Report Number: ICRR14618

IEG **ICR Review**
Independent Evaluation Group

1. Project Data:		Date Posted: 06/30/2015		
Country:	India			
Project ID:	P071033		Appraisal	Actual
Project Name:	Karnataka Community-based Tank Management Project	Project Costs (US$M):	124.97	140.04
L/C Number:	C3635; L4872	Loan/Credit (US$M):	98.90	114.17
Sector Board:	Agriculture and Rural Development	Cofinancing (US$M):		
Cofinanciers:		Board Approval Date:		04/25/2002
		Closing Date:	01/31/2009	01/31/2012
Sector(s):	Irrigation and drainage (60%); Sub-national government administration (15%); General agriculture fishing and forestry sector (10%); Other social services (10%); Law and justice (5%)			
Theme(s):	Water resource management (25% - P); Rural services and infrastructure (25% - P); Improving labor markets (24% - P); Participation and civic engagement (13% - S); Decentralization (13% - S)			

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2. Project Objectives and Components:

a. Objectives:

The objectives stated in the Development Credit Agreement (p. 16) is : " to assist the Government of Karnataka in improving rural livelihoods and reducing poverty by developing and strengthening community-based approaches to improving and managing selected Tank Systems."

Project Appraisal Document statement of objectives is (p. 1): "to improve rural livelihoods and reduce poverty by developing and strengthening community-based approaches to improving and managing selected tank systems."

Both objectives state the same outcomes in slightly different ways. The Review assesses the achievement of objectives as stated in the Development Credit Agreement.

An additional financing loan of US$ 32 million was included in September 25 2007 in order to scale up project activities. A couple of changes to the outcome indicators were made in terms of greater involvement (85%) of marginalized users, and an increase in projected agricultural output; inclusion of income increase target (50 % increase) for the landless tank users as well as increase in tank numbers (the original tank number target was increased from 2,000, to 3710). There was no change to the Project Development Objective (PDO).

b.Were the project objectives/key associated outcome targets revised during implementation?

No

c. Components:

1. Establishing an Enabling and Environment for Tank Development (Appraisal Estimate: US$ 18.04 million, Actual: US$ 25.31 million).

There were two sub-components;

(a) Policy, Planning and Legal Environment. Key aspects were the preparation of legislation (Community-Based Integrated Tank Management Act); preparation of a long term strategy for community based tank management; development of decision support system for watershed management in the context of tanks; and preparation of a possible follow-on project.

(b) Project Management. Activities included: a GIS - based information system for the project area and state; a monitoring and learning system; two mid-term reviews; technical support services and studies related to tank systems; functional state and district offices for implementing agencies; and incremental staff costs.

2. Strengthening Community Development (Appraisal Estimate: US$ 32.97 million, Actual: US$ 13.41 million).

(ai) Human and Institutional Resource Development. Funds would be provided for contracting 5 anchor NGOs and about 55 Cluster Facilitation Teams to act as implementing agents; and for providing the necessary capacity building for these agents who would have primary responsibility for project implementation at the grass roots level.

(b) Safeguard and Gender Action Plans. Under this sub-component a number of plans would be prepared (a) Tribal Development Plans to protect the interest of Scheduled Tribes, Castes and Vulnerable Groups (b) Resettlement Plans for encroachers who would be displaced by the project, (c) Environmental Management Plans with measures to mitigate against potential negative impacts and to enhance positive impacts.

(c) Planning and Management Support to Tank User Groups. These funds were to cover the costs incurred by Tank User Groups (TUG) associated with the preparation of Integrated Tank Development Plans (ITDGs) .

(d) Communications. The project was to finance communications and information infrastructurecapacity building and training, and strategy development.

3. Undertaking Tank Improvement (Appraisal Estimate: US$ 111.76 million, Actual: US$ 101.32 million).

(i) Tank Civil Works Improvement. This, the largest sub-component of the project, aimed to improve tank storage capacity, to rehabilitate tank physical structure and infrastructure, and to reduce siltation by stabilizing drainage lines to the tank, and to improve water distribution and irrigation systems in the tank command area. Civil works for the original target of 2,000 tanks were increased to 3,925 tanks. The sub-component also contained provision for financing Tank User Groups and Communities' administration and management costs.

(ii) Agriculture & Horticulture Development. This was to be achieved by increasing farmer knowledge through on farm demonstrations. (crop production and on-farm water management) on a cluster of 20-30 tanks. Demonstrations were to be designed and supervised by staff from the Agricultural University & Krishi Vigyan Kendra. There was also to be a range of technical training for farmers and other tank users. Training was to have been provided by staff from local universities and line agencies, and would be given to staff of the implementing agencies and progressive farmers. Training would use the farmer field school approach together with study tours.

(iii) Technical Assistance for Other Income Generation. Training was to be provided for tank users without farmland. Subjects identified included fisheries, livestock, and forestry. Training was to be provided by the Department of Fisheries and the University of Agricultural Science.

