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July 11, 2013

Ms. Sheela Balakrishnan
Chief Secretary
Government of Tamil Nadu
Secretariat, Fort St. George
Chennai- 600 009
Tamil Nadu

Dear Ms. Balakrishnan:

India: Tamil Nadu Irrigated Agriculture Modernization and Water-Bodies Restoration and Management (IAMWARM) Project- Implementation Review and Support Mission: May 20 -27, 2013

I would like to thank the Multi-Disciplinary Project Unit and all the project counterparts who contributed to hosting the recent implementation review and support mission for the TN IAMWARM Project and for facilitating the extensive program of field travel. I would also like to thank you for your support of this important Project. Please find enclosed the Aide Memoire of the mission. While the Aide Memoire provides full detail on the work and results of the mission, I would like to raise three key points here.

The development objective of the Project is to increase the productivity of irrigated agriculture for sub-basin stakeholders in a sustainable water resource management framework. The recently agreed extension of the closing date to September 30, 2014 will allow for completing project activities and achieving its development objective. Available evidence indicates that the Project is achieving intended results with respect to increase in yields, diversification of cropping patterns through increased share of area under high value crops, and expansion of water-saving technologies. It will be important, however, for the Project to use the remaining period of implementation to fill in the documentation of outcomes and results. This was an area of focus for the mission and a set of key actions (listed in Annex 2 of the Aide Memoire) was agreed. One of the most critical actions was to extend the contract for the Monitoring and Evaluation Consultant so that it is commensurate with the extension of the Project's closing date and a proper final impact evaluation can be carried out.

Another area of focus for the mission was the issue of 'last mile' water management. That is, water management below the sluice gates at the village level. This is one aspect of the Project that has been under-performing and where additional development benefits could be achieved. A program of strengthening the Participatory Irrigation Management (PIM) capacities of Tamil Nadu has been agreed and is in implementation. To be effective, this will require the ongoing support from the Public Works Department and Government as a whole so that by the end of the Project, Tamil Nadu will have a reliable approach in place for dealing with this important aspect of water management.

The Bank's Task Team is continuing its support to the MDPU on processing the remaining tenders under the Project. It will be important for the Government to give due

attention going forward to the remaining procurement actions, as well as contract management, to ensure that all planned project activities are completed by September 30, 2014.

I am pleased to note that the pace of project disbursements has picked up significantly over the last year. The Project will have to maintain this pace for the remainder of its implementation for the funds to be fully utilized. The rating for Implementation Progress (IP) for the Project remains moderately satisfactory. With a continuation of the more rapid disbursement over the next six months, the Bank will be prepared to raise this rating to satisfactory.

Please do not hesitate to contact Mr. Edward Cook (ecook@worldbank.org) for any further clarifications.

With regards,

Yours sincerely,

Rinku Murgai
Acting Director
New Delhi Office

Attachment: Aide Memoire

cc: Mr. Mukesh Nandan Prasad, Executive Director (India), The World Bank
Mr. Manoj Pant, Senior Advisor to Executive Director (India), The World Bank

Ms. Sheyphali B. Sharan, Director, Department of Economic Affairs, Ministry of Finance, Government of India
Mr. S. G. Dastidar, Controller-AAA, DEA, Ministry of Finance, Government of India

Dr. S. K. Sarkar, Secretary, Ministry of Water Resources, Government of India
Mr. G. Mohan Kumar, Special Secretary, Ministry of Water Resources, Government of India

Dr. J. P. Mishra, Advisor, Planning Commission, Government of India

Dr. M. Saikumar, Secretary to Government, Public Works Department, Government of Tamil Nadu
Mr. K. Shanmugam, Principal Secretary, Finance Department, Government of Tamil Nadu
Mr. Sandeep Saxena, Agriculture Production Commissioner & Principal Secretary Agriculture, Government of Tamil Nadu
Dr. S. Vijay Kumar IAS, Secretary Animal Husbandry and Fisheries, Government of Tamil Nadu
Mr. Vibhu Nayar, Project Director- TNIAMWARM Project, Government of Tamil Nadu
Mr. Bisuvash Selvakumar, Engineer-in-Chief, Water resources Organization, Government of Tamil Nadu

AIDE MEMOIRE

TAMIL NADU IRRIGATED AGRICULTURE MODERNIZATION AND WATER-BODIES RESTORATION AND MANAGEMENT PROJECT (TN-IAMWARM) - IMPLEMENTATION REVIEW AND SUPPORT MISSION (MAY 20 – 27, 2013)

Project Data		Current Ratings and Flag		
Board Approval Date	*January 23,2007*	*Summary Ratings*	*Last*	*Now*
Effectiveness Date	*April 09,2007*	*Development Objectives*	*S*	*S*
Closing Date	*September 30, 2014*	*Implementation Progress*	*MS*	*MS*
MTR date- Actual	*March 05,2010*	*Project flags*	*One*[1]	*One*
Original Loan Amount	*US$ 485 million*			
Amount Disbursed	*US$ 284 million*			

I. Introduction

1. A World Bank team[2] undertook an implementation review and support mission for the TN-IAMWARM project during May 20 -27, 2013. The main objectives of the mission were to: (i) review the progress against the project implementation plan and update disbursement forecasts for FY14; (ii) review progress on technology adoption under Component B; (iii) review the status of the M&E work and the flow of information to the MDPU; (iv) assess progress on the Participatory Water Management (PIM) strengthening program; (v) review the plan of work for the State Water Resources Management Agency (SWARMA); (vi) undertake field review of the quality of civil works and adherence to agreed time frames; and (vii) carry out fiduciary review. The mission would like to thank all Government of Tamil Nadu (GoTN) officers and staff of all implementing agencies and of the Multi-Disciplinary Project Unit (MDPU) for their hospitality, collaboration and for facilitating the large number of field visits that were carried out. In addition to field travel and interaction with Project counterparts, the mission met with the Chief Secretary, and with the Minister and the Secretary, Public Works Department (PWD). The wrap-up meeting was held on May 27, 2013, and was chaired by the Principal Secretary, Expenditure, Mr. S. Krishnan.

II. Project Development Objective

2. The development objective of the Project is to increase the productivity of irrigated agriculture for sub-basin stakeholders in a sustainable water resource management framework. Key elements of this include increase in yields, diversification of cropping patterns through increased share of area under high value crops, and improved water management practices. Based on evidence available to the mission, the Project is making satisfactory progress in achieving this objective. An interim report provided by the M&E Consultant

[1] Disbursement lag against original disbursement schedule.

[2] The Team consisted of Edward Cook (TTL), Ranu Sinha (Social Specialist), Atin Rastogi (Procurement Specialist), R.K. Malhotra (Construction Design and Quality Specialist), Mohan Gopalakrishnan (Senior Financial Management Specialist), Anupam Joshi (Senior Environmental Specialist), Shankar Narayanan (Senior Social Development Specialist), Ben O'Brien (Agriculture Specialist), M S Swaminathan (Livestock Specialist) and Martin Kumar (Fisheries Specialist). Leena Malhotra (Program Assistant) provided administrative support to the mission from the Bank's Delhi Office. Paul Sidhu (Agriculture Specialist) visited Tamil Nadu during May 13 – 18 and his contribution is reflected in this Aide Memoire.

analyzing a sample of 91 tanks in the 35 of the project sub-basins indicates increases in yields for major crops consistent with targets of the Project. Evidence on increases in income resulting from project interventions shows that the Project is on track to achieve its target in this area. The Project also appears to be on track for achieving increases in crop diversification with respect to the increase in area devoted to high-value crops, as well as for increases in the area of micro-irrigation, though there are some issues regarding the longer-term sustainability of the drip irrigation schemes as noted in the description of Component B, below. Information on the status of the Key Project Outcome Indicators is provided in Annex 1.

3. **Documentation of Project Impacts:** In addition to the interim reports provided by the M&E Consultant, the participating line departments are collecting information regarding project outcomes and impacts. This information needs to be pulled together more systematically and the underlying methodologies explained clearly and completely. The mission reached agreement with participating line departments concerning systematizing project impact data and clarification of methodologies involved that is described in more detail in the M&E Section below. The mission also discussed with the MDPU the need to make arrangements with the M&E Consultant for conducting the end of project Impact Evaluation Study for the Project during January – March, 2014. This will entail extension of the current Closing Date for the contract with the M&E Consultant and additional cost requirements consistent with the recent extension of the Closing Date of the Project to September 30, 2014.

