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The World Bank

Report No: ICR00002747

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(TF-93637)

ON A

GRANT

IN THE AMOUNT OF US\$ 5.5 MILLION

TO THE

GOVERNMENT OF AFGHANISTAN

FOR A

Technical Assistance for Water-Sector Capacity Building Project

September 23, 2013

Environment and Water Resources Unit
Afghanistan Country Department
South Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective September 4, 2013)

Currency Unit = AFN
1.00 = US\$ 0.018
US\$ 1.00 = AFN 55.57

FISCAL YEAR
July 1 – June 30

ABBREVIATIONS AND ACRONYMS

AAA	Analytical and Advisory Assistance
ARTF	Afghanistan Reconstruction Trust Fund
AWARD	Afghanistan Water Resources Technical Assistance Project
GAMS	General Algebraic Modeling System
GIS	Geographic Information System
GoA	Government of Afghanistan
LEA	Large Ensemble Approach
M&E	Monitoring and Evaluation
MEW	Ministry of Energy and Water
PDO	Project Development Objectives
PPU	Project Preparation Unit
SCWAM	Supreme Council for Water Affairs Management
TISC	Technical and Implementation Support Consultancy
ToR	Terms of Reference
WEAP	Water Evaluation and Planning System
WRPU	Water Resources Planning Unit

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AFGHANISTAN
Technical Assistance for Water-Sector Capacity Building Project

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AFGHANISTAN
TECHNICAL ASSISTANCE FOR WATER-SECTOR CAPACITY BUILDING

DATA SHEET

A. Basic Information			
Country:	Afghanistan	Project Name:	Technical Assistance for Water-sector Capacity Building
Project ID:	P112097	L/C/TF Number(s):	TF-93637
ICR Date:	09/26/2013	ICR Type:	Core ICR
Lending Instrument:	TAL	Grantee:	GOVERNMENT OF AFGHANISTAN
Original Total Commitment:	USD 5.50M	Disbursed Amount:	USD 3.59M
Revised Amount:	USD 5.50M		
Environmental Category: C			
Implementing Agencies: Ministry of Energy and Water			
Cofinanciers and Other External Partners:			

B. Key Dates				
Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	07/08/2008	Effectiveness:		03/23/2009
Appraisal:		Restructuring(s):		02/28/2011
Approval:	03/23/2009	Mid-term Review:	04/01/2012	05/01/2012
		Closing:	03/31/2011	03/31/2013

C. Ratings Summary	
C.1 Performance Rating by ICR	
Outcomes:	Moderately Unsatisfactory
Risk to Development Outcome:	High
Bank Performance:	Moderately Unsatisfactory
Grantee Performance:	Moderately Unsatisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)			
Bank	Ratings	Borrower	Ratings
Quality at Entry:	Unsatisfactory	Government:	Moderately Unsatisfactory
Quality of Supervision:	Moderately Unsatisfactory	Implementing Agency/Agencies:	Moderately Unsatisfactory

Overall Bank Performance:	Moderately Unsatisfactory	Overall Borrower Performance:	Moderately Unsatisfactory
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C.3 Quality at Entry and Implementation Performance Indicators

Implementation Performance	Indicators	QAG Assessments (if any)	Rating
Potential Problem Project at any time (Yes/No):	No	Quality at Entry (QEA):	None
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA):	None
DO rating before Closing/Inactive status:	Moderately Unsatisfactory		

D. Sector and Theme Codes

	Original	Actual
Sector Code (as % of total Bank financing)		
Public administration- Water, sanitation and flood protection	100	100
Theme Code (as % of total Bank financing)		
Water resource management	100	100

E. Bank Staff

Positions	At ICR	At Approval
Vice President:	Philippe H. Le Houerou	Isabel M. Guerrero
Country Director:	Robert J. Saum	Nicholas J. Krafft
Sector Manager:	Herbert Acquay	Karin Erika Kemper
Project Team Leader:	Jun Matsumoto	Sanjay Pahuja
ICR Team Leader:	Pratibha Mistry	
ICR Primary Author:	Pratibha Mistry	

F. Results Framework Analysis

Project Development Objectives (from Project Appraisal Document)

To build GoA's (Government of Afghanistan) capacity to progressively undertake strategic basin planning and to improve project preparation for water resources development.

Revised Project Development Objectives (as approved by original approving authority)

Not applicable.