(iv) Technology Development. The aim of this sub-component was to test, develop and pilot improved systems of irrigation, and crop production in the state.

d. Comments on Project Cost, Financing, Borrower Contribution, and Dates:

Project Costs:

Total costs increased from the appraisal estimate of US$ 124.97 million to US$ 193.24 million because additional financing was added to the project to enable expansion to new districts with additional beneficiaries. Revised cost at project closing was, US$ 140.04 million.

Financing:

The original IDA Loan was US$98.90 million and no IBRD loan was planned at apprasial. After the Indian Ocean tsunami, total project funds of SDR 16.58 million (US$ 25 million) were transferred to the post-tsunami rehabilitation in April 2005 [US$ 2.9 million was from IDA funds]. Additional financing of US$ 32.00 million equivalent was added from IDA and US$ 32.00 million from IBRD funds on Sept 25, 2007. By project closing, US$ 91.87 million had been

disbursed from IDA funds and US $ 22.29 million from IBRD funds. Prior to closure of the project, US$ 35 million was cancelled from IDA funds and US$ 9.71 million was left undisbursed. The reason for that is there were still some remaining works to be done for 1,761 tanks by project closing and no extension was granted to complete the works, and also exchange rate variation between US$ and SDR resulted in some savings.

Borrower Contribution:
The Borrower contribution was lower than that anticipated at appraisal. It was expected that the Borrower would provide US$ 30.34 million. The actual contribution was US$25.88 million. The ICR did not report on the reasons for lower than expected borrower contribution.

Dates:
On September 25, 2007, at the time of approval of additional financing, the original closing date of January 31, 2009 was extended to January 31, 2012 to enable implementation of of the Additional Financing.

3. Relevance of Objectives & Design:

a. Relevance of Objectives:
Substantial.

The project development objective is, on balance, substantially relevant to country priorities and sector strategies although it is broad and overly ambitious, a point that is taken up below under Relevance of Design. The Project development objectives were relevant to the Country Assistance Strategy (CAS) (FY 08-12), as the CAS's first Pillar-achieving rapid and inclusive growth, set the objective of improving agricultural productivity, rural connectivity, and rural livelihoods in states and regions supported by WB operations. The CAS described the country conditions around water issues as (p. 15): "A massive concentration of people compounded with high poverty rates and a monsoonal climate creates susceptibility to hydrological shocks as well as potential for the productive development of water resources.....Cross-cutting priority reforms where activities are already underway include: decentralized and participatory service delivery mechanisms, with a particular focus on improving customer/user service, enhancing accountability and transparency, and extending service to the poor."

The state of Karnataka has the second largest arid zone in India after Rajasthan, and a large proportion of the population is dependent on highly variable rainfalls and arid zone water harvesting systems. The ICR reported that (p. 14) in the state there are approximately 20,000 small tanks, which mainly provide irrigation to areas between a few to several hundred hectares, and also supply water for livestock and household uses. Due to lack of funds these tanks have suffered from sporadic civil works activities and little maintenance. The project was thus conceived, and approved in 2002, to build on policy changes formulated by the State around 2000, such as recognition of water user groups, including multi-stakeholder tank user groups (TUGs), and greater decentralization of resource management. The State also established in 2000 a flexible and semi-autonomous support institution, water management improvements society, and also moved toward the gradual devolution of rights of user groups to collect water charges for maintenance.

b. Relevance of Design:
Modest.

The design had shortcomings. The project had a broad and overly ambitious objective which did not adequately reflect the fact that it played a partial role in improving rural livelihoods. Particularly the part on reducing poverty, thorough improving and selecting tank systems was quite unrealistic. Project components, provided technical assistance to tank users groups on tank management and demonstrations on agriculture and horticulture development as well as rehabilitation of tank physical structure and infrastructure, and to reduce siltation by stabilizing drainage lines to the tank, and to improve water distribution and irrigation systems in the tank command area. However, it was overly optimistic to expect a significant improvement in agricultural yields and production resulting from project investments that would lead to substantial improvements in income as well as reductions in poverty levels. Another issue with design was that it required a phased approach: the poverty reduction sub-objective required targeting disadvantaged areas and communities; however the community based approach necessitated testing the approach first in areas where the environment (climate, local leadership, local commitment) was likely to lead to more successful outcomes and then expanding the model to more challenging localities and communities. Such a phased approach could not be followed.

4. Achievement of Objectives (Efficacy):

The objective of, "improving rural livelihoods and reducing poverty by developing and strengthening community-based approaches to improving and managing selected tank systems".