4. **Last mile water management:** A continuing weak aspect of the Project is what may be termed as last mile water management. While the mission is pleased concerning the quality of the tank and irrigation system rehabilitation work, the Project has had only limited success in putting in place mechanisms to ensure the more effective use of tank water below the sluice gate. As noted in the September 2012 Aide Memoire, the Project has achieved notable progress in the 'model villages' approach, which include more intensive project interventions on community water management combined with effective convergence of activities of the participating line departments. To this point there are roughly 100 such model villages. It is unclear the pace at which their number can be increased. For the large majority of the 2300+ Water Users' Associations (WUAs) established, Project interventions to support improved water management below the sluice gates, particularly with respect to capacity building and guidance for the WUAs, have been very slim. At this point a favorable rating for this aspect of the Project is out of reach. It is important, though, that in the remaining period of the Project, a model for scaling up capacity building for the WUAs is proven and that a realistic basis is in place for dealing with this element of the water management challenges facing the State. This issue is described in more detail in the description of Component C, below.

III. Project Components

5. The Project consists of the following five components: (a) Irrigation Systems Modernization in a Sub-basin Framework; (b) Agricultural Intensification and Diversification; (c) Institutional Modernization for Irrigated Agriculture; (d) Water Resources Management; and (e) Project Management. The ratings of all components are satisfactory, with the exception of (c), which is unsatisfactory. The pace of Project implementation has increased substantially over the past year in accordance with milestones agreed during the January 2012 mission. To fully disburse against the remaining Project activities already agreed to by the Bank will require increasing the pace of disbursements over the remainder of the Project. The total of remaining Project savings comes to approximately Rs. 220 cr. (USD 40 million).

6. The mission was presented with proposals for additional activities to be financed from this savings. Observations on the additional proposals presented to the mission are contained in the sections on Components A and B, below.

Component A: Irrigation Systems Modernization in a Sub-basin Framework

7. All original civil works packages under Phase I and Phase II sub basins, valued at Rs. 659 crores have been completed. In respect of Phase III sub basin works, all 136 packages worth about Rs 451 crores stand awarded out of which 107 packages amounting to Rs. 313 crores are reported to have been completed and the balance 29 packages are in progress. The Phase IV sub basin works comprising 69 packages worth Rs. 311 crores (including 22 packages of the subsequently included Amravathi sub basin costing Rs. 136 crores) have also been awarded, out of which 11 packages amounting to Rs 37 crores have been completed and the balance 58 packages are in progress.

8. *Overall Physical Progress as of 31 March, 2013.* Out of 5220 tanks (4910 tanks plus 310 tanks included subsequently in the 'additional proposals'), rehabilitation works are reported to have been completed in 3746 tanks. Out of 725 anicuts, rehabilitation of 628 anicuts has been completed. Rehabilitation of supply channels in 6824 km out of the stipulated 8789 km length has been completed.

9. *Overall Financial Progress ending 31 March, 2013.* An expenditure of Rs. 1232 crores has been incurred on the rehabilitation works. This marks an overall achievement of about 70 % progress in financial terms.

10. *Additional Works in Phase I and Phase II Sub Basins.* These works worth about Rs.71 crores comprise placement of concrete lining in irrigation channels in head reaches downstream of irrigation sluices and installation of measuring devices. Only one package amounting to Rs. 61.29 lakhs in Senkottaiyar sub basin in Madurai Region has been awarded so far. Awards of contracts of these works should be expedited by GoTN.

11. *Implementation of Left Out Infra- Structure Works covered in 'Additional Proposals' worth Rs 258.73 crores agreed by Bank.* Award of contracts for these works has been considerably delayed due to delay in according Administrative Approval by GoTN. Consequently, no contract has been fixed so far. The mission is deeply concerned about this situation. All out efforts should now be made to award the contracts the soonest possible in order to utilize the available working period for optimizing progress.

12. *Construction Quality of Works; Technical Supervision Consultancy*. Field visits by the mission to sample tank systems in Coimbatore, Madurai, and Chennai regions indicated that rig-mounted plate fixtures were being deployed for proper consolidation of earth fill on side slopes of tank bunds. Field visit to Amravathi Main Canal and sample reaches of some of its distributaries indicated that mechanized placement of cement concrete lining in the bed of Amravathi Main Canal through deployment of 'Concrete Paver' and mechanized placement of lining on the sides of distributaries through deployment of 'Slip Form Steel Gantry' had greatly contributed to achievement of twin objectives of accelerated progress and promotion of construction quality. The work associated with rehabilitation of left main canal from Ls 0 – 8100 m of Palar Porundalar System was also observed to be progressing well with acceptable construction quality standard with particular reference to mechanized placement of bed lining through movable gantry arrangement. O. K. Card System was observed to be functional and being well maintained on all works visited. Requisite quality control tests are also being conducted and documented. The Technical Supervision Consultancy (Third Party Quality Control Consultancy) also commenced active monitoring of all the Amravathi sub basin works since 24 September, 2012 and has reportedly conducted 2600 quality tests independently. This Consultancy, thus, continues to provide result-oriented strength to the Quality Management System, thereby, helping in promoting construction quality on works.

13. However, the mission observed notable deficiency in the filling of contraction joints grooves in cement concrete lining of Amravathi sub basin distributaries. The joints had not been properly filled with sealing compound Regional Chief Engineer assured that he would get this job- activity redone. Methodical filling of contraction joints grooves in the bed lining of Amravathi Main Canal as well as those in the bed lining of left canal of Palar Porundalar System with proper sealing compound, being of paramount importance, mission explained correct procedure for executing this job to the concerned field engineers and contractors at the work sites. It was also impressed upon the Technical Supervision Consultancy to strictly monitor this activity.

14. *Further Additional Proposals for utilizing Savings and Exchange Rate Variations.* The mission discussed additional proposals amounting to about Rs. 290 crores for executing various works such as: construction of check dams and open recharge bed wells; rehabilitation and lining of some canals including lining of 2 main canals- one each in Lower Bhavani & Mettur sub basins of Cauvery Basin (not included in the earlier approved sub basins); rehabilitation of left over tanks, supply channels, and anicuts including replacement of steel shutters; protection works; and reconstruction of some weirs etc. These proposals were broadly reviewed and the mission observations on the proposals were discussed with Mr S. S. Rajagopal, Director, State Water Resources Management Agency (SWaRMA), Mr. K.V.Rajan, E. I.C, WRD, Design Wing, and concerned engineers. Consequent to this review, it is suggested that a Committee be constituted by GoTN to critically examine all proposals including the necessity there-of; fine tune the various proposals duly addressing the mission observations and taking into account site-specific conditions by necessary field checks and supported by design inputs authenticated by Chief Engineer, DRCS and, thereafter, come out with realistic detailed proposals. The proposals recommended by the Committee, duly costed, package wise, and supported by approved drawings, should then be furnished to the Bank for review. The composition of proposed committee may be as following:

- Director, SWaRMA Chairman
- Engineer-in-Chief, WRD Member
- Chief Engineer, DRCS Member
- Chief Engineer, Plan Formulation Member
- Regional Chief Engineer (concerned) Member

15. *Continuation of Technical Supervision Consultancy till Extended Project Period.* The term of this Consultancy expires in August, 2013. The project having been extended to September 30, 2014, it is essential to continue with this Consultancy till the project extended period for effective quality management of works.

16. Detailed observations on works under Component A are provided in Annex 3.

Component B: Agriculture Intensification and Diversification

17. Under this component, support is being provided to enable the farming community to achieve increased levels of intensification and diversification. There are seven implementing agencies covering the following sub-sectors field crops, horticultural crops, livestock, fisheries, agriculture engineering, agriculture marketing and research led extension.

18. The financial status of Component B by implementing agency is given below. The disbursement rates over the last 15 months have improved on the previous years, particularly for the Department of Agriculture. However, utilization of funds by Agriculture Marketing Department (DoAM), continues to be low. Various

agencies are reporting likely savings, and individual line agencies have supplied supplemental plans to make use of these funds.