(a) PDO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Water Resources Planning Unit (WRPU) and Project Preparation Unit (PPU) staffed with adequately trained staff and consultants			
Value quantitative or Qualitative)	0	No target specified	14	13
Date achieved	03/24/2009	03/24/2009	12/22/2010	03/31/2013
Comments (incl. % achievement)	Thirteen staff were in place in the WRPU and PPU at the project close. Two staff members had left after the project close and many were seeking other job opportunities.			
Indicator 2 :	Knowledge base and analytical tools developed for Kabul and other targeted basins			
Value quantitative or Qualitative)	0	No target specified	4	4.9
Date achieved	03/24/2009	03/24/2009	12/22/2010	03/31/2013
Comments (incl. % achievement)	Geo-database in GIS was established for the Kabul, Panj-Amu, Northern and Harirod-Murghab Basins. The geodatabase for the Helmand Basin was ninety percent complete by project close.			
Indicator 3 :	Investment priorities in Kabul and other targeted basins identified			
Value quantitative or Qualitative)	0	No target specified	4	2
Date achieved	03/24/2009	03/24/2009	12/22/2010	03/31/2013
Comments (incl. % achievement)	Investments plans were completed for the Kabul and Panj-Amu Basins.			
Indicator 4 :	Number of preparation studies completed for priority investment options (at least to pre-feasibility levels)			
Value quantitative or Qualitative)	0	No target specified	No target specified	2
Date achieved	03/24/2009	03/24/2009	12/22/2010	03/31/2013
Comments (incl. % achievement)	PPU assisted in the supervision of the consultant recruited by MEW to evaluate dam sites under the 110 Small and Medium Dams Project. PPU assisted in the preparation of ToRs for further studies for two sub-projects under this project.			
Indicator 5 :	Number of staff trained on key water resources issues (including integrated water resources management, trans boundary water management)			
Value quantitative or Qualitative)	0	No target specified	14	11
Date achieved	03/24/2009	03/24/2009	12/22/2010	03/31/2013
Comments	Staff was trained to some extent on elements of water resources management.			

(incl. % achievement)	There was no training conducted on trans boundary water management. Even though staff was trained, most are not fully functional to work independently in their roles.
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(b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
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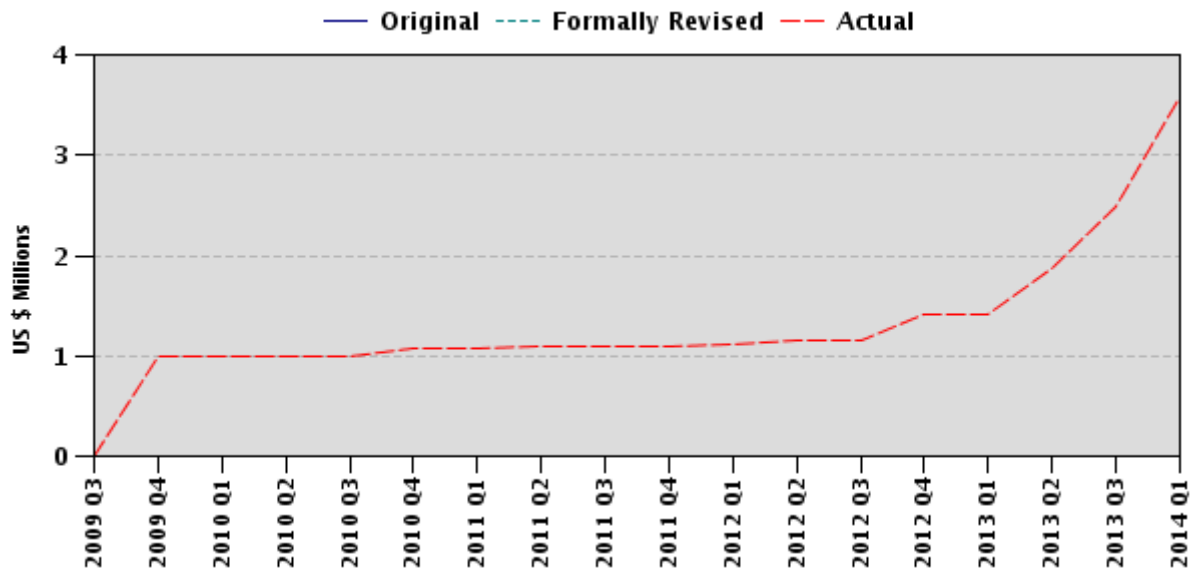
G. Ratings of Project Performance in ISRs

No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	11/24/2009	Satisfactory	Satisfactory	1.00
2	05/28/2010	Moderately Satisfactory	Moderately Satisfactory	1.07
3	01/03/2011	Moderately Unsatisfactory	Moderately Satisfactory	1.09
4	07/12/2011	Moderately Satisfactory	Moderately Satisfactory	1.11
5	01/28/2012	Moderately Unsatisfactory	Moderately Unsatisfactory	1.16
6	06/27/2012	Moderately Satisfactory	Moderately Satisfactory	1.41
7	12/02/2012	Moderately Satisfactory	Moderately Satisfactory	1.88
8	02/23/2013	Moderately Satisfactory	Moderately Unsatisfactory	1.88
9	03/30/2013	Moderately Unsatisfactory	Moderately Unsatisfactory	2.49

H. Restructuring (if any)

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
02/28/2011	N	MU	MS	1.09	The closing date was extended for two years to March 2013. The PDO and components remained unchanged.