Outputs:
Project outputs served both objectives. The outputs are summarized as follows:

- Long-term institutional strategy and development plan for the implementation of community-based and demand-driven tank management was prepared but the report's recommendations did not reflect project experience and Tank User Group and JSYS experience, and alternative structures were recommended by the report.
- In terms of decision support system for planning, operation and management of water resources various information systems were put in place. However these were never integrated in a manner as to provide watershed/catchment based planning.
- A web-accessible GIS system was established for the project, which became operational only in the later stages of the project.
- In total 3,126 TUGs have been registered with a total membership of 1,162,000 of whom 50 % are women.
- 3,710 tanks out of the revised total of 3,925 have been taken up for project implementation for civil works. However at closure only 1,640 tanks, less than 50 % of the revised target number had been handed over to TUGs as rehabilitated. The rest is being completed by government funds. The ICR provided no quantitative information on the quality of rehabilitation work undertaken on the 1610 tanks that have been handed over or of the extent of works required to complete rehabilitation on the balance of tanks. The IA was based on a sample of only 200 tanks. The IA reports that some 50 % of beneficiaries sampled consider the quality of rehabilitation to have been 'average'. This suggests that there were shortcomings in the principal project intervention, but these have not been addressed in the ICR analysis.
- Tank rehabilitation works : 58 million cubic meter of silt was removed, majority of which was placed on farm lands to increase crop yields. Over 7.5 million cubic meter of bund strengthening and several sluices were fixed to address water cause. (No targets were set on these) Field channels have been cleared. The water levels increased in surronding wells by 506 feet despite an increase of pumping.
- 9,882 ha and 35,233 farmers were covered via 1,337 demonstrations on water management and farming systems and various crops, and achievement was below targets on area (14,545 ha planned) and number of demonstrations (1,343 planned demonstrations).
- Farmer field schools covered 88,000 farmers and 20 different crops.
- 147,000 soil samples were collected and analyzed. Soil fertility maps were prepared and distributed to tank user groups.
- Workshops served 15,749 people and 194 study tours served 9,700 participants.
- In terms of income generating activities, 99,453 beneficiaries were selected in total (30-100 beneficiaries from each tank depending on tank command area) with preference on families below poverty line, landless people, female landowners and widowed or divorced people, who received a loan of Rupees 2,000 , including kitchen gardens with no interest and 1 year duration.

Intermediate Outcomes :

Improving and managing selected tank systems . At closure, during the 10 years of project implementation, it is reported in the ICR that in total 3,126 TUGs have been registered with a total membership of 1,162,000 of whom 50 % are women and covering 3,710 tanks (This was lower than the revised target of 3,925 tanks). A major problem reported was the lack of experience of TUGs and other implementing agencies and contractors in executing tank rehabilitation works. Considerable doubt is reported in the ICR over the sustainability of the TUGs, as they do not appear to be able to raise sufficient income to cover cost of future tank repair and maintenance (page 35).

The final outcomes were intended to be self-financing TUGs & TUCs able to maintain rehabilitated tanks in future without government or project support. While TUGS & TUCs were established for all project tanks, their performance in terms of contribution to rehabilitation works was mixed. They are reported to have kept good records of expenditure, but most were unable to provide sufficient labor from members for physical works, and few are reported to be active following the handover of rehabilitated tanks. Indeed, Impact Assessment reports that the TUGs & TUCs becoming self-financing after the handover of rehabilitated tanks has not materialised and many TUCs have ceased operations. In the 200 tanks surveyed, none of the committees were functioning. Furthermore more than 85 % of the TUGs report that their anticipated income is insufficient to manage tanks after handover. All reported that they need further financial and technical support. O&M activities were particularly difficult in drier areas where it is even more challenging to collect water charges. O&M mechanism for further technical assistance and finance is needed particularly for drier areas, however, this has not been developed.

The ICR also reported that (p. 40), despite the fact that the project was about water management and use of water there were no water management specialists on the project, at any level, and water management at the tank level was poorly understood, and little practical guidance was given to TUG management and water users on alternative

approaches to water management. This is also linked to sustainability of O&M efforts as limited water management service by TUGs mean the water users will not be willing to contribute to the costs of maintaining the service.

Meaningful participation of traditionally marginalized tank users . An impact study of TUG membership indicates that some 30% of members come from Scheduled Caste and Tribes and half of the members are women. However at the time of the Additional Financing it was envisaged that 85 % of beneficiaries would come from marginalized communities. The ICR points out that the AF documentation does not accurately define 'marginalized' (p. 70) making it difficult to know whether marginalized groups were in fact assisted.

Institutional Sustainability . The project design called for the use of a new independent society JSYS to act as the nodal agency for community-based tank management interventions under the project. Technical staff was to be transferred to JSYS from existing line agencies responsible for irrigation, such as the Water Resources Department that has responsibility for tanks with a command area of more than 40 ha, and the departments of Horticulture and Agriculture. It was envisaged that JSYS would have sole responsibility for tanks within the project area of 40 ha. Panchayat Raj Institutions (PRIs) would retain responsibility for tank systems of less than 40ha command. A study was to have been undertaken to determine the respective roles of JSYS and PRIs, as it was recognized that the formation of JSYS had the potential for conflict and duplication of responsibilities. Furthermore, in contrast to the changes that have taken place in the approach to tank development and management adopted by JSYS, the approach adopted by the State Minor Irrigation Department (MID) does not appear to have changed significantly over the project period. Based on the work carried out by the MID under the government funded Repair Renovation Restoration (national program), tank rehabilitation and repair lessons from the JSYS approach have not been adopted, with the MID focusing on physical works only, with little, if any engagement with tank user groups or tanks users. This is mainly because of lack of resources and staff. This points to deeper institutional issues with regards to irrigation and tank management. The status of JSYS was not clear at project closing in terms of longer term support to tank user groups (ICR p. 35).