Financial Status (Rs. Crore)

Implementing Agency	Outlay	Contracted	Contracted against Outlay (%)
Agriculture Department	98.0	64.4	66%
Horticulture Department	72.7	63.1	87%
TNAU	86.7	61.8	71%
Agriculture Engineering Department	158.4	108.0	68%
Agriculture Marketing Department	66.1	24.3	37%
Animal Husbandry Department	41.4	23.2	56%
Fisheries Department	17.8	9.1	51%
Total	**541.1**	**353.9**	65%

Crop Production

19. The three implementing agencies -- Department of Agriculture, TNAU and Department of Horticulture -- report approximately 165,000 ha of demonstrations and expansion in area has been achieved to date (122,000 ha in January 2012) with more than 450,000 ha of impact area adopting the promoted technologies (250,000 ha in January 2012). A thematic study on Component B reveals that farmers are receiving improved incomes as a result of adopting the promoted technologies and that the levels of adoption and sustainability appear to be relatively high.

20. Impressively TNIAMWARM is continuing to provide innovations that are being taken up by the line departments, in addition to the early promotion of SRI that was the catalyst for the State to promote it on a large scale, the Agriculture Department is now going to conduct sugarcane demonstrations based on the TNAU Sustainable Sugarcane Initiative, and in the coming months the TNAU will hand over the E-Velanmai system to the Agriculture Department.

21. The Agriculture Engineering Department have installed drip irrigation on 31893 ha, constructed 2138 farm ponds and distributed 800 farm machineries. The micro irrigation has allowed farmers to irrigate more area and achieve higher yields using the same amount of water while the farm ponds are directly linked to the fisheries subcomponent.

22. The **Department of Agriculture and TNAU** have organized a large number of demonstrations, the main focus has been on dissemination of improved water management and crop husbandry technologies for enhancing water use efficiency, increasing productivity and promoting diversification. Notable achievements in the crop sector include popularization of water saving and productivity enhancing system of rice intensification, sustainable sugarcane production initiative and diversification to maize hybrids (the mission was impressed by the impact of demonstrations in the Villupuram district) and pulses.

23. The **Horticulture and Agriculture Engineering Departments and TNAU** have been promoting micro-irrigation, cultivation of tissue culture banana and vegetable hybrids. The project appears to have played an important role in expanding the area under drip and sprinkler irrigation by providing subsidized micro-irrigation systems. The mission was impressed by the quality and outreach of precision farming

demonstrations on water melon and musk melon. The sustainable sugarcane initiative seems to have catalysed the setting up of some sugarcane nurseries in addition to increasing sugarcane productivity and enhancing water and fertilizer use efficiency. Micro-irrigation systems have reduced transmission losses of water and improved water use efficiency.

24. **Precision Agriculture:** Discussions with the farmers indicated that by and large they are convinced about the advantages and economic benefits of adopting the demonstrated technologies, especially high yielding hybrids/varieties, water and fertilizer saving technologies like SRI and drip irrigation combined with polythene mulch and fertigation. Generally they are continuing to use the new seeds and fertilizers (which are easily available in the market) after the withdrawal of project support. Use of fertigation has significantly reduced the quantity of fertilizer used and increased productivity. Some farmers have replaced the project supplied polythene mulch after three crops at a cost of about Rs 15,000/acre, however, they are unlikely to spend their own money for replacing drip irrigation system after it completes its life. This is discussed further in Annex 4.

25. **SRI Mechanical Transplanting:** While many adopter farmers are continuing with SRI, a significant portion of farmers indicated that due to increased labour requirements and costs, they may not continue with square transplanting of paddy. The private sector is now providing mechanized transplanting, the project needs to explore the possibility of linking this service in public private partnership mode, to the small and marginal farmers in the project areas. The essential requirements for success of mechanical transplanting are: (i) well levelled fields, (ii) growing mat type nursery, and (iii) reliable availability of mechanical transplanters. The farmers seem to be willing to pay the custom hiring charges in view of the gains in productivity achieved. *The mission recommends that the project (Department of Agriculture) should facilitate this by linking small and marginal farmers with the service provider.*

26. **Adoption rates:** The thematic study on Component B [3] sheds some light on adoption rates, particularly for SRI, where only 2of the 6 critical practices are reported to have been well adopted, i.e. improved fertiliser management and weeding with conoweeder. The majority of farmers have reverted to line planting at an average of 51kg seed/ha (about 6 times the recommended rate for SRI). Alarmingly none of the surveyed farmers were practicing alternate wetting and drying.

27. The major thrust should now be on consolidating the adoption of successful technologies over large area in the project basins. To date TNAU and the Agriculture Department report that over 450,000 ha of area identified as "impact", equivalent to approximately 67% of the command areas of the project. However observations in the field (supported by the data above on adoption) would tend to indicate that the rates of adoption are lower than the reported impact areas. *It is therefore recommended to document the area over which these technologies have been adopted and the farm level gains in productivity achieved by the adopter (impact area) farmers* (see Monitoring and Evaluation Section, below). *Departments of Agriculture, Horticulture and Agriculture Engineering also need to develop an action plan for post-project sustainability through ongoing schemes* funded by GoTN and GoI like Rashatarya Krishi Vikas Yojna, National Food Security Mission and National Horticulture Mission.

28. **Convergence:** While there has been a major thrust towards convergence there are still departments that are carrying out some activities in parallel with limited inter-agency coordination for building on the synergies and complementarities and experience sharing. Some micro-irrigation demonstrations organized by Agriculture Engineering Department (AED) did not give adequate attention to timeliness and agronomic aspects of crop production essential for optimizing crop productivity. The impact of AED demonstrations can be significantly enhanced by incorporating agronomic aspects successfully demonstrated by TNAU and the

[3] Dynamics of IAMWARM Project Interventions under Component-B An Empirical Assessment of their Impact, SMEC - Monitoring and Evaluation Consultants, 2013.

Horticulture Department. *The mission recommends that AED installations of micro-irrigation are linked with one of the line department demonstrations and to organize exposure visits for farmers and staff to precision farming vegetable and sugarcane demonstrations organized by TNAU.*

29. **Additional Irrigation Potential:** In addition to organizing demonstrations, this component has made significant investments in expanding the area under micro-irrigation and fertigation, provision of water through buried pipes, construction of water harvesting structures and farm ponds. *It is recommended that quantitative information on irrigation potential created through these interventions should also be compiled at the project level.*

30. A more detailed discussion of the crops-related aspects of the Project is provided in Annex 4.

Agricultural Marketing

31. This part of the Project has earlier recorded some important achievements. To date the Department of Agricultural Marketing reports to have formed over 2200 Commodity Groups (CGs) with whom there are nearly 1700 marketing MOUs, benefiting some 82,000 project beneficiaries. However, progress in this sub-component has slowed markedly over the last year. The number of CGs has increased only modestly since last September (from 2106 to 2221). Efforts to aggregate CGs into Producer Organizations have not progressed. Plans to establish District Facilitation Centers have been dropped.

32. A growing area of concern is the sustainability of the CGs. DoAM does not have the resources to follow up with CGs established in earlier years of the Project. As a result, a share of the CGs is ceasing to function. The Empirical Assessment of Component B undertaken by the M&E Consultant indicates that only about half these groups are functioning and cites that inactivity is largely due to a lack of guidance and monitoring. A further issue is likely the business plans and focus commodity of the groups. This situation underscores the urgency with which the agreed study on the operation of the CGs is required. During the last mission it was agreed that this study would be provided by end of December 2012. To date, the study is not completed. *DoAM asserts that the study will be finalized and provided to the Bank by June 2013.*

33. An additional area of work that is well behind schedule is the completion of the DPR for value-addition for the CGs. This was to be provided by the end of September 2012, but has reportedly run into some methodological issues that have proven difficult to resolve. *DoAM asserts that the value-addition DPR will be ready by end of June 2013.*

34. As a result of dropping of the DFCs, there are now considerable savings, and the Department has proposed additional activities, the most significant being the construction of approximately 370 drying yards (at an estimated unit cost of INR 4 lakh). DoAM is targeting end of October 2013 for completion of contract award.

35. Approval has been given to go ahead with expansion of 20 vegetable outlets following on from a successful model in Kanchipuram (Ongur Sub-Basin), where opportunities were created for 5 persons with a daily turnover of approximately 5000 INR. The proposed outlets will involve branding strategies to potentially expand it to include more varieties of farm produce and processed products from local farm produce. The expansion strategy will follow two models, one making use of Public Distribution Stores and the other in a private establishment, the exact number of each to be determined on merit. In addition, one small delivery truck will be supplied to support these outlets. The outlets will be implemented by DoAM under the guidance & monitoring of MDPU. The scaling up of this activity takes into account that greater returns are likely if these are clustered with a more efficient transport system for fresh produce. These are

linked to the existing commodity groups and interested persons from the commodity groups will be encouraged to run these outlets.