I. Disbursement Profile



1. Project Context, Development Objectives and Design

1.1 Context at Appraisal

1. **Country Context.** At the time of project preparation in 2008 Afghanistan was in a stage of post-conflict development. After decades of conflict, in 2004 the constitution was adopted and presidential elections were held. However the security situation remained problematic, originating from a complex range of reasons, from anti-government groups linked to the former Taliban regime, groups linked to Al-Qaeda, remnants of militias allied to commanders, and criminal groups often associated with the narcotics trade. Nevertheless substantial progress was being made to rehabilitate damaged infrastructure, extend road networks, increase school enrolment, improve access to health services, and improve financial services.

2. **Government Strategy.** The Afghanistan National Development Strategy (2008-2013) recognized the national importance of water resources, and made improved water management a high priority. GoA had already taken steps to address shortcomings in governance, and to address urgent priority investments through donor funded projects. The Supreme Council for Water Affairs Management (SCWAM) was established to coordinate and overcome the problems of diverse ministerial responsibilities for water management. A Technical Secretariat was established to develop new water laws and to develop a consistent set of policies for water management. Under the draft Water Law, principles of integrated water resource management and decentralized decision making were introduced, including the establishment of river basin organizations, and allowance for stakeholder participation at different levels.

3. The Government of Afghanistan's (GoA) highest priority programs included the Institutional Building and Capacity Development Program and the National Water Resources Development Program. The Institutional Building and Capacity Development Program was to focus on the institutional and human capacity development of water resources management, as well as infrastructure development at national, river basin and sub basin levels. The National Water Resources Development Program was developed for the preparation of a national water resources development plan. This plan was to cover the development of water resources for the social, environmental and economic needs of the country, as well as: (i) elaborating river basin development and management plans, fostering ministry and water users' capacity for on-farm and off-farm water management; (ii) preparing for discussions on trans-boundary water issues with some neighbor countries; (iii) supporting analytical capacity and research; (iv) enabling private investments in the water sector; and (v) proper planning and implementation of infrastructure for rain and flood water harvesting, supplementary irrigation, groundwater recharge and soil stabilization.

4. **Rationale for Bank involvement.** The Bank's Interim Strategy Note (2007-2008) recognized that the growing globalization and liberalization of regional economies presented an opportunity for Afghanistan to exploit its location at the heart of Central

Asia to promote its own, and regional development, through enhanced regional cooperation. The Bank had identified projects in water resources management as a promising area for regional cooperation, where trust could be built and a track record for regional co-operation could be developed.

5. The GoA began preparation for large scale development of the country's water resources. There are five major river basins in Afghanistan: Kabul, Panj-Amu, Harirud-Murghab, Northern and Helmand. Of these, all the basins, besides the Northern Basin, are shared with neighboring countries. High variability in water availability made the need to develop storage and delivery infrastructure critical for growth of irrigated agriculture, hydropower, and industry, and to provide water supply for a growing, and increasingly urbanizing population. Feasibility studies were completed or were underway for small, medium and large water infrastructure projects. Since the country had not initiated any major water infrastructure in decades, there was limited capacity within the Ministry of Energy and Water (MEW) to undertake planning and analysis for water resources investments.

6. New water resources development projects had to be prepared to international standards if they were to attract donor financing. Donors had committed to support the water sector, but found that the investments proposed were ad hoc, and were not analyzed or prioritized within the framework of the overall water resources of the basin. There was uncertainty about which projects were a priority to fund, how the proposed investments would affect the viability of other proposed investments in the basin, whether the projects were economically, environmentally and socially justifiable, and what the impact on trans-boundary water sharing would be.

1.2 Original Project Development Objectives (PDO) and Key Indicators

7. The Project Development Objective was: To build GoA's capacity to progressively undertake strategic basin planning and to improve project preparation for water resources development. The key indicators linked to this PDO were:

- a) Water Resources Planning Unit (WRPU) and Project Preparation Unit (PPU) staffed with adequately trained staff and consultants
- b) Knowledge base and analytical tools developed for Kabul and other targeted basins
- c) Investment priorities in Kabul and other targeted basins identified
- d) Number of preparation studies completed for priority investment options (at least to pre-feasibility levels)
- e) Number of staff trained on key water resources issues (including integrated water resources management , trans boundary water management)

The original proposal document did not have a results framework and did not indicate any targets for the above key indicators. Targets as indicated in the Implementation Supervision Report of December 2010 are as follows:

Indicator	Units	Target December 2010
a) WRPU and PPU staffed with adequately trained staff and consultants	Number of staff	14
b) Knowledge base and analytical tools developed for Kabul and other targeted basins	Number of basins	4
c) Investment priorities in Kabul and other targeted basins identified	Number of basins	4
d) Number of preparation studies completed for priority investment options (at least to pre-feasibility levels)	Number of studies	Not specified
e) Number of staff trained on key water resources issues (including integrated water resources management, trans-boundary water management)	Number of staff	14

1.3 Revised PDO (as approved by original approving authority) and Key Indicators, and reasons/justification

8. The project was restructured in March 2011 for a time extension of two years to March 2013. The PDO and indicators remained unchanged.