Adoption of technologies by farmers . The 2012 Impact Assessment study reported on adoption of various technologies, but the ICR note that (p. 74) this was particularly difficult to measure as there are many external influences, such as numerous government subsidy schemes promoting similar technologies. However, the results showed that while some technologies were well received by the project (i.e. seed treatment), others were already widespread (i.e. farm yard manure) and a lack of a suitable indicator specifically for chemical fertilizers shows no impact of the project. Overall the adoption rates for water management was mixed, the ICR reported that at least 37% of farmers had adopted improved water saving techniques (alternate furrow, border check, broad beds and alternative wetting and drying) all of which provide significant water productivity increases over the traditional field to field irrigation. However, the target of at least 60 % of farmers practiced double cropping and improved farming practices, was not achieved.

Outcome:

(i) Improving rural livelihoods , rated substantial .

Agricultural production (productivity and area) in the tank system. At appraisal targets were set for an increase in overall agricultural production from 2,000 improved tanks of 75,000 tons per annum. This was expected to come largely from a 40 % increase in paddy production as a result of increased water availability. The ICR provided some evidence on increased agricultural production for the rehabilitated tank users compared to the control group but the project failed to meet the targets on completing the tank rehabilitation works.

A study conducted in November 2011 by JSYS of completed and handed over 115 tanks (covering different agro-climatic zones) compared results for 2010-2011 cropping season and 2005-2006 as the baseline period. An overall increase of 19.79% with regard to actually irrigated area was detected (less than the 25 % increase target) and GPS tracking and satellite images as well as focus-group discussion with the command area farmers have been used to estimate the pre-rehabilitation irrigated area. It was also estimated that there was 44.83 % increase in available water volume and 20.88 % increase in per ha water availability.

An impact assessment (IA) commissioned by the main implementing agency (JSYS) at closure was undertaken by the Centre for Management and Social Research, Hyderabad on 200 project tanks and 30 control non-project tanks in January 2012. It suggested that increase in irrigated area by project participants were 15 % more than the control group. Also, the assessment found that total production increased by 47 % on average compared to the control group with 12 % (35 % incremental increase over control group, meeting the target of 35 % production increase for at least 50 % of the farmers).

However the data is not disaggregated, and does not quantify productivity and production gains according to the

number of farmers or the area on which such gains were achieved. Furthermore, only 42 % of the target number of tanks were rehabilitated by closure (only 1,640 tanks against the revised target of 3.925 tanks). Therefore, although % increases on production and productivity were achieved for the command areas of the rehabilitated tanks, the project significantly failed to meet the targets on completion of tank rehabilitation works.

In addition to an increase in crop production an extra 7500 tons of fish was anticipated by year five. This activity was unsuccessful with an achievement of only 9% of the target output reported in the ICR. To some considerable extent this shortfall in production increases can be attributed to the delays reported in the ICR associated with implementing rehabilitation works.

It is important to note that the ICR did not provide any information on the distributional efficiency of water, since in water scarce environments it is key to detect the effects water availability between the head end water users and the tail end users. However, the ICR reported that (p. 41), "A more comprehensive indicator was needed to measure a reduction in the quantity of water abstracted given the improvements in distribution efficiency, scheduling, level of control over water, on-farm application, and water management. Further work is required to measure water abstraction against water demand based on crop type, area and irrigation requirements". It was also stated that the potential negative effects of the increased number of borewells on groundwater availability as a response to increased recharge was also not assessed.

Household Incomes of direct stakeholders. The target was 'at least 50 % of the farmers increase income by 25 % over the baseline". The target was achieved, at closure the ICR indicates, that incremental farm income increase was 33 % (net income increase by 76 % compared to 42 % increase for control group). Again the income increase were for the tank users of the rehabilitated tanks and the project failed to meet the overall target for the tank rehabilitation, by the time the project closed. However, the project team subsequently informed IEG that the remaining works were completed by the government resources and handed over to tank user groups.

In terms of landless tank users the target of 'at least 75 % of landless tank users increased their income by 50% over the baseline via income generation activities' was not met. Incremental income increase for those benefited from income generation activity beneficiaries was 15 % (56 % by beneficiaries against 41 % for control group). However, there was no specific monitoring of landless beneficiaries by the project.

(ii) Reducing poverty, rated modest.

The ICR did not include outcome indicators to monitor poverty levels. Also no monitoring of poor or landless households was undertaken. The ICR only provided some estimations on poverty related outcomes without giving the details of the assumptions, therefore the rating of achievement of this objective is assessed as modest.. It was reported that (p. 31), based on the Impact Assessment 2012 results, average farm financial income, at constant 2012 prices, increased by Rs. 8,015 per year for an average holding size of 0.75 ha, which is sufficient to lift at least one member of the farm household above the poverty line based on the Indian Planning Commission estimates for rural Karnataka for 2004/05, updated for constant 2012 prices using inflation index. The ICR also estimated that about 70% of the project beneficiary farmers were resource poor marginal farm holders. In terms of directly benefited population in the project farm families, about 14% of them, namely 149,730 rural poor potentially benefited by the poverty alleviation impact due to increased farm income.