36. The problem of comprehensive collection of data on the value of sales by CGs and net income accruing due to higher prices received in comparison with prevailing market prices identified by the September 2012 mission has still not been addressed. At that time it was agreed that DoAM will need to hire additional human resources for improving their data collection abilities. During the last mission it was agreed that this additional hiring should be on a consultant basis with initial fixed term contracts, rather than permanent additions to the DoAM staff allocations. *The mission underscored the importance of addressing this data deficiency with respect to fully capturing the impacts and achievements of the Project.*

Fisheries

37. **Key Points**

- The fisheries component required to perform significantly better in order to meet the targeted fish production of 22,000 tons. The current achievement is only 7,372 tons (33.5%).
- A total of Rs 3.84crores is available for fisheries interventions and this fund should be prudently used to achieve the object objectives.
    - Seed production (109 earthen units) should be established as priority
    - Farmer participated demonstrations of fast growing fish species (GIFTA Tilapia, Amur carp, Jayanthi Rohu and Pangas)
    - Cage culture, a proven technology for fish and seed production must be promoted in an environmental sustainable manner
    - Staff capacity development through domestic and overseas training and exposure visit need to be completed in accordance with project requirement.
    - Establishment of new hatcheries may not be viable with the available limited project time. However, seed rearing units can be established after proper assessment.
- Re-establishment project implementation unit is essential for efficient and smooth completion of the project.
- Construction of earthen seed bank must be completed as a priority.

38. The fisheries component is required to perform significantly better in order to meet the targeted fish production of 22,000 tons. The current achievement is only 7,372 tons (33.5%). Specific fisheries interventions resulted in notable contributions as available intermediary indicators for fish farmers' productivity and income of key production models such as fish culture in ponds, seed nurseries, ornamental fish culture, is showing notable progress. However, sustainability information on these interventions is not available. *It has been agreed that the sustainability evaluation results will be submitted before 31st July, 2013*

39. *Overall Physical Progress ending 31March, 2013:* The line department reported 100% achievement in fish production in 3142 irrigation tanks (direct stocking), 227 fish seed rearing in cages, 49 ornamental fish production units, 37 seed rearing in pen and improvement in 4 Government seed farm. The most under achieved activity is the earthen fish seed bank (7 out of the targeted 109). The earthen seed tank work is being carried out by the Agriculture Engineering Department and this work is expected to complete before November 2013.

40. The current slow rate of fish production target (KPI) achievement could be attributed to the following reasons:

- Low seed production capacities as the proposed earthen ponds (completed only 7 out of 109 units) have not yet been completed.

- Lack of innovative culture techniques including suitable fast growing species were not yet widely promoted under the project. Traditional carp polyculture requires a comparatively greater duration of water availability that will be a constraint for fish production in the state.
- Last year's drought condition, particularly in some of the project areas, also impacted production.

In order to achieve the project target (fish production of 22,000 tons) and contribute to the overall project achievement, the following suggestions were made.

41. The Fisheries Department has savings in two sources: (i) accumulated unspent funds Rs 2.73crores against allocation of Rs16.68crores; and (ii) Rs 1.11crores against total outlay of fisheries component Rs 17.80crores. A total of Rs 3.84crores is available for fisheries interventions from savings. A detailed implementation plan/proposal for fisheries interventions during the remaining project period must be submitted before 20 June 2013.

42. The following suggestions were made with the aim to assist in achieving the project objectives.
- Farmer participated demonstration of four fast growing fish species (GIFT tilapia, Pangas, Jayanthi Rohu and Amur carp)
- Further demonstration of cage culture technique (seed and fish for consumption) in an environmentally sustainable manner including development of guidelines for cage culture and operational protocol.
- Additional round of training for farmers; and domestic and overseas training for fisheries staff.
- Seed rearing units to meet the demand.

43. Establishment of new fish hatcheries have to be carefully considered and well thought before going ahead with any additional proposal.

- Breeder maintenance is highly expensive.
- As spawn transportation is comparatively cheaper, supply of the same to various rearing areas within the project area or State is economically feasible.
- In order to maintain and improve the genetic quality of the breeder which is a vital element in fish productivity the department must focus on quality breeder maintenance and development program.

Considering the above mentioned factors, establishment of new hatcheries during the remaining project period is strongly discouraged. Alternatively seed production units in water available areas such as at Lalpet may be considered.

Agreed Action Plan

S.No	Actions	Completed by
1	Evaluation of sustainability	31 July, 2013
2	Staff Training: • Domestic • Overseas training for staff	 30 August 2013 31 October 2013
3	Detailed implementation plan/proposal for fisheries interventions during the remaining project period.	20 June 2013

4	Completion of earthen seed production units	30 November 2013
5	Agreement with Fisheries College and Research Institute in Thoothukudi for promoting of fish as health food through the kiosks.	31 July 2013

Livestock

44. **Key messages:**

- Supply of inputs for fodder development needs to be planned well in advance so as to supply seed materials at the start of monsoon
- Efforts are needed to put in place a scheduled follow up system for continued adoption of best practices in respect to azolla and fodder cultivation.
- Artificial Insemination program requires incorporating a timely and accurate information recording system for pregnancy and calf birth. AHD may consider deploying AI technicians at the vacant sub-basin veterinary units to improve the AI coverage and AI follow up. The available AI technicians trained by TNLDA could be mapped and brought under this activity
- Recording of impact related indicators (milk production, growth rate, mortality rate, worm load, reproductive efficiency, fodder production, and benefit costs) should be carried out through validated methodologies and appropriate sampling. It may be considered to assign one person (at every Assistant Director level) exclusively to undertake documentation and follow up activities for the different AHD intervention. WB will assist in developing an appropriate system for the documentation of these indicators.
- Activities in Amaravathi sub basin (especially in districts where the activities are started new) needs momentum and the officials needs a proper orientation
- Need based training curriculum (tailored for the project activities) for the Implementing AHD officers could be suggested to TANUVAS with equal emphasis on husbandry , project management and benefit cost analysis, besides clinical topics

45. For the Financial year 2012-13, AHD reported 100% achievement in the proposed activities except functioning of sub-basin veterinary units. As reported by the AHD, at the end of 2012-13, the reported incremental milk production compared to the baseline is 586,000 tons per year, an increase of 33% over the baseline production.

46. Being an important KPI for the project, the milk production data needs a validation on collection methodology and a standard milk recording protocol need to be followed. Presently no clearly defined methodology is being followed and the information is collected from milk procurement agencies, informal questioning of farmers and from few selected better performing animals which may be biased. There is a need to have proper statistical method starting from random sampling, recording the performance through monthly milk recordings and using accepted methods of milk production estimation and factoring different interventions into the final milk production increments. This has been discussed with AHD and MDPU officers. It was decided that FAO consultant will assist AHD in developing necessary templates, guidelines, recording protocols and estimation methods and will train few of the selected field officers in this process. AHD will implement the process within the stipulated timeframe (31st December 2013). MDPU coordinator, officer-in-charge at AHD and the concerned Assistants Directors of AHD will cross verify and validate this information during their field visits

47. The training offered to AHD officers needs to be reviewed. AHD should give a need based training schedule to TANUVAS with equal emphasis on good husbandry practices, project management and benefit

cost analysis. The present training has a good focus on clinical topics for better animal health and improving farm level reproductive efficiency.

48. More detailed observations on the status of livestock activities under the Project are provided in Annex 6. Agreed actions are as below.