1.4 Main Beneficiaries,

9. The primary beneficiaries of the project were the Water Resources Planning Unit (WRPU) and the Project Preparation Unit (PPU) of the Ministry of Energy and Water (MEW). Component 1 of the project was targeted specially at the capacity building of WRPU and Component 2 at the capacity building of PPU.

10. Secondary beneficiaries identified during appraisal were the Supreme Council for Water Management (SCWAM) Technical Secretariat, specifically for building capacity for conducting trans-boundary water negotiations, and the river basin agencies, as and when they were established under implementation of the new Water Law.

1.5 Original Components

11. The project was designed in two phases, each phase to last two years. Phase 1 was to address the immediate need for initiating a core process of strategic multi-sector water resources development planning. Phase 2 was conceived to primarily finance the preparatory studies for the priority investments identified under Phase 1. The ARTF grant, as described in the components below, was approved for Phase 1.

Component A: Capacity Building for Multi-Sectoral River Basin Planning
(US\$ 990,000) (18% of project cost)

12. This component was targeted primarily at the WRPU, but included provision for SCWAM and proposed river basin agencies. The component consisted of three major activities:

- Knowledge base development and planning analysis
- Technical support,
- Human resources Development

13. This component supported the development of knowledge bases to assemble all relevant data on each basin into a Geographic Information System (GIS). The data was to be used to develop analytical tools to aid in investment prioritization for water resources development. In addition, the human resources were to be developed through training, internships, and partnerships with other institutions. A dedicated team, including participants from other relevant ministries, was to be trained on topics related to trans-boundary waters, for example, hydrology, water resources economics, international water law and negotiations. A workspace was to be established for WRPU, information technology and other office and field equipment provided, and an allowance was made for introducing performance based allowances for staff. Through the implementation of these activities, the project was to progressively build capacity for strategic basin planning.

Component B: Preparation of Water Resources Development Investments (US\$ 385,000) (7% of project cost)

14. This component was targeted at PPU. The following were the major activities for this component:

- Basin level scoping (reconnaissance-level) studies
- Project preparation studies
- Technical support
- Human Resources Development

15. The focus of this component was to prepare pre-feasibility studies and conduct economic analysis, social and environmental assessments for priority projects. The PPU was to design and manage studies for water resources development. This included preparation of Terms of Reference (ToR), review of consultant outputs, management of procurement, and financial management for contracts. In addition, allowance was made for building the skills of PPU staff, establishing partnerships, and provision of office space, equipment and performance allowances for staff. By conducting these activities, it was expected that project preparation for water resources development would be improved.

Component C: Technical and Implementation Support (US\$ 3,680,000) (67% of project cost)

16. The primary activity under this component was the Technical and Implementation Support Consultancy (TISC). The TISC was expected to i) build capacity of WRPU and PPU using suitably qualified consultants, ii) provide technical supervision of WRPU and

PPU, and iii) provide project management support, including procurement, financial management and monitoring.

1.6 Revised Components

17. The project was restructured in March 2011 for a time extension of two years to March 2013. The PDO and components remained unchanged at the project restructuring.

1.7 Other significant changes

18. No other significant changes were made.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

Soundness of background analysis.

19. **Component A: Capacity Building for Multi-Sectoral River Basin Planning**
The project was developed as a follow on to the Bank financed Analytical and Advisory Assistance (AAA) study ‘Scoping Strategic Options for Development of the Kabul River Basin.’ During preparation of this AAA, the Bank team was engaged in data collection for the Kabul River Basin with WRPU staff, for the development of an optimization model to analyze investment options. This process allowed this team of water resources specialists to understand firsthand the challenges of water resources planning and analysis in Afghanistan, and allowed them the insight to design Component A as a means to institutionalize a river basin planning approach that was demonstrated in this study. The transition from a Bank executed AAA to the design of a capacity building program to enable the WRPU to conduct similar analysis required a shift in analysis towards assessing the baseline level of capacity, developing learning objectives to achieve pre-determined organizational competencies, and developing a systematic learning program, within the country constraints, to achieve these objectives. This analysis was not present for the design of both Components A and B.

20. **Component B: Preparation of Water Resources Development Investments.**
Component B required civil engineering expertise for its design, to systematically analyze the existing project portfolio, to determine what was required to convert this portfolio of projects to a standard that would attract donor financing. This background analysis did not guide the project preparation but was designed as part of the project implementation.