5. Efficiency:

Modest

At appraisal the project had an internal economic rate of return, inclusive of all project costs of 17.6 %, with most benefits attributed to increased agricultural production. Calculated financial internal rates of return ranged from 12-26 % depending upon tank command areas, with farm incomes expected to rise 13-64 %. In total (PAD and AF), it was estimated that improved irrigation would take place on 132,829 ha and that the average yield of paddy, the main crop, would increase by 11-45 % and other cereals, oilseeds and pulse by 9-35%. Net income from fisheries was expected to rise by over 100%.

At closure the total improved area was 141,312 ha an increase of 6% over the original target. However, crop yield improvements were much less than anticipated for paddy (yields averaged only 50% of targets) and oilseeds, although other cereals and pulses exceeded targets. The ERR estimated at the time of closure in the ICR on the same basis as that calculated at appraisal for the project at full development is 17%, reflecting the increased area commanded, but lower than anticipated paddy, oilseed, and fish production. The PAD and AF calculated net Present Value at Rupees 3.0 billion & Rupees 2.4 billion respectively. The ICR however calculates the NPV significantly lower at 1.1.

Despite some cost over-runs, the project could only finish less than 50 percent of tanks. In addition, serious delays

were associated with both implementation and realization of benefits. Less than half of projected expenditure had taken place by year nine, with the balance being spent in the last two years of the project implementation period. The result of these delays was a considerable delay in the flow of benefits. The PAD & AF assumed full potential benefits would flow in years 3 and 6 respectively, whilst in practice it now seems that 50% benefits will not flow until year 11, and full benefits only in year 15, which is 5 years after project closed. Also, given that difficulties that are reported with the financing of TUGs after handover it seems probable that over the years the production potential of some tanks may actually decrease as a result of poor maintenance. If this is the case the economic rate of return may well not be as high as estimated in the ICR.

Furthermore a considerable amount of project expenditure was for project management, legislative developments, and human resource development. Given the delays in project implementation it would seem that neither of these investments have provided value for money. Overall, given that most of the project funds had been spent at closure, and the benefit streams have been seriously delayed and may never be fully achieved, the efficiency of fund utilization is assessed as **Modest**.

a. If available, enter the Economic Rate of Return (ERR)/Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point Value	Coverage/Scope*
Appraisal	Yes	17.6%	100%
ICR estimate	Yes	17%	100%

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome:

There were moderate shortcomings in the achievement of outcomes. The relevance of objectives was substantial but relevance of design is modest due to broad and overly ambitious objective of poverty reduction that was not closely linked to the project components. Achievement of the objective-improving livelihoods- is rated substantial based on the evidence that agricultural yields and incomes increased for the project beneficiaries due to the project and although more than 50 % of planned tanks were left unfinished during the duration of the project; they were completed in six months after the project closed. The achievement of the objective-reducing poverty- is rated modest due to lack of evidence on this outcome. Project efficiency was also modest, due to significant delays in implementation and, therefore, the flow of benefits; as well as cost over-runs.

a. Outcome Rating: Moderately Satisfactory

7. Rationale for Risk to Development Outcome Rating:

There are significant financial, social and institutional risks associated with the development outcome. In the first place is a risk that following project closure there will be insufficient financial resources available to complete full rehabilitation of the target number of tanks. It is reported that the Government of Kanataka has committed Rupees 1200 million to complete tank rehabilitation subsequent to project closure. There is no indication of whether this is sufficient to complete outstanding works. It is reported that works have been completed partially or totally on 1,829 tanks, of which 1610, have been handed over and initiated on the balance of 1881 tanks to make up a total of 3,710 tanks. The extent of partial completion and initiation is not explicit, but the amount of money committed by the GoK is only sufficient to undertake full rehabilitation on 800 tanks at an average cost of Rs.1.5 million per tank. Given problems with delays in implementation in the past it would seem likely that insufficient funds have been committed for full completion of all outstanding works.

The main social risk is the reported failure of most TUGs to be sustainable. In general after the handover of rehabilitated tanks few Tank User Committees were still operational and most TUGs report financial problems, with less than 25% of members paying their membership fees. Without this income, TUGs will not be able to undertake tank operation and maintenance operations in future. The failure of members pay their fees is attributed to the failure of the project to result in significant increases in crop production and farmer income. It is not clear whether this was due to internal project shortfalls in farmer training, or exogenous factors, such as falling commodity prices or inflation of input prices that have discouraged farmers for intensifying production.