Activity	To be completed by
1. Plan and procure fodder seed materials	31 October 2013
2. Analyze reasons for non-adoption of azolla cultivation	31 October 2013
3. MDPU to conduct reviews on the updating of pregnancy confirmation and calf birth details of the AI program	31 December 2013
4. Mapping of available AI technicians in the IAMWARM project area and submitting a plan to WB to utilize them in IAMWARM villages	31 October 2013
5. Establishing system to capture intermediate program indicators and KPI	31 December 2013

Component C: Institutional Modernization for Irrigated Agriculture

49. **Support Organization Performance:** The Mission conducted field visits to the Trichy region and to the Madurai region to interact with WRO officials, PIM cell staff and with Support Organizations (SOs) and their field level staff operating in the area. In the Trichy region, the Mission held consultations with the SO RAESO and with the SO HKCAL in the Madurai region. During the consultations with the SOs, the Mission held a question and answer forum with the staff of the SOs with respect to their operations, training, and capacity building activities with Water Users Associations (WUAs). The Mission team also raised queries about number of para workers hired, number of trainings conducted, and specific elements of WUA functions (e.g. number of meetings held, preparation of water distribution plans, number of sub-committees formed, etc.). The Mission learned that these SOs have now been operational on the ground for more than one year and that all members of the SO staff have attended an orientation program as well as follow on trainings by Center for Excellence for Change (CEC). Yet based on the consultations, the Mission finds that the overall quality of the capacity building of WUAs by SOs is weak. There is very little consistency in the quantity, quality, and subject matter of the trainings being given to the farmers of the Associations. Within one SO, some para workers are teaching farmers about crop diversification and SRI, whereas other para workers are focusing more on account management and book keeping. In addition, although the sub-committees have been formed, many of the members of the WUAs are still not clear on what the purpose of the sub-committees are and the roles of the members within each committee. To address this concern, the Mission has prepared a set of baseline indicators with five key categories that describe the basic functions of WUA operations within each category (see Annex 8). These indicators will give each of the seven SOs currently operating in Phase I and II sub-basins a basic understanding of which functions WUAs need to be trained on and the criteria that WUA performance will eventually be assessed against. *The Mission has discussed and agreed that the PIM Cell in Chennai will disseminate the baseline indicators to all seven SOs directly and immediately.*

50. **Recruitment of staff for new WUA capacity building model:** During the Mission, the Government of Tamil Nadu passed a Government Order (GO) giving administrative sanction for providing capacity building assistance to WUAs and strengthening of the PIM across the four regions of Chennai, Coimbatore, Madurai and Trichy with WRO itself taking the lead in the design, development, and approval of the new model. This approach has evolved based on the successful experience of the Trichy region that was documented extensively during the September 2012 mission and extensive consultations with the full involvement and leadership of the WRO E-in-C. The first step in implementing this GO is the recruitment of new staff including hiring of: 5 social scientists, 64 Mobilization and Training Specialists (MTS), 370 Field

Organizers (FO), and 10 data entry operators. The Mission held initial consultations with the Engineer-in-Chief (E-in-C), the four regional Chief Engineers (CE) of Chennai, Coimbatore, Madurai and Trichy, PIM cell staff at the head office in Chennai, and MDPU staff on Monday, May 20, 2013. During this discussion, the Mission agreed the terms of recruitment for these key personnel. *The Mission discussed and agreed with the WRO officials that each regional CE would appoint one or two nodal Superintending Engineers (SE) within each of the regional offices of the WRO to coordinate all recruitment activities at the regional level including publication of advertisements, mobilization of interview panel, and selection of staff. The Mission discussed and agreed that the five social scientists would be hired by the PIM cell led by Mr. Sampath, SE head of PIM cell in Chennai. The Mission also discussed and agreed that key staff from CEC and MDPU would act as individual advisors to respective regional offices and provide guidance on the overall recruitment process to their appointed regional offices.* Each of the advisors were encouraged to assist the WRO officers at each of the regional levels to convene an interview panel that would have a mix of technical specialists, faculty from IMTI, WRO staff including CE and SE, and each of the respective advisors.

51. The Mission held a second set of consultations with all of the SE officers from each of the four regional WRO offices on Saturday, May 25, 2013. The E-in-C, CE from Chennai, nodal SE officers from each of the 4 regions, Executive Engineers (EEs), Assistant Engineers (AEs), PIM cell staff, CEC, MDPU were all present during this consultation meeting. During the discussion, the details of the new WUA capacity building model were provided to all WRO officers as background for the hiring process. The recently passed GO detailing the modalities of the implementation of the capacity building model and the detailed Terms of Reference (ToRs) for each of the staff to be hired were shared with all members present. The finalized advertisements for each respective region for the specific numbers of staff they are to recruit were also shared with the nodal SE officers from each of the regions. Since this entire approach has been worked out with the committed leadership, involvement and support of the Engineer- in-Chief and the regional Chief Engineers, the PIM Cell at the E-in-C office led by Mr. Sampath and the PIM Cells at the respective regional Chief Engineers offices should feel fully empowered and supported to adhere to this agreed schedule and take the E in C's advice in cases where they face any hurdles. The Mission reiterated the fact that if successfully implemented, this approach to PIM and WUA capacity building would be the first of its kind in the country where the WRO has led the process and demonstrated the success of the approach. The Bank team stands ready to provide any additional support required to ensure effective implementation. *The Mission discussed and agreed that the PIM cell in Chennai and the four regional offices would publish the recruitment advertisements by Wednesday, May 29, 2013. The Mission discussed and agreed that all new staff, at all levels, in each of the regions must be hired and contracted at the latest by June 30, 2013. The Engineer in Chief WRO led the discussions and has instructed each of the 4 regional Chief Engineers to rigorously follow this schedule to effectively use the remaining 15 months of project tenure to strengthen the WUA Capacity building and PIM process with the full leadership of the WRO.*

52. **Regional PIM Cell Staffing:** Now that each of the regional offices of the WRO will be hiring dedicated staff for PIM activities, it is an absolute necessity that each CE at the Chennai, Coimbatore, Madurai and Trichy regional WRO offices appoint nodal PIM WRO staff who will be solely responsible for coordination, monitoring and supervising all PIM-related activities for the region. Trichy has put in place a well performing PIM cell at the regional, circle, and division levels as detailed in the September 2012 Aide Memoire. This model should now be replicated in the other remaining three regional offices. During the consultation with WRO staff on May 25, the Mission discussed and agreed with the E-in-C and WRO staff present that each of the CEs would nominate and appoint at least one or two nodal PIM WRO staff either at the SE or EE levels to oversee all PIM activities for the region. The PIM cell in Chennai should provide each of the nodal officers from the regions with a clear ToR for their responsibilities of supervision and monitoring, highlighting the quantity and quality of review activities that is expected of them, as well as clearly defining how their role will be distinct from that of the regional social scientist for PIM. *The Mission discussed and agreed that Mr. Sampath and the PIM cell staff in Chennai would oversee these appointments by travelling to each of the regional offices to assist the CE and other WRO officers. The Mission*

recommends that Mr. Sampath and the PIM cell in Chennai submit the names of the nodal PIM officers and their corresponding ToRs for each of the regions to the Bank by June 15, 2013.

53. **Dissemination to Regional WRO Offices on WUA Capacity Building Model:** Although the Mission held preliminary consultations with respective SEs and CEs during the mission on the details of the new WUA capacity building model, the Mission recommends that the PIM cell in Chennai travel to each of the regional offices of Chennai, Coimbatore, Madurai and Trichy to inform all concerned WRO staff in the region about the details of the WUA capacity building and PIM cell strengthening model so that more regional level WRO officers can learn and understand the new model. The Mission recommends that during these visits, the PIM cell staff perform two important functions: a) assist the regional WRO officers select nodal officer(s) dedicated to overseeing and monitoring the implementation of the model within the region, and b) assist the WRO regional office to prepare a team chart that divides each of the regional Competent Authorities (CA) into specific capacity building teams. Each capacity building team will consist of two MTS, ten FOs and their corresponding CAs, who will function as the team leaders of the teams. Each team is responsible for capacity building of 60 WUAs. The PIM cell staff from Chennai should assist the WRO regional officers to prepare a chart that divides all of the CAs into their respective teams based on the number of WUAs that each is responsible for. *The Mission discussed and agreed that Mr. Sampath and the PIM cell staff will undertake these visits in the next two weeks and submit a report of the team formation and nodal officer appointments by June 16, 2013 to the Bank for review.*

54. **Training by Centre for Excellence for Change:** The recent GO issued by the GoTN has given administrative sanction to CEC for conducting training for all of the new staff to be recruited for implementing the WUA capacity building model including the social scientist, the MTS officers and the FOs. CEC will begin the process of training these staff in July and will continue to conduct follow on trainings. Based on discussions with CEC, the Mission recommends some modifications to be incorporated by the CEC training staff into the training program. *The Mission discussed and agreed that the following changes will be incorporated for the trainings to be conducted for the new staff:*

a. A detailed module explaining the differences between a Panchayat Raj Institution (PRI) and a WUA, their different functions, objectives, and purpose should be incorporated into the training for social scientists, MTS and FOs so that this can then be imparted to WUAs. This was a key learning from discussions with farmers of WUAs during the field visits, where many WUA presidents are convinced that a WUA and a PRI are similar organizations. The detailed module should be prepared by CEC and shared with the Bank for review and comment by June 5, 2013.

