under



paddy decreased by 0.5 Percent on an average during kharif while it increased by 0.4 percent in Rabi /summer.

5.3.2 Technology Adoption

Adoption of High Yield Varieties in respect of all crops in all seasons was found to be higher during the end of project year compared to base year. More than 80% of farmers have adopted HYV / hybrid varieties in cereals, millets, oil seeds and vegetables. Organic manures including vermin compost and bio-fertilizers were adopted by 81 percent of farmers in millets, 72 percent in oil seeds and 71 percent in case of cereals during kharif. However, large percentage of farmers ranging from 53 to 74 percent continued to adopt fertilizers (NPK) in respect of cereals. Good percentage of farmers has used organic pesticides in almost all crops except in vegetables. Whenever the incidence of pests and diseases was high, farmers have used P.P chemicals.

5.3.3 Gross output

Among cereals and millets the gross output ranged from 28.57 q/ha /household to 35.60 q / household. With regard to oilseeds the maximum was 31.5q while horticultural crops attained 126.32 q/ household at the end of project year. The percentage increase in gross output over base year was highest in millets with 143.36 percent during Rabi /summer followed by oilseeds with 94.30 percent in kharif.

5.3.4 Productivity

The farmers achieved better productivity among all crops the highest being 42.00 q/ha. in case of paddy followed by maize with 41.47 q/ha. and millets with 40.70 q/ha during kharif at the end of project year. The percentage increase in productivity over base year was highest in oil seeds, 25.35 percent followed by paddy with 10.51 percent. Horticultural crops achieved better success with an increase by 34.33 percent in Rabi / summer season after the project intervention.



5.3.5 Income

The household net income of stakeholders during the end of project year was highest in case of horticultural crops during both Rabi / summer (Rs. 15768 /ha) and kharif (Rs. 14276/ ha) on an average. The next highest being Rs.14185 / ha in case of paddy during kharif. The percentage increase in net income over the base year was 88.54 percent in oilseeds in kharif followed by paddy with an increase in income by 72.00 percent during Rabi / summer. Interestingly the individual household income was highest (Rs.41836 /ha.) from perennial horticultural crops.

5.4 Farmers' education through Demonstrations and FFS

5.4.1 Water use efficiency (WUE)

WUE has increased considerably due to the introduction of Jalasri / SRI method of paddy cultivation in FFS and W.M.D plots due to less consumption of water. Here, emphasis was on adoption of hybrid paddy- KRH-2, use of sprouted seed at 4-5 kgs /ha wider spacing, use of bio-fertilizers, NPK and Zinc sulphate as well as bio-pesticides and on and off method of irrigation (light irrigation). The yield of paddy ranged from 50 to 95 q /ha with an average yield of 73.88 q /ha but the increase in yield over check plot was 57 percent in grain and 48.36 percent in fodder. WUE ranged from 62.5 to 119.6 kg /ha. cm with an average of 93.44 kg / ha cm. The percentage increase in WUE over check plot was 112.5 percent on an average.

5.4.2 Water management demonstrations

All types of crops specially cereal crops were raised with the conjunctive use of tank and bore well water or only tank water. Technologies adopted include: integrated water management practices like improved water conveyance, appropriate layouts and irrigation methods, irrigation at critical stages with other package of practices. The highest average yields attained were: 65.75 q /ha in



paddy, 33.33 q /ha in ragi and 265 q/ha in tomato in EDZ; 56.0 q /ha in maize in CDZ and 36.44 q /ha in hybrid jowar in zone NDZ. The percentage increase in yield of demonstration plots over check plot on an average was- maize: 53.62 percent, paddy: 51.15 percent and groundnut: 39.46 percent.

5.4.3 Arable crop demonstrations :

Both the University consultancy services organized demonstrations mostly on cereals, millets and oilseed crops. Emphasis was laid on the use of hybrid / high yielding varieties, bio-fertilizers, organic manure, vermin compost, NPK and bio-pesticides. The average yield of paddy was highest 78.3 q /ha in NEDZ, ragi 32.15 q /ha in EDZ and maize with 58.2 q /ha in CDZ. Percentage increase in yields in demonstration plots over check was highest in Rabi jowar with 114.86 percent followed by paddy 36.0 percent and ragi 31.0 percent.

5.4.4 Horticultural crop demonstrations

The crops covered were basically vegetables in different combinations. The production technologies include, use of hybrid and high yielding varieties, seed treatment, appropriate irrigation methods, use of bio-fertilizers, NPK and bio-pesticides. The highest yields attained in demonstration plots were: potato: 350 q /ha, Hy. Tomato: 474 q /ha, beans: 120 q /ha and cauliflower: 394 q/ha. At times paddy crop was taken as a check.