The principal institutional risks relate to uncertain associated with the future of the nodal implementation agency the

JSYS. Although it is reported in the ICR to have functioned well in the last two years of the project, and played a valuable role in project implementation the ICR indicates that there is uncertainty about its future now that the project has closed. A proposal had been submitted to the Executive Committee of the Board of JSYS calling for the JSYS to continue supporting TUGs established under the project, together with suggested changes to the Panchayath Raj Act rather than a new Irrigation Act. However it does not seem as if JSYS will have an expanded state-wide role in future as anticipated at appraisal, and that responsibility for tank repair and maintenance will revert to more traditional PRIs and farmer organisations. Given all these risks to the overall risk to the Project Development Objective is considered to be Significant.

a. Risk to Development Outcome Rating : Significant

8. Assessment of Bank Performance:

a. Quality at entry:

The preparation was over a lengthy period of time (21 months) and identified the need to improve the institutional arrangements for assisting communities improve tank operation and the need for supporting legislative changes.

The project objectives were strategically relevant in that in addition to addressing issues of rural poverty, gender and disadvantaged social groups; it addressed specific national and state policies for Water Management, linked to policies of decentralisation and the transfer of responsibility for asset management, including water, to users. There were only very minor environmental aspects associated with the project. However the design under assessed the risks associated with institutional and legislative reform. In particular the risks and difficulties associated with establishing and making effective a new agency (JSYS) as the nodal agency for implementation were not fully factored into the design. The design was partly based on discussions with NGOs believed to have experience of community-based tank operation. In the event however it transpired that few of these NGOs actually had sufficient practical experience of community-based tank operation. It also under assessed the risks associated with post project sustainability of TUGs, assessing this as Moderate even though earlier attempts at facilitating similar user groups had experienced serious difficulties. A World Bank Quality Assessment of lending Portfolio (QALP) in 2010 rated the quality at design as Moderately Unsatisfactory. This was attributed to an optimistic assessment of start-up rates, an underassessment of the capacity requirements, specifically a shortage of qualified field engineers, and a failure to fully appreciate the difficulties of institutional and policy changes called for. The ICR review considered that the improvement in project performance in the last years of the project indicate that the design was in fact better than the QALP assessment, and considered that the QAG was satisfactory. Overall, however, the extent of outstanding works at closure, despite the improvements in implementation mean that the preparation did not fully facilitate a project that had a high chance of achieving its development outcomes.

Quality-at-Entry Rating: Moderately Satisfactory

b. Quality of supervision:

There were several shortcomings with quality of supervision. The ICR reports that due to unstable leadership and shortage of supervision team some tanks were handed over to TUGs prematurely at the time of the Additional Financing in order to demonstrate sufficient progress to justify the AF. Furthermore the AF called for very ambitious new targets in terms of tank numbers to be rehabilitated despite the slow progress previously. There was also, limited attention for setting up funding mechanisms for O&M efforts. There were several weaknesses of the M&E framework and M&E implementation that needed attention; however the ICR did not provide any information on why the project team did not try address this point. Nevertheless there is clear evidence from the ICR review that the supervision missions did help address a number of critical issues during implementation, notably trying to ensure that the quality of civil works was sound, and impressing upon the government of the need to address issues such as the sustainability of the JSYS.

Quality of Supervision Rating : Moderately Satisfactory

Overall Bank Performance Rating : Moderately Satisfactory

9. Assessment of Borrower Performance:

a. Government Performance:

Government ownership and commitment was reported to be high during project preparation and at appraisal, but was weak during the critical early years of the project. There was also a notable failure of the government to enact legislation that had been called for in the project design. The Tank irrigation act which has been drafted is yet to be approved which will broadly address rights of TUGs, as well as on water charges. Serious staffing problems in the nodal implementation agency is also reported. Initial delays are also attributed to the government not being ready for implementation, and in particular a failure of JSYS to recruit sufficiently qualified field engineers, as the salaries offered were too low. Major implementation issues were not resolved until the last two years of the project when nearly 50 % of project funds were disbursed. The project has served as guideline for national program Repair Renovation and Restoration and other state projects, and while the concept has been welcomed the government position on the institutionalization and scaling-up of the community based tank management model, and of JSYS and its respective roles with Minor Irrigation Department, have been left hanging. Although, transition arrangements following closure have been made in the form of additional state government funding to complete tank rehabilitation, longer term transitional arrangements, in particular the future of JSYS remains uncertain.

Government Performance Rating	Moderately Unsatisfactory

b. Implementing Agency Performance:

Implementation arrangements were innovative and complex as described earlier, and implementation was generally poor until the final years of the project. This is attributed partly to staffing problems, notably low salaries and initially a failure to recruit and retain a competent Executive Director. There were also problems associated with the JSYS being in effect only a financial intermediary that relied on NGOs/CFTs to undertake civil works procured by TUGs, and problems finding suitably experienced NGO and Cluster Facilitation Teams. This was resolved in the second half of the project by JSYS bringing engineering support and civil works in house leaving CFTs to take care of social issues. This gave it better control of financial resources as well as better management control, but was contrary to the spirit of its original concept under which it was supposed to be an intermediary not an executing agency itself. To a large extent the shortcomings of the implementing agencies can be attributed to poor support from the GoK rather than their own performance and in the circumstances their performance is considered to be Moderately Satisfactory.