21. **Component C: Technical and Implementation Support.** Since Component C was designed to support the implementation of the entire project, it mirrored the level of background analysis available for the technical design of Components A and B. The mechanism of using one consultancy to deliver implementation support in Component C was based on the implementation arrangements for other Bank projects in Afghanistan at that time.

Assessment of the project design

22. Component A: Capacity Building for Multi-Sectoral River Basin Planning.

The design of Component A was technically well conceived and was based on fairly detailed analysis of the situation in Afghanistan with respect to the inadequate knowledge base on water resources of the major river systems of the country. It focused on developing databases for targeted basins, which would serve as a foundation for the preparation of investment plans, based on optimization models, to maximize water productivity in each basin. The mechanism selected to achieve this, namely on-the-job training by a skilled TISC, was not a prudent choice in the context of a post-conflict state where good quality consulting services in-country were scarce. In addition, the baseline capacity within MEW was low, with many WRPU and PPU staff not being proficient in English, and basic computer skills. Within this context, the project design to build in-house capacity for highly technical model development, over out-sourcing this to specialists, for example, and allowing only a two-year project duration to achieve this, was unrealistic.

23. Component B: Preparation of Water Resources Development Investments.

Component B was not based on any analysis and did not reflect the substantive efforts required to prepare feasibility studies of both medium and large multi-purpose projects. At the time of preparation, there were a total of 28 projects in the water resources investment portfolio: 11 ongoing project studies; 8 project studies in the process of tendering for consulting services; and 9 project studies in the pipeline. The objective of the project was to build PPU's capacity to produce a stream of water infrastructure projects that were designed to an international standard acceptable to potential financiers, and that were economically, socially and environmentally sound. The project design was not very clear in terms of what the project would do to improve the existing portfolio, what would be done to support new studies, what specific tasks and capacities were required to achieve a portfolio that was eligible for donor financing.

24. Component C: Technical and Implementation Support. The primary element in achieving the project development objective was the Technical and Implementation Support Consultancy (TISC). However, the Terms of Reference (ToR) and the key personnel identified for this consultancy did not adequately represent the project requirements. Since this consultancy was designed as the backbone of the project, it was important for the contract to have been awarded, or nearly-awarded, at the start of the project. Procurement delays resulted in the selection of a TISC that was not entirely adequate for the purpose of the project. The contract was awarded two months prior to the original Grant closing date. This resulted in the need for an extension to the Grant closing date by two years, resulting in an effective project start in February 2011 instead of March 2009. Given that the ToR was deficient in defining the qualifications and disciplines of key professional staff required from the TISC, and the original time-frame of two years was highly unrealistic, performance of the TISC was unsatisfactory leading to sub-standard project outputs. Mitigating actions, such as having the award of the contract as an effectiveness condition, or splitting the contract into smaller contracts, or

increasing the project duration to allow for procurement delays, were not considered during preparation.

25. **Adequacy of government's commitment but inadequate consultations.** The Bank's AAA on the Kabul River Basin was a working example of the value of undertaking basin planning systematically using a modeling approach, which was appreciated by the government at the time. The WRPU and PPU already existed within the MEW and there was a commitment to further build their capacity. The PPU had been the recipient of capacity building through an Asian Development Bank project that had just closed, and the government was interested in further support for the salaries and capacities of these staff. However, the project was prepared on a fast track over a 6 month period from Oct 2008 to approval in March 2009, leaving insufficient time for detailed needs assessments and consultation with the government.

26. **Risk assessment.** The entire implementation of the project was dependent on the procurement of a quality TISC that had the requisite specialist skills in water resources planning, modeling and analysis; and infrastructure planning, design and construction. This approach was taken as a mitigation measure for the substantial risk to the project implementation from the weak technical and institutional capacity of the implementing agency. The risk of delays in the recruitment of TISC was rated as substantial, and the global procurement notice was released, and the ToR and EoI were prepared during appraisal, with view to completing bid evaluation before effectiveness of the grant. A technical consultant was proposed to assist in the procurement. In light of the importance of the TISC consultancy, it was critical for the contract to have been awarded or being close to being awarded, at the start of the project. In addition, the strategy of having one large contract on which the entire project implementation depended further exacerbated the risk of implementation delays, which was not recognized during project preparation. The risk assessment did not take account of the limited financial management and procurement capacity of the implementing agency. The risk assessment recognized the security situation in the country as an impediment to attracting consultants, but there were no mitigating measures considered.

2.2 Implementation

27. **Implementation delays.** The grant period of two years was unrealistic for procurement of the TISC, deployment to the field, and completion of the first phase activities. From the shortlist, only one firm submitted a proposal. The technical proposal was not accepted since it was deemed non-responsive to the ToR but one year of implementation had already passed and there was significant pressure to get the TISC on board, in spite of the clear indication from the quality of the technical proposal, that the TISC did not have the requisite capability to undertake the assignment. At this point there was an opportunity to re-package the contract and rebid. However, MEW and the Bank made the decision to continue and worked with the TISC to correct the deficiencies in the technical proposal.