5.4.5 Farmer's Field Schools

FFS were organized extensively around agricultural and horticultural demonstrations by both the Universities. In a majority of schools 5-6 sessions were held though in few villages 8 sessions were organized. On an average the participation of members in each session was 20-22 out of 30 registered; the members learned about seed germination, tillering, agro-eco- system analysis, identification of pest and diseases and their control, by practice and observation. The yield of sunflower increased by 79.84 percent, paddy by 52 percent, tomato



by 50 percent and ragi by 25.71 percent on an average in these FFS plots over check plots.

5.4.6 STV training programmes

On an average 2-4 STV members have been trained from selected villages on entrepreneurship development (EDP) and skill development (SDP). These were trained on IWM, IN M, IPM, animal husbandry, sericulture etc. Some trained farmers have disseminated the knowledge gained to other farmers in the community. The trained Water distributors (Neeragantis) on I W M were found to be most productive.

5.4.7 Soil testing

Though soil testing results were made available to the TMI's by the Universities in many communities, these were not distributed to farmers on time. Farmers were not helped to apply fertilizers to their crops based on soil test results though soil maps were prepared and put up in TMI offices.

5.4.8 Other educational activities

Educational activities like Field Days around demonstration plots and at University campuses in Bangalore and Dharwad, method demonstrations in the preparation of 4% NSKE , panchagavya, and Bordeaux mixture; paddy sowing in jalasri / SRI method , vermin composting; field visits and interaction sessions, have helped the farmers to gain new knowledge and skills.

5.4.9 Silt application

Farmers have used silt ranging from 35 t /ha to 225 t /ha with an average of 140t /ha, and obtained better yields in cereals, millets and oilseeds even without fertilizers. The yield of Paddy was 71 q /ha and gross income of Rs.42, 227 / ha with the use of silt at 150 t /ha + FYM at 5t /ha and NPK at 100:50:50 kgs /ha while ragi, sunflower and groundnut gave better yields and income with silt at 150 t/ha and recommended doses of fertilizers.



6.0 Social Inclusiveness

6.1 Membership in TUG

- Equal opportunities are given to all sections of the community to become members in TUG. On an average 254 persons per TUG have taken membership.
- Women and SC/ST groups are given fair representation.
- Of the total membership 51 percent were men and 49 percent women.
- The proportion of SC/ST members per TUG is 35.2 per cent.

6.2 Membership in TUC

- The inclusiveness of SC/ST groups and women is ensured in TUC.
- There are 16.2 members per TUC, on an average, of this, 63.4 percent men and 36.6 percent women.
- The percentage of SC/ST members in TUC is 35 percent. Out of this 44.6 percent women and 55.4 percent men.

6.3 Membership in WIG

- There are 9.8 members per WIG on an average, 40.4 percent belong to SC/ST and 59.6 percent others.

6.4 Membership in the Sub-committees

- Sub-committees are formed in almost all TMIs. The average number of members in each sub-committee is 5 to 6, depending upon the size of TMI.
- The representation of SC/ST members in the sub-committees is 41 percent.



6.5 Participation

6.5.1 Participation in TUC meetings

- The average number of meetings conducted per TUC is 23.8, across the four phases of implementation, namely, pre-planning, planning, implementation and post-implementation.
- On an average, 17 members participated in each meeting. Out of which 72.6 percent men and 27.4 percent women. The women's participation is not in proportion to their membership in TUC (36.6 percent).
- The participation of SC/ST groups in TUC meetings is good and encouraging. About 39 percent of the participants in TUC meetings are from SC/ST groups.

6.5.2 Participation in Gramasabha

- The average number of Gramasabhas conducted across the four implementation phases per TMI is 18. The average number of persons participated is 62 per Gramasabha.
- The women's participation in Gramasabha is 33.2 percent.
- The participation of SC/ST members is 47.6 percent.

6.5.3 Participation in WIG

- The average number of meetings conducted per WIG is 2 and the number participated is 7.
- The participation of SC/ST groups in WIG meetings is 39.6 percent.

6.5.4 Functional literacy programme

- The total number of functional literacy classes conducted across the project is 237.



- The total number of beneficiaries is 3368 (18.5 persons per sample village).
- Members belonging to SC/ST groups were the major beneficiaries, as they account for 50.6 percent of the total beneficiaries.
- The success rate of functional literacy in terms of completing the course and passing the examination is 56.4 percent only.

6.6 Resettlement Action plan (RAP)

- The encroachment problems have been reported only in 10 of the sample villages, and the total number of families identified was 28. Out of which 19 belong to SC/STs.
- The compensation given was land (8 families in 3 villages) goat, sheep and milch animals (19 families in 5 villages) and Business (one family).
- The average financial assistance given per PAF is Rs.34,956.
- The average income generated per PAF ranges between Rs.2 to Rs.13 thousands.