Implementing Agency Performance Rating :	Moderately Satisfactory
Overall Borrower Performance Rating :	Moderately Satisfactory

10. M&E Design, Implementation, & Utilization:

a. M&E Design:

M&E design intended to have four components: (i) performance tracking – to measure inputs, outputs and outcomes; (ii) institutional tracking – for organizational learning and performance enhancement (for JYSYS units and TUGs); (iii) Internal learning – developing project processes; and (iv) evaluation – to measure project impacts and outcomes.

There were some shortcomings of the M&E framework in terms of adequacy of outcome indicators and their linkages to the project development objective. There were no outcome indicators to measure poverty reduction sub-objective. Later on, with the additional financing, the indicators such as: 'Tank User Groups covering at least 85 % of traditionally marginalized tank users..' and 'At least 75% of landless tank users increased their income by 50 % of the baseline..." was included. However, it was 'marginalized users' were not defined. Also, no specific indicator monitored the actual poverty level reduction. Furthermore, data collection formats and systems did not reflect the data needs of the M&E framework.

b. M&E Implementation:

According to the ICR a consultant organisation was retained by JSYS to help develop an M & L system, but Bank missions in 2007 & 2008 found significant problems with the M & L system. Some of the problems found was: poor and disorganized collection, processing and reporting of project data; failure to report and present data in a format

useful for JSYS management and staff. The JSYS failed to appoint a suitably qualified and experienced M&E specialist. Two different M&E/MIS systems were established, one for the original project and one post Additional Financing. An online MIS system was developed later on but problems persisted in terms of unified data entry. Two independent M&E studies were undertaken in 2006-7 and 2011 to assess project achievements and make recommendations for changes in procedures.

c. M&E Utilization:

Following the first M&E study a number of procedural changes were introduced including an increase in tank size to above 20ha, and changes to some civil works specifications and simplification of bidding processes. Overall the M&E quality rating is Modest as there were significant shortcomings in the system design implementation and utilization.

M&E Quality Rating: Modest

11. Other Issues

a. Safeguards:

This was a category 'B' project as categorised by the Bank's safeguard policies for Environmental Assessment (OP4.01), Pest Management (OP4.09), Cultural Property (OP11.03), Indigenous Peoples (OP 4.20), Involuntary Resettlement (OP/BP 4.12) and Safety in Dams (OP 4.37 & BP4.37).

Environment. The ICR reports (p. 23) that although a formal Environmental Management Plan was not prepared the environmental management measures identified in the Environmental & Social Assessment (SEA) were followed. However, the ICR did not specifically report on safeguard compliance, i.e. provided any ratings from relevant safeguard assessments during implementation. Specifically, the Integrated Tank Development Plans for each tank were based on a comprehensive participatory rural appraisal that included awareness of the need for foreshore plantation in tank catchment areas, silt removal and re-utilization. The ICR reports that 80% of silt has been spread by farmers on their fields and that this has improved soil structure

Pest Management. Pest management considerations were address through training in Integrated Pest Management (IPM) with aim of reducing the use of chemical pesticides. Farmers received demonstration training on the use of IPM and it is reported that there has been some uptake by farmers. Integrated Nutrition Management has demonstrated the benefits from using compost made from worms (vermiculture) and the control of weeds in paddy by the use of covering crops.

Indigenous peoples. The ICR reports that some 30 % of TUG members were from scheduled Caste or Tribes, significantly more than the population as a whole.

Safety in Dams. While no specific dam safety measures are reported, it is reported that all the required tests for mechanical characteristics of soils and compaction quality were undertaken regularly, and that no defects were found in completed works.

Social Safeguards: The ICR reports(p. 23) that final evaluation of the social aspects of the project found the participatory approach helped considerably to navigate the politically delicate situation of encroachers in tank bed areas, and resulted in the voluntary relocation of 7,803 encroachers.

b. Fiduciary Compliance:

Financial Management: Supervision missions rated financial management as only moderately satisfactory in the early years until 2007. Thereafter for two years financial management was assessed as only moderately unsatisfactory due to the failure to appoint internal auditors and problems with account reconciliation. From 2010 things improved and in 2011 the FM rating was considered satisfactory, as reconciliation was carried out by the project (ICR p. 24). In the last 18 months, the project worked well in the FM area and consistently undertook the agreed actions. In view of the large numbers of advances and the number of entities involved in this operation, the FM risk was maintained as 'Substantial' throughout the project life, despite all mitigating measures put in place.