28. Further delays were caused during contract negotiations, due to increased demands for security arrangements, disagreement on the qualifications of the proposed

technical team, and issues with the acceptance of the TISC's bank guarantee. The prolonged procurement process also highlighted the low capacity within the government to conduct bid evaluation and contract negotiation. Bank supervision was in flux during this time, with the transition from one task leader to another. If the contract had not been signed at that point, there was opportunity to cancel the activity, or to redesign it. However, the no objection for the contract signing was given by the Bank, for a four year consulting contract, in spite of only two months remaining for the grant closing in March 2011. The project was restructured for a time extension of only two years to March 2013. The restructuring was an opportunity to re-look at the project in the context of the delays over the past two years. However, with the signing of the TISC contract, the new Bank supervision team had little recourse but to go ahead with the project as it was designed, and the project activities remained unchanged at the restructuring.

29. **Implementation quality.** The TISC did not mobilize suitably qualified experts to the field. After contract signing, it was a further eight months before the inception report was finalized, and for the TISC to begin working in earnest. The TISC was unable and unwilling to mobilize individuals with sufficient experience in simulation and optimization modeling, as well as a team leader with the experience and attitude to constructively move the project forward. This was clear by the inability of the TISC to produce an inception report that was responsive to the needs of the project. After the long time that it took to mobilize the TISC, it was found that their performance was unsatisfactory and was hampering project performance.

30. The Bank actively supervised the project after restructuring, working with the TISC to improve the quality of the inception report, actively calling for better project management support from MEW, and strongly insisting for the removal of the poorly performing TISC team leader. After the team leader was replaced and a number of short term specialists were recruited and deployed to Kabul, the performance of the project began to improve. Effective project implementation only took place over a period of fifteen months, from acceptance of the inception report in January 2012 to the grant close in March 2013. Before this time there were few effective project activities to review, and the Bank could only conduct its mid-term review in May 2012. At that point, with less than one year left for implementation, the Bank supervision continued to focus on the thorough review of the project outputs to assure some level of quality for the client.

31. Project delays created conflicting objectives between conducting on-the-job training and the completion of outputs. The outputs of the WRPU and PPU work programs were as important as the capacity building process and the content of the training delivered. But as the time pressure to produce outputs increased, the time of the TISC resources was dedicated to completing the output, at the cost of the capacity building of the MEW staff.

32. Even though capacity building for trans-boundary water was not explicitly stated in the project development objective, it was nevertheless an important aspect of the project, both in terms of the Bank's strategic priority to develop regional co-operation, and recognition by the GoA of its obligation to notify its neighbors as an upstream

riparian on four of its five river basins. This was particularly pertinent if infrastructure investments were to be financed by international donors and financiers. The project intended to provide training to SCWAM to enable them to negotiate cooperative agreements with riparian countries, and respond to requests and notifications from other countries when they develop infrastructure in their countries. In addition to the analytical skills required within WRPU, it was important for SCWAM to acquire knowledge and skills on, for example, international water law, water economics, negotiations and diplomacy. Even though the government reported that the long delayed formation of a multi-disciplinary team in MEW to handle riparian issues was taking shape, no activities were undertaken under this project. The issue of trans-boundary water had great political sensitivity during the duration of the project, and the opportunity to build capacity under the project was not pursued.

33. **Project management.** Project management for the project was weak. There was little ownership for the project from MEW and little support for overcoming internal bureaucratic hurdles faced by the project. This was demonstrated by the procurement and financial management challenges faced in using Ministry departments for the project, the denial of permission for staff to undergo training out of the country, the lack of commitment to dedicate the time of WRPU and PPU staff to the project over other Ministerial tasks, and the lack of commitment to the supervision of building construction for the fourth floor office extension. Before the MEW organizational restructuring, the functions for both water and energy were combined in the planning unit, resulting in the dilution of focus on the water resources capacity building. It was only in the last months of the project, after MEW Director of Water Programs became project director, that there was momentum from the implementing agency to maintain the capacity built and further develop it to manage water resources more effectively.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

34. **Design.** Both the original proposal document and the project restructuring paper did not have a results framework, and lacked clear targets for the indicators proposed. The five PDO indicators proposed were simple output indicators and could not be used to adequately determine the progress of the project towards the achievement of the development objective. There was no clear rationale for how the use of these output indicators related to project outcomes, and the eventual achievement of the development objective to build the capacity of GoA. The indicators were not specific, for example the measure of what constituted ‘adequately’ trained staff was not defined. There was no allowance in the project design to define the parameters of what was meant by ‘capacity’ and there was no mechanism developed to verify whether capacity had been built.

35. **Implementation and utilization.** The project did not establish an M&E system and there were no systems and processes established within the Ministry to use data to determine whether the project’s objectives were being met. There was no methodology established for the evaluation of the capacity building activities.