Dairy activity - Rs.6 to 7 thousands

Business - Rs.9 thousands

Land - Rs.13 thousands

6.7 IG Activities

- The IG activities have been fairly well implemented in the sample villages. The total number of beneficiaries is 6625. On an average, 41 families per village have been benefited.
- Out of the total beneficiaries, 48 percent belong to SC/ST groups.
- The average amount provided per family comes to Rs.2182



6.7.1 Linkages with Banks

- Bank linkages have been obtained by 26.8 percent of the total beneficiaries. The average assistance obtained per beneficiary amounts to Rs.2624.

6.7.2 Beneficiary contribution

- About 61 percent of the beneficiaries have contributed their own funds for taking up IG activities. On an average, each beneficiary has invested about Rs.1150.
- Across the zones, in NTZ almost all the beneficiaries have contributed their own funds for IG activities. The contribution per family ranges between Rs.569 to Rs.3300.

6.7.3 Income generated through IG activities

- A net income of Rs.2844 per family has been generated through IG activities.
- In NTZ, the average income generated amounts to Rs.3121.

6.7.4 Repayment of IG funds

- On an average Rs.444 per family has been repaid in the sample villages.
- In NTZ, the amount repaid per family comes to Rs.968.

6.8 Kitchen Gardening

- The total number of beneficiaries from kitchen garden is 1724.
- Out of this, 52 percent belong to SC/ST.
- On an average Rs.144 per family was given.
- The average income generated from kitchen gardening ranges between Rs.300 to Rs.800.



6.9 Employment generation

- Wage employment has been generated across the project tanks. On an average 861 person days of employment per sample tank has been generated.
- SC/ST groups are the major beneficiaries of the additional employment generated. SCs accounted for 36.6 percent and STs for 25.5 percent of the total beneficiaries.
- The additional employment was shared by 65.3 percent of men and 34.7 percent of women. Men were the major beneficiaries.
- The average rate of wages paid was Rs.60 per day. Male labourer was paid Rs.63 (Average) and female Rs.53.

6.10 Seasonal Migration

- The out migration from the project villages has come down by 24 percent and in-migration has increased by 9.4 percent. In the control villages the out-migration has increased by 12 percent and in-migration reduced by 2.7 percent.
- Out-migration has come down more (52.9 percent) in CDZ, when compared to other zones.

6.11 Income, Expenditure and Assets

- **The average income per beneficiary** household of the project villages has increased by 15 percent from Rs. 17,154 in the base year to Rs.19,729 after the project. In the control villages the increase has been only 3 percent, from Rs. 17,037 in the base year to Rs. 17,548 after the project.



- **The expenditure on food** has increased from 57.3 percent in the base period to 63.3 percent (6 percent increase) after the project. In case of control villages the increase was only marginal, 0.7 percent
- The number of households owning **sheep and goat** has increased from 53 in base period to 388 after the project (632.0 percent). In case of control villages the increase is from 25 to 40 households (60 percent).
- The no. of households owning **milch animals** has increased from 76 to 287 (277.6 percent) in the project villages and in the control villages it is 18 to 24 households (33.3 percent).
- The no. of households owning **transport equipment** has increased from 37 to 95 (156.7 percent) in the project villages, in control villages it is 22 to 33 households (66.7 percent).
- The no. of households owning **electronic appliances** has increased from 63 to 191 (203.2 percent) in project villages, and it is from 56 to 72 (28.6 percent) in control villages.
- The percentage of families **below poverty line** (BPL) (Rs. 11,800 and below annual income per family) has come down from 70 percent in the base period to 56.9 percent after the project (13.6 percent reduction) in the project villages.
- The percentage of families **above poverty line** (APL) has increased from 29.5 percent in the base period to 43.1 percent after the project.
- In case of control villages the percentage of **BPL families** has come down from 51 percent in the base period to 46.6 percent after the project (4.5 percent reduction). The **families in APL** have increased from 48.9 percent to 53.4 percent after the project.



6.12 Institutional Development and Capacity Building

6.12.1 Mobilization of Membership

- The average number of households per sample village is 169. Out of this 119 households (70.4 percent) per village had taken membership in TUG. Number of persons enrolled as members is 238 per TUG.
- The membership fee collected comes on an average to Rs.11.6 per member. There is no uniformity in the membership fee. It ranges between Rs.11 to Rs.50 per member.
- The records of membership and fee collected have been maintained and kept upto date in 81 percent of the sample TMIs.