Procurement: This is reported to have mirrored overall Financial Management in that in the early years it was moderately satisfactory moving to moderately unsatisfactory at the mid stage but improving in the later stages when effective JSYS management was in place. The key element of procurement was the hiring by communities of CFTs & NGOs and topographic surveyors and contractors to do tank rehabilitation work. This proved problematic and it was difficult to assess progress of actual works, especially when TUGs hired their own members as contractors. In the

second phase of the project certified contractors were hired to undertake civil works and things improved. There were also changes to the procurement process which simplified and streamlined things.

c. Unintended Impacts (positive or negative):

d. Other:

12. Ratings:	ICR	IEG Review	Reason for Disagreement/Comments
Outcome:	Satisfactory	Moderately Satisfactory	The relevance of objectives is substantial but relevance of design is modest due to broad and overly ambitious sub-objective of poverty reduction that was not closely linked to the project components. Achievement of the objective-improving livelihoods- is rated substantial based on the evidence that agricultural yields and incomes increased for the project beneficiaries due to the project and although more than 50 % of planned tanks were left unfinished during the duration of the project; they were completed in six months after the project closed. The achievement of the objective-reducing poverty- is rated modest due to lack of evidence on this outcome. Project efficiency is also modest, due to significant delays in implementation, and, therefore, the flow of benefits, as well as cost over-run.
Risk to Development Outcome:	Moderate	Significant	There are considerable social, financial and institutional risks to achieving the project outcome. There is limited evidence that rehabilitation of all tanks will be completed to a satisfactory standard or that TUGs established under the project will be able to organise or finance future repair and maintenance operations.
Bank Performance:	Satisfactory	Moderately Satisfactory	Weaknesses in both Quality at Entry and in Bank Supervision were under estimated by the ICR. In particular with hindsight it is clear that the AF in 2007 was not correctly assessed, especially funding mechanisms for O&M efforts were lacking.
Borrower Performance:	Satisfactory	Moderately Satisfactory	Failure of GoK to address problems in a timely manner, and enact supporting legislation, as well as shorfall in counterpart funds and FM weaknesses during implementation.
Quality of ICR:		Satisfactory	

NOTES:

- When insufficient information is provided by the Bank for IEG to arrive at a clear rating, IEG will downgrade the relevant ratings as warranted beginning July 1, 2006.
- The "Reason for Disagreement/Comments" column could cross-reference other sections of the ICR Review, as appropriate.

13. Lessons:

The main lessons drawn by the ICR are as follows:

1. **Managing common property resources is highly challenging**. The evidence from the project indicates that it might have been better to focus on developing and testing community-based models of tank management in locations where the environment (climate, local leadership, community homogeneity) was conducive before up-scaling up to more challenging areas and communities.

2. **New institutional mechanisms need time and strong commitment to become effective**. The nodal implementing agency, JSYS, only became effective half-way through the project when it received full backing from the state government, and when it had established effective working relationships with other concerned and responsible line agencies.

3. **Integrating tank management with agriculture is critical**. This requires practical and sustained linkage and coordination between TUG farmers, and support agencies be they state departments, universities or other agencies.

4. **Monitoring , Learning and Evaluation systems need to be integrated** . Information systems should be strictly functional and related to stakeholder needs, and require strong management support and commitment.

5. **Management, operation and maintenance (O&M) – the managing of the tanks - needs to take a much more central stage from much earlier .** The project experience showed that more thought out systems, detailed planning, capacity building and basic institutional support, and more importantly policy such as for water charges, and associated resource mobilization – should be designed into the project. O&M plans need to be developed including TUG's O&M expense estimation and full required costs for the systems' adequate maintenance, irrigation scheduling and related subjects. Continuous monitoring and technical assistance in TUGs operations is essential for at least two irrigation seasons after the handing over of the systems.

6. **Greater focus on water management support services is needed particularly for sustainability of O &M efforts.** The project did not have a water management specialists at any level and water management at the tank level was poorly understood, and little practical guidance was given to TUG management and water users on alternative approaches to water management. Good water management – linked to crop planning – is central to service delivery and thus in turn to fee collection. The water users would contribute to the costs of maintaining the service only if they received adequate service on water management.

7. **It is important to monitor reduction in the quantity of water abstracted given the improvements in distribution efficiency, scheduling, level of control over water , on-farm application, and water management .** In water scarce environments, this is an important factor when more water is made available by head end water users to users in the tail end. Further work is required to measure water abstraction against water demand based on crop type, area, and irrigation requirements.

14. Assessment Recommended? ● Yes ○ No

Why? In order to verify project outcomes particularly for the tank rehabilitation works completed after the project was closed.

15. Comments on Quality of ICR:

The ICR is extensive, provides results and implementation challenges, and it incorporates the findings of an independent Impact Assessment (IA) undertaken at the end of the project. Also, the lessons section is quite comprehensive. However, there are also the following shortcomings: (i) Production increases reported by the ICR are not crop and area specific; (ii) There is limited and inconsistent information on the sustainability of investments, institutions and quality of construction work; (iii) Economic analysis does not consider the fact that due to the risk of limited O&M efforts after project closing, there may be deterioration in tank rehabilitation works and therefore

reduction in future benefit streams; (iv) The ICR did not report on the reasons for lower than expected borrower contribution; (v) There was lack of explicit statement in the ICR on safeguard compliance.

a.Quality of ICR Rating : Satisfactory