b. As CAs will be the team leader of each WUA capacity building team, all CAs within each of the regions should be trained jointly with the MTS and social scientists.

c. Trainings should now be conducted where each of the regional level staff are trained together along with their CAs (see b). Also trainings for CA, social scientist, MTS and FO should consist of a combination of classroom and field trainings so that MTS and FO are oriented on their activities in the field along with classroom. See Annex 7 for a timeline of trainings to be conducted region wise by CEC.

d. CEC should prepare a clear ToR for Competent Authorities that will be disseminated to them during the trainings. This ToR should provide CAs with details of their role and responsibilities vis-à-vis their WUA capacity building team including monitoring and supervision, review of field level reports and payment procedures, etc.

e. The Mission has provided CEC with a set of baseline indicators with five criteria of WUA performance, similar to the criteria to be shared with the seven SOs (see Annex 8). This document is to be disseminated to all CAs, social scientists, MTS and FOs by CEC during the training so that all staff are aware of the performance benchmarks on which WUAs have to be trained and against which they will be assessed.

f. The Mission recommends that CEC provide brief, concise, and focused training feedback and monitoring reports to the Bank upon completion of each of the regional trainings. Therefore, CEC is to submit a completely training and monitoring report for Chennai, Coimbatore, Madurai and Trichy to the Bank for review and clearance. Subsequently, CEC should continue to submit regular feedback reports after the regional level follow on trainings with the focus of the reports on essential learning from the training and the modifications to be incorporated for subsequent trainings.

g. The Mission recommends that CEC should be conducting monthly field checks at random once the WUA capacity building teams begin implementing their training activities on the ground. The monitoring of the effectiveness of the CEC training programs for social scientists, MTS and FO will be critical to overall success of the program.

55. **MDPU Monitoring & Supervision:** The Mission held discussions with the social scientists, training coordinators and communication specialists within the MPDU regarding overall monitoring of the new WUA capacity building model. The Mission recommends that the MPDU PIM team first and foremost draw up a monthly monitoring program for conducting field visits to inspect the overall implementation of the WUA capacity building program. These field visits should be conducted monthly, region-by-region and done at random to ensure that there is constant supervision of the WUA capacity building activities on the ground. The MDPU team should also be conducting monitoring visits of the seven SOs working in phase I and II sub-basins. These visits should also be coupled with regular reporting of progress on the ground, any challenges or issues that the field level teams are facing, and steps highlighted for resolution of these challenges. The Mission also recommends that the MPDU team hold weekly meetings internally including the members of the PIM cell at the E-in-C office, the newly recruited head social scientist, and the CEC training coordinators to assess, analyze and exchange ideas on the overall implementation of the WUA capacity building program. The Mission also suggested that the MPDU draw up a table of the various actors from the field offices to Chennai that are engaged in the entire WUA capacity building program including all members from WRO, MDPU, CEC, etc. and clearly define their roles and responsibilities of each actor in the implementation of the program. *The Mission discussed and agreed that the MPDU team will submit a complete PIM monitoring schedule and a table of the roles and responsibilities to the Bank by June 30, 2013.*

56. **Implementation of Fisheries Revenues for WUAs GO:** The Mission conducted field visits to meet WUA farmers in two villages in the Trichy and Madurai region. The Mission met with one WUA in the village of Ediyar in Puddukottai district in Trichy and with one WUA in the Pavasi village in the Sivaganga district in Madurai. Farmers of both WUAs gave feedback that WUAs would like to retain revenues from fish ponds in their command areas. During the drought years, where WUAs are facing difficulty raising funds for O&M from farmers, this source of revenue will be valuable for the associations to continue functioning. Although GoTN has already passed a GO enabling WUAs to retain a certain percentage of revenues from the Fisheries Department, this GO has not yet to date been implemented. The GO that GoTN issued in January 2011 provided inputs for sharing of the revenue collected by means of fishing auction. The GO details that a) the status quo is to be maintained in respect of auctioning of fishing by the Fisheries and the Revenue Departments, b) the auctioning of fishing hitherto done illegally by individuals and other agencies are to be stopped and entrusted to WRD only, and c) the revenue accrued from auctioning 50% will have to be handed over to WRD by the Fisheries and Revenue departments. In turn the WRD will allocate the 50% of the amount collected in the following increments: 60% to WUAs; 20% to DC; 20% to PC. In the event there is no DC & PC the entire amount has to be allocated to WUAs. However, because there was no clarity regarding

the "Head of Account", in which the share amount collected from the fishing auction is to be remitted by the concerned departments, the GO was never implemented and thus the WUAs could not avail the benefits. *The Mission discussed and agreed with the PD MDPU, E-in-C WRO that the necessary clarifications should be sought and cleared by the relevant departments of GoTN and this GO should now be implemented across all the project areas where WUAs are operational and that revenue retention from fisheries for WUAs should be taken up as top priority by WRO.*

Component D: Water Resources Management

57. The Mission held consultations with the State Water Resources Management Agency (SWaRMA) director and members of the SWaRMA working group. As per the Government of India's National Water Policy 2012, each state is mandated to establish a water regulatory authority. The SWaRMA of the GoTN started functioning in June 2011 as an agency to advise GoTN on water policies including water resources development, regulation, and management within a holistic river basin framework. The Mission commends the SWaRMA team for good progress made on operationalizing SWaRMA and taking steps to ensure proper functioning of the agency.

58. SWaRMA has revised and submitted the ToR for a consultancy to design, develop & install a GIS-enabled web based system for state water information to the Bank for review and clearance. *The Mission discussed and agreed that the Bank would review the ToR in detail and provide clearance for hiring of consultancy within the next week.*

59. The Mission recommends that the proposal for hiring a legal advisor for SWaRMA be approved by GoTN at the earliest so that SWaRMA may move forward with hiring a legal advisor to review and recommends reforms, if required, for all of the state acts and legislation related to water management in the state. *The Mission recommends the Government of Tamil Nadu approve and sanction the post of the legal advisor for SWaRMA at the earliest. Upon obtaining this approval, SWaRMA is to proceed with hiring of the legal advisor at the earliest.*

60. The Mission commends SWaRMA for forming the State Water Committee and for holding the first meeting of the Water Advisory Committee. The Mission also commends the efforts of SWaRMA for assisting GoTN in preparation of a State Water Policy for submission to the Chief Minister for review. GoTN has taken a clear position against the establishment of a water tariff system. *The Mission commends this progress and recommends that GoTN proceed with providing legal status to SWaRMA to enable SWaRMA to make legally binding decisions.*

61. The Mission discussed and agreed with the SWaRMA director that SWaRMA will prepare a detailed action plan of planned activities for the agency from now till the completion of the project in September 2014. *The Mission recommends that SWaRMA draft and submit this action plan for information by June 30, 2013.*

IV. Monitoring & Evaluation, and Information Management

62. With extension of the Project Closing Date to September 30, 2014, it is important that arrangements be made for extension of the contract with the M&E Consultant to allow for completion of the Final Impact Evaluation Report (IER). To properly capture the impacts of the Project, it was agreed that this study needs to be carried out during January to March 2014. Discussions were held between the MDPU and the Consultant. It is hoped that an agreement on terms of the extension can be finalized in the nearest future, as the current contract expires on June 30, 2013. The IER is the only instrument available to the Project which includes a control group. Failure to complete this report in a quality manner would hinder efforts to document the achievement of the PDO and could jeopardize a fully satisfactory rating in this regard.

63. The M&E Consultant has submitted an interim report on the Impacts and Sustainability of Interventions under Component B. This study encompassed 91 tanks over 35 sub-basins, with a total of 1,046 beneficiaries participating. This study was the source of a number of statistics provided in the KPI status table (Annex 1).