6.12.2 Mobilization of contribution

- Different methods and means were adopted to collect 6 percent cash contribution from the beneficiaries.
- The average amount collected per TMI as 1st 3 percent contribution works out to Rs.28,266 and that of 2nd 3 percent to Rs.24,580. The total comes to Rs.52,846 per TMI.
- The primary stakeholders (Command area farmers) alone have paid 6 percent cash contribution in 120 out of 182 TMIs (65.9 percent). In others, the combination of command and catchment farmers, TUC office bearers and also the JCB agencies in some places, have paid the 6 percent cash contribution.

6.12.3 Contribution through voluntary labour

- The survey data reveals that 64.8 percent of the sample villages have reported Shramdhan contribution for doing certain works.



6.12.4 Transparency in Institutional Functioning

- Transparency through information display has been maintained in a limited way in majority of the sample TMIs.
- The office name board has been displayed in 112 out of 182 sample TMIs (61.5 percent) wall writing of ITDP details in 143 (78.6 percent), Circulars, Brochures and Guidelines in 23 (12.6 percent), List of office bearers in 54 (29.7 percent) and Circulars on day to day progress in only 8 (4.4 percent) TMIs.

6.12.5 Regularity in following Mandatory Requirements

- The survey results show that mandatory requirements to ensure institutional sustainability have not been systematically followed in all the TMIs.
- Auditing of accounts is being carried out regularly in 75.8 percent of the sample TMIs.
- Annual General Body (A & M) meetings were held regularly in 73 percent of the TMIs.
- The renewal of registration was done in 58.2 percent of the TMIs.

6.12.6 Awareness of Bye-laws and regularity in conducting meetings

- Awareness levels of the community about Bye-laws is not encouraging.
- Only in 54 TMIs out of 182 (29.7 percent) the awareness is good, in 73 (40 percent) it is moderate and in the rest of 55 TMIs (30.2 percent), the awareness is poor.
- The frequency of conducting various statutory meetings is not strictly according to the Bye-laws. Mostly the meetings held are need-based.



6.12.7 Book keeping and Record maintenance

- The record keeping is fairly good across the sample TMIs.
- More than 90 percent of the TMIs have maintained records related to meetings conducted, accounts books, bank pass books etc.

6.12.8 Capacity Building

- The survey results show that the stipulated training modules in different phases of project implementation have been conducted in all the sample TMIs.
- The documentation is not properly done, in some of the TMIs.
- The number of participants on an average per training in pre-planning and planning was about 50 persons, which has come down to 26 in implementation phase.
- The number of Para professionals trained Under STV programme comes to 3.2 persons per village.

6.12.9 Perceptions of the Beneficiaries about Trainings

- About 90 percent of the participants in trainings have expressed their satisfaction about the utility of trainings in general.
- The contents of 14 modules covering various aspects of project implementation are good enough, according to 88 percent of the participants.
- Some participants (11.3 percent) feel some more details are required, mostly covering record keeping and O & M plans.
- According to 95.4 percent of the participants the contents of each module are relevant to the project objectives.



- The time provided is adequate enough according to 90 percent of the participants.

6.13 Command Area Management – O & M plans

- Majority of the sample TMIs (81.3 percent) have reported that the O & M plans have been prepared. But only 14.9 percent of them have operationalised those plans.
- Seasons-wise crop plans have been prepared by 57.7 percent of the sample TMIs, followed by 62.6 percent for cleaning distributory canals, 57.7 percent for water supply and regulation and 54.4 percent for irrigation water management.

6.14 Resource mobilization

The major sources for resource mobilization are fisheries, water tax, sale of tank silt, auctioning of turfing grass, sale of jungle cutting and so on.

Income generated through various sources:

Fisheries	: Rs. 23,677 per TMI	- 51 tanks
	: Rs. 540 per hect of water spread area	
Water Tax	: Rs. 6912 per tank	- 15 tanks
	: Rs. 206 per ha. Of command	
Sale of Silt	: Rs. 3863 per tank	- 6 tanks
Sale of Grass	: Rs. 3435 per tank	- 10 tanks
Brick Making	: Rs. 10,667 per tank	- 3 tanks
Sale of Jungle cutting	: Rs. 6750 per tank	- 4 tanks
Usufruct rights	: Rs. 8489 per tank	- 14 tanks
Others	: Rs. 4953 per tank	- 6 tanks



6.15 Corpus Fund

The concept of corpus fund per se and its administration and advantages have not yet properly been understood by the communities across the project area.

Out of 182 sample TMIs, 176 (96.7 percent) have reported that the funds were generated for tank management and kept in fixed deposits in the Bank.

On an average, Rs. 41,912 per TMI has been deposited. It accounts for about Rs. 1111 per hectare of command area.