2.4 Safeguard and Fiduciary Compliance

36. **Environment and Social safeguards.** Since this was a capacity building project, there were no direct social and environmental impacts. The project was designed to build processes to mainstream social and environmental management in the design of priority investments under Component B. However, there was no specific capacity built in the PPU that incorporated environmental and social analysis, or staff hired for this purpose.

37. **Procurement.** Procurement procedures hampered project progress. The use of the Ministry's Procurement Department resulted in inordinate procurement delays, even for works and small value goods. The procurement department, which services the entire Ministry under the rules of the National Procurement Manual, was not well versed in Bank procurement procedures. In addition, the procurement staff were not familiar with the technical nature of the items procured under the project, and were not adequately staffed to handle documents in English.

38. **Financial Management.** Before the deployment of TISC, financial management was poor. Replenishment applications were not submitted on a periodic basis, financial reports were not prepared, and no bank book or fixed assets register was maintained. The use of the centralized department for approving and making payments was time-consuming and contributed to disbursement delays. The project was not able to disburse funds because the Ministry of Finance was not processing any payments due to non-receipt of reconciliation of the annual government accounts from MEW. Processing times improved after TISC began preparing the required documents to facilitate payments. The Ministry's Internal Audit team did not have sufficient capacity, and AWARD eventually utilized the internal audit service of the Bank financed Irrigation Restoration and Development Project.

2.5 Post-completion Operation/Next Phase

39. The poor performance of Phase 1, together with the GoA's lack of commitment to developing the pipeline of water resources investments to international standards, led to the decision not to continue with Phase 2. This was particularly with reference to GoA's decision to go ahead with the detailed design of Shatoot Dam. From the investment prioritization study for the Kabul River Basin, the Shatoot Dam emerged as a priority investment. The Bank agreed to upgrade the feasibility study to a standard suitable for international financing, as part of Phase 2 to the AWARD project. It was recognized that this would require further analysis, particularly social, environmental and economic studies, which would require further time to implement. However, GoA conceded to political pressure to go ahead with the detailed design without due diligence to social and environmental issues, leading to the Bank withdrawing its support and closing the project.

40. Effective implementation of the project was fifteen months, from acceptance of the TISC's Inception Report to the grant close date. All the outputs for the project were delivered during this time frame. At the time of the project close, the project was gathering momentum. The closure of the project resulted in a break of the positive

momentum created, in terms of further learning, and the enthusiasm and motivation of the beneficiaries within PPU and WRPU. The sustainability of the program depended heavily on the retention of trained staff. The departure of key staff will have a significant impact on the continuity of institutional knowledge of the team. The Afghanistan country context is one of transition over the next year, and the Bank will consider supporting the Ministry under projects in the pipeline.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

41. **Relevance of Objectives.** The Government of Afghanistan's National Priority Programs (NPP), presented at the Kabul Conference in 2010, provides a framework for resource allocation around the country's priorities in growth, governance and service delivery. The World Bank's Interim Strategy Note for the period FY12-FY14 sets out the Bank's engagement in the water sector in the context of the National Priority Programs. Consistent with its objectives during appraisal, the Bank remains committed to supporting regional cooperation for water management, and the national level policy dialogue and framework for investments in the sector. The management of water resources, within the context of a basin approach is particularly important as the Bank engages in new projects to productively use water resources to further the development objectives of the country. This refers specifically to Bank support for the development of small multi-purpose dams to increase water availability for irrigation systems, and plans to invest in urban water systems in Kabul. The Bank intends to pay increasing attention to the impact on environment and climate change.

42. The objectives of the project remain highly relevant in the context of the GoA's current national development priorities, as well as the Bank's role in supporting these objectives. The two-fold objective of this project, to build capacity for basin planning, and to improve project preparation for investments to develop water resources, are critical for the future development projects in agriculture, water supply and disaster management. Projects cannot be planned and prioritized with a degree of confidence without a comprehensive knowledge base, understanding the behavior of the system under different climate and development scenarios, and identification of risk and vulnerability to the resource and its development. The AWARD project sought to begin to prepare the government to engage with donors, and enable them to respond to their analytical requirements for project justification, effectiveness, efficiency, equity and sustainability.

43. **Relevance of Design.** In spite of the definite need to engage in the sector, and the relevance of the PDO, the complexity of the project design was not relevant to the context of Afghanistan at the time. Contextual factors of the project design included the ambition to build in-house capacity for complex basin modeling where the base level of capacity was very low, and the need for these skills to be developed in-house, rather than being out-sourced, was not established convincingly. On-the-job training was based on the premise of full-time consulting resources, or even short term consulting resources,

being able to work in Kabul on a day to day basis, without taking account of the unwillingness of many consultants to risk the security environment. There was a definite focus in the design and allocation of project resources towards Component A. The need to develop capacity within GoA to ensure that water resources infrastructure is designed appropriately, was perhaps even more relevant considering the quality of the pipeline that already existed, and the high risk and irreversible impacts of water resources investments.

3.2 Achievement of Project Development Objectives

Objective 1: To build capacity to progressively undertake strategic basin planning

44. The project created effective capacity in the WRPU in the use of Geographic Information Systems (GIS). Comprehensive atlases were created for Kabul, Panj-Amu, Northern and Harirud-Murghab River Basins, and ninety percent of the atlas was complete for the Helmand Basin. The atlases for the Harirud-Murghab Basin and the Helmand Basin were developed entirely by the WRPU, independent of the TISC, indicating an effective capacity building outcome for GIS-based knowledge base development. The WRPU is the source of the most comprehensive basin data available in Afghanistan, and they continue to support other projects that require basin data. They have developed effective relationships with other ministries to source and update the data, and with other project teams to ensure that data generated from other projects will be passed on to WRPU for continued use in Afghanistan.

45. Capacity was created in WRPU in the use of the Water Evaluation and Planning (WEAP) model for basin planning. The WEAP model was setup for the Kabul and Panj-Amu Basins, which was then used to analyze the investment plans for these basins. Staff within WRPU are able to confidently run the WEAP models setup for the Kabul and Panj-Amu Basins. However, WRPU was not sufficiently capacitated to independently set up a similar model for another basin, and especially to conduct the economic cost-benefit analysis used to identify investment options with the highest net benefits. The Panj-Amu model and investment plan were developed in the last three months of the project implementation and there was little on-the-job training as the TISC focused on completing the output. Nonetheless WEAP proved to be a useful simulation model for basin planning, in that it was easy to use and configure, and had a clear user interface to input and view data. It became an effective training tool to explain integrated water resource management issues. The ease of use and the development of in-house skills have resulted in MEW requesting other projects to adopt WEAP as the preferred basin planning tool, and to handover models developed for other basins to WRPU for on-going analysis.

46. Although effective as a simulation model, WEAP has shortcomings as an optimization model. Optimization was attempted for the Kabul River basin investment plan using a Large Ensemble Approach (LEA), where a large number of runs (approximately 25,000) were performed in which a range of parameters were varied. The LEA was used to generate a database for the analysis of various basin development scenarios. The Large Ensemble Approach may not have been the best approach for basin optimisation. WEAP was correctly used in the project to perform the water balance of a

basin. The hydrological parameters obtained from WEAP could have been used as input to the optimization model to be solved by General Algebraic Modeling System (GAMS), which had already been developed for the Kabul River Basin during the Bank's AAA study. However, the TISC did not have sufficient expertise in optimisation to recognise that this analysis could have been done more easily by updating and running the existing GAMS model for the Kabul River basin. A significant amount of time was spent on the LEA, which was not entirely necessary, and could have been dedicated to other project activities.

47. In spite of some capacity for basin planning having been created within WRPU with the use of WEAP, this fell short of the level that was originally conceived in the project design. The intention of the project was to develop a suite of simulation models, optimization models and models for conducting multi-criteria analysis. These were to be combined using a decision support system to facilitate decisions on basin planning for a range of operational, climate and investment scenarios. WEAP was a useful tool created for simulation, but the appropriateness of the optimization tool created may be questioned. In spite of a good start made towards an analytic basin planning approach, the objective as conceived at the project design was not fully met in the project.

Objective 2: To build capacity to improve project preparation for water resources development

48. A review of a sample of eight existing feasibility studies was conducted by engineering consultants. Even though the review was very useful in highlighting the deficiencies in the way feasibility studies were currently being done, and review checklists were developed that PPU could use to review feasibility studies in the future, the study was conducted as a desktop review. The consultant did not work from Kabul. Training was conducted on the use of the checklist developed, but there was no on-the-job training conducted.

49. A comprehensive set of design guidelines and manuals were developed, around which a training program was developed. The training program was organized to take place in Dubai, since many experts were not willing to travel to Kabul due to the security situation. However, the participants were not granted permission by the Ministry to attend the training program. The training was arranged and the trainers waited in Dubai for the participants to arrive, but the participants were not able to attend.

50. Capacity was built around the procurement process for a number of studies. The PPU participated in the review of contractors' technical and financial proposal submissions for Amu Darya River Emergency Erosion Protection project, participated in the procurement of design consultants, and supervision of the consultant during detailed design for the construction of the fourth floor offices built under the project. Some capacity was built within PPU on the mechanics of the bidding process and they are being asked to participate in the procurement process for other projects in the Ministry by serving on bid evaluation committees.

51. The deployment of an experienced civil engineer by TISC based in Kabul with the requisite skills and commitment to capacity building was effective. He was considered invaluable within MEW and often provided advice and guidance for non-project related activities. He was able to respond to MEW's needs as they arose, and was able to provide guidance to PPU on a day to day basis, depending on their current work demands. TISC worked with PPU and the 110 Small and Medium