64. The mission met with representatives of participating line departments with the objective of improving the documentation of project impacts. A variety of data are being collected on this, but some of it is not included in regular reporting to the MDPU or is not coming in a timely manner. Further, the methodology used in collecting the data is not clearly spelled out. Agreement was reached with both the Agriculture Department and TNAU to compile tables with the following format: (1) area of demo and impact farmers; (2) number of demo and impact farmers: and (3) demo and impact yields. For these column headings, data will be provided by year, by major form of intervention. The interventions will include SRI, maize, pulses, and groundnuts. An explanation of the quality control mechanisms used in collection of this data will also be provided. For the Agriculture Department, it was agreed to provide data up to the 2009-10 crop year by May 31, 2013, for the 2010-11 and 2011-12 crop year by June 30, and for the 2012-13 crop year by August 31, 2013. For TNAU, it was agreed to provide data up to the 2011-12 crop year by June 30, 2013, and for the 2012-13 crop year by August 31, 2013.

65. For the Horticulture Department it was agreed to provide data on demo area and yields for major crop varieties by crop year, with an explanation of methodology for data collection and measures for quality control of the data. This is to be provided by June 30, 2013.

66. It was further agreed that the MDPU would compile an overall table showing the quantities of Project beneficiaries (demo plus impact farmers) by participating line department by crop year up to and including 2012-13. This will include Agriculture Department, TNAU, Horticulture Department, AED, Livestock Department, and Fisheries Department.

67. The Water Resources Department provided the mission with reports on storage efficiency, conveyance efficiency, and increased irrigated area (gap area) for tanks for all Project regions. *With respect to the irrigated area report, the mission requested explanation of the method of calculation for the net irrigated ayacut area for both before and after the Project interventions.*

68. Following the identification of deficiencies in the Project Indicators and proposed amendments during the previous mission, this mission reached agreement with the MDPU on amendment to the existing indicators, including clarification of the definitions of terms. With respect to the Project Outcome Indicators it was agreed to drop the indicator for percentage increase in value of crop production per unit of irrigation water supply due to the difficulties in obtaining a comprehensive measure for this. In its place, and in accordance with the new Country Partnership Strategy (CPS) for India, it was proposed to include yield targets for paddy, maize, and pulses, as well as the existing targets for incremental production of fish and milk. Though no appraisal target was established for the number of beneficiaries recording increased production, it was agreed to track Project performance on this, consistent with the Intermediate Indicator provided in the CPS. *It was agreed that the mission would undertake the process of approval of the proposed indicator changes with the goal of having these finalized by Sept. 1, 2013.*

69. As noted by previous missions, the focus in Project reporting is on tracking physical input targets and associated financial expenditures. The tracking of Project outcomes and impacts is not comprehensive, and lacks clear methodological delineation. Progress on implementation of the PMIS since the September 2012 mission has been nil, and it is unlikely that the system will be in operation prior to Project Closing.

V. Financial Management

Disbursement Status & Budget: The disbursement position is as under:

Financing From:	IDA	IBRD	Total
Allocation	153.78	335.00	488.78
Disbursed	153.78	129.97*	283.75
In Pipeline with the Project	-	27.00	27.00
Total	153.78	156.97	310.75
Balance Undisbursed	0.00	178.03	178.03
% Disbursement	100%	46.86%	63.58%

* IBRD includes DA-Advance of USD 10.00 million.

** Claims in pipeline with the project (relating to the month of March 2013)

This leaves the project to incur a gross expenditure of Rs 1150 crores (equivalent to USD 209 million approx.) over the next 18 months to fully utilize the remaining loan balance of USD 188 million approx. (including DA-Advance of USD 10 million). In FY 2012-13 the project has incurred a gross expenditure of Rs 536 crores (USD 96 million).

70. **Financial Management**: Since the previous mission, the project has submitted the (i) audit reports for both the main component and TNAU and part responses on the external audit reports for the year 2011-12 (ii) provided training on financial management to Phase III and IV sub basins; (iii) completed appointment of internal auditors for covering the backlog up to March 31, 2013. (iv) approval by empowered committee for contracting of accounts consultant in Agriculture Dept nodal office and (v) obtained contract wise information including retention money for all works contracts as of March 31, 2013.

71. The budget for FY 2013-14 is only Rs 124 crores which is not adequate. The mission was informed that the budget provision is low as the approval for extension of project from the Bank was not received at the time of budget proposals i.e., Oct 2012. The project indicated that the budget provision would be enhanced at the time of revised estimates (Dec 2013) and that they have the necessary approval to make project related payments pending revision of the budget. *It is suggested that the project seeks an enhancement as part of the first supplementary budget in July 2013 itself to avoid potential delays funds flows and in payment to contractors.* This is important given the large quantum of projected expenditure (approx. USD 120 million) in FY 2013-14.

72. The project has been timely in the submission of the quarterly IUFRs and disbursements have been made for expenditures reported till February 28, 2013 and the reconciliation of project expenditures by the various line departments with the AG (A&E) have been completed till December 2012 except for Agriculture which has been completed till October 2012. There, however, are concerns arising due to: (i) the difference in reconciled and un-reconciled figures, though adjusted in the subsequent quarter; and (ii) delays in reconciliation with AG by the agriculture department. It was understood that this is due to changes in accounts staff in Agriculture Dept ERS section and in the nodal offices in Animal Husbandry and Fishery Dept leading to this situation. Given the tight disbursement projections over the next 18 months, the *mission recommends that: (i) the contracting of the accounts consultant in agriculture nodal office is completed at the earliest to address delays in reconciliation, which in turn is likely to delay the submission of audit report for the year 2012-13; and (ii) stability of trained accounts staff are ensured at the respective nodal offices.*

73. The mission also suggests that the contract of the internal auditors, be extended to cover the remaining 18 months with a reduced scope (with focus on WRO and Agriculture Depts combined with a

lower sample of sub basins). For other line departments the coverage may be limited to review of nodal offices.

VI. Environmental Safeguards

74. The mission discussed and resolved the pending issues on environmental safeguards at the Project. First and foremost is to award the longstanding independent consultancy for auditing the implementation of environmental and social safeguards mitigation measures for Phase 1 and 2 sub-basins. This is part of the legal covenant and must be completed at the earliest. The proposal to drop the independent audit consultancy for Phase 3 and 4 sub-basins would be considered only after the first independent audit report is made available to the Bank. Owing to this inordinate delay, the environmental safeguards are rated as Unsatisfactory.

75. Additionally, the mission discussed and finalized the Terms of References for undertaking the consultancy for experimental verification of the protocol as well as development of a methodology for measuring methane reduction from SRI farms, as against traditional paddy cultivation approaches. For this the EOI would be published by June 10 and the consultancy is expected to be awarded by August 15, 2013. The mission observed that the proposed outlay for the methane consultancy might be inadequate and recommends that this should be increased. Though it is difficult to assess how much it might cost, international experience indicates that it could well be at least three to four times the current proposed cost. The shortfall in funding should be met by redirecting the savings with the TNAU for this consultancy.

76. The mission also conducted a workshop and provided guidance on the format and data for inclusion in the Environmental Atlas for sub-basins that are under preparation for Phase 3 and 4 areas. The Environmental Cell Division would undertake one consultation each in the three divisions (Chennai, Madurai and Coimbatore) with the expected end user representatives, including Basin Managers, Nodal Officers, WUAs and Policy and Plan makers. This consultation would be completed by June 30, 2013. A draft Atlas for each of the three divisions would be shared with the Bank by August 30, 2013. It was also agreed that an Action Taken Report (ATR) on the identified negative environmental and social issues in the sub-basin and suggested mitigation measure/recommendation to address these should be prepared for two sub-basins under each of the three Environment Divisions and shared with the Bank by August 30, 2013. During the last mission, it was suggested that MDPU would report on a list of identified indicators in the progress reports. The mission notes that reporting is being done on some indicators but not on all, resulting in only partial completion of the agreed action. Reporting on extent of weed growth in tanks, use of fertilizers and extent of wasteland in the sub-basin (as per Wasteland Atlas) needs to be incorporated.

S. No.	Agreed Action	By Whom	By When
1.	Award independent consultancy for auditing implementation of environmental and social safeguards mitigation measures	MDPU, WRO	Immediate
2.	Publish EOI for methane reduction verification and methodology development consultancy	TNAU	June 10, 2013
3.	One stakeholder consultation in each of the three Environmental Divisions with end users of Environmental Atlas	Environment Cell Divisions of Chennai, Madurai and Coimbatore	June 30, 2013
4.	Three draft Environment Atlas (one each from the three environment divisions) shared with the Bank	Environment Cell Division, MDPU	August 30, 2013

5.	Prepare and share with the Bank an Action Taken Report from 6 sub-basins on the reported negative issues and associated mitigation measures/recommendations	Environment Cell Division, MDPU	August 30, 2013

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VII. Social Safeguards

77. In the Environmental & Social Data Collection, Expert Analysis & Monitoring and Impact Assessment Report under IAMWARM Project from Gomukinadhi sub-basin under Vellar Basin for the period Aoril 01, 2012 to September 30, 2012 while describing progress in the rehabilitation of tanks packages 1 to 5 (Package I (Target 17) Package II (Target :14) Package III (Target 9) Package IV (Target :19) and Package V (Target :9)) in Table 2.1 S. No. 2 of the report, the following observations have been made as regards negative social impacts of the interventions:

- In few areas like Kallakuruchi big tank people lost their houses due to eviction activities to clear encroachments.
- Land survey for the Most of tanks is not properly done and boundary of tank is not marked which leads to major encroachments posing social threats to local community

78. These observations were reviewed and discussed with the Environmental and Social Development experts/focal points at MDPU by the mission. Since Kallakuruchi big tank was specifically mentioned, the mission met with the AEE in charge for this tank and it was learnt from the AEE that these eviction activities as described had not yet taken place and that the report was factually incorrect. The Environmental and Social Development experts/focal points at MDPU were advised to visit the site referred to and confirm the actual situation and to ensure that the clear provisions of the Environmental and Social Management Framework and the Resettlement Policy Framework and Resettlement Action Plan (RAP) were rigorously followed by WRO in each case. The Environment and Social Management experts/focal points would visit the Kallakuruchi big tank site and report back to the Bank on the ground situation latest by June 5, 2013.

79. Further the purpose of the Environment and Social Monitoring reports is to first ensure that aberrations and deviations if any from the agreed project implementation approach as detailed in the agreed Environmental and Social Management Framework (ESMF), Resettlement Policy Framework (RPF) and the Resettlement Action Plan (RAP) for the project are brought to the attention of the concerned implementing agency-- in this case the WRO and corrective action is taken immediately following the provisions of these agreed documents.

80. To do this, it is essential that E&S monitoring reports prepared by the Executive Engineer Environmental Cell Division are reviewed carefully by the Environment and Social Management experts/focal points at the MDPU, the observations brought to the attention of the concerned officer in the relevant implementing agency and if required visits undertaken to check out the observations made such as in this case and corrective action recommended and taken in a time bound manner. It was emphasized that any contravention of the agreed ESMF, RPF and RAP for the project would tantamount to violation of the agreed legal covenants of the project, which is a serious matter that deserves attention at the highest level. It was agreed that this matter would receive highest level attention and corrective action based on the report of the Environmental and Social Development Experts/Focal points to be received at the Bank by June 5, 2013.

81. Similar due diligence and process needs to be followed for the monitoring of application of the Environmental and Social Management Framework in each sub-project and monitoring reports that contain references to negative impacts duly acted upon and then sent to the Bank detailing the corrective action/mitigation measures initiated. Only then will the key purpose of this monitoring exercise namely--

main-streaming of environmental and social concerns in sub-project planning and implementation processes of each implementing agency be effectively achieved while remaining compliant with the agreed ESMF, RPF and RAP provisions including the legal covenants thereof.

VIII. Procurement

82. The procurement plans of Animal Husbandry Department, Horticulture Department and Tamil Nadu Agriculture University (TNAU) for 2013-2014 are under technical review at the Bank and Bank's response is likely to be sent to the project within a week. No objection of the Bank for the procurement plans of WRD (additional proposal & left out works) has already been provided on March 21, 2013. The procurement plan of Agriculture Engineering Department, Agriculture Department, Fishery Department and Agriculture Marketing (if any) for 2013-14 will be sent to the Bank for review and clearance by June 30, 2013.

83. For FY 13, PPR had carried out by GPCL. Bank will share GPCL observations with MDPU for their review and response. MDPU discussed the issues raised by GPCL during PPR with mission. They were advised to take the required precautions to avoid recurrence of such incidences in future procurements. A few procurement issues were also discussed with the representatives of implementing agencies and necessary guidance was provided.

84. MDPU informed that they have planned to organize twelve procurement training workshops each of two days for all department officials handling INAWARM project from July 2013 onwards. It is estimated around 350 officials will be trained in these trainings.

85. Two consultancy contracts; Monitoring & Evaluation (M&E) and Quality Management and Technical Supervision shall expire on June and August 2013 respectively. Project has discussed for extension of both contracts up to the extended period of project (i.e. September 2014). It has been agreed that MDPU shall submit the extension proposals to the Bank for review and approval as per terms and conditions of the contracts.

86. From now on Bank's prior review is not required for (i) rebidding decision with respect to post review contracts, (ii) extension of bid validity periods with respect to post review contracts and; (iii) amendments to Goods/Works/Consultancy contracts that are subject to post review (unless the resulting contract amount exceeds agreed prior review threshold).

87. The quality of the documents being sent to the Bank for review needs to be improved. MDPU shall ensure the same before sending documents to the Bank for review.

88. A review of award and completion of contracts was undertaken by the mission with respect to the various implementing agencies. This analysis is provided in Annex 9.

IX. Next Steps

89. An interim implementation support mission is tentatively scheduled for September to review progress against agreed key actions. This will be followed by a fully-staffed mission later in the year. In addition, individual members of the Bank task team may be requesting short visits to the Project between missions to follow up on specific activities as agreed with the MDPU. The summary of key agreed actions is contained in Annex 2.

Annex 1

Key Performance Indicators – May 2013 Implementation Support Mission

Tamil Nadu IAMWARM Project

Project Outcome Indicators*	**Baseline**	**Current Status**	**EOP Target**
% increase in the value of crop production per unit of water[1]	0%	N/A	100%
Increase in productivity/production:[2] • Yield of paddy (%) • Yield of maize (%) • Yield of pulses (%) • Fish production (tons) • Milk production (tons)	 0 0 0 0 0	 25% 18% 25%[3] 7,300 N/A	 30% 30% 25% 25,000[4] 590,000[5]
Increase in area under micro-irrigation (ha)	0	35,279[6]	40,000
% increase in area under high - value crops	0%	36%[7]	30%
% increase in targeted farmers' income	0%	37%[8]	50%
Joint preparation and implementation of sub-basin development plans	9 sub-basin plans prepared	61 sub-basin plans prepared and in implementation	61 sub-basin plans prepared and implemented

[1]To be dropped due to measurement difficulties.
[2]To be added consistent with the new CPS. Yield data from interim M&E Consultant Report, production data from line departments.
[3]Weighted average of greengram and blackgram.
[4]PAD cites both 22,500 and 25,000.
[5]This target is after the tenth year of implementation.
[6]AED plus TNAU.
[7]From Interim M&E Consultant Report.
[8]Increase in income from SRI vs. traditional paddy, from Interim M&E Consultant Report.

Annex 2
Key Agreed Actions

Tamil Nadu IAMWARM Project

S.No	Actions	Date by	Responsibility
1	Expedite award of contracts for Additional DPR for Phase I and II Works	Immediate	MDPU, WRD
2	Strictly monitor to ensure proper cleaning and filling of contraction joints grooves in bed lining of Amravathi Main Canal & Palar Left Canal	Immediate	WRD
3	Baseline indicators of WUA performance provided to the 7 SOs	Immediate	MDPU
4	The formal detailed investigation report of GREDS performance should be forwarded to the Bank	June 5, 2013	MDPU
5	PIM cell in Chennai to submit the names of the nodal PIM officers for each of the regions to the Bank	June 15, 2013	PIM Cell, MDPU
6	Hiring of staff for WUA capacity building	June 30, 2013	WRD, MDPU
7	Provide to the Bank for information the SWARMA action plan	June 30, 2013	SWARMA
8	Term of Third Party Quality Control, Monitoring & Evaluation, and Project Financial Audit Consultancies extended in accordance with the revised Project Closing Date	June 30, 2013	MDPU
9	Provision of demo and impact area and yield by intervention, by year: DoA – up through 2009/10 -- 2010/11 and 2011/12 -- 2012/13 TNAU -- Up through 2011/12 -- 2012/13	 May 31, 2013 June 30, 2013 August 31, 2013 June 30, 2013 August 31, 2013	DoA, TNAU, MDPU
10	Compilation of Project beneficiaries table broken out by line department	June 10, 2013	MDPU, line departments
11	Formal revision of KPIs	Sept. 1, 2013	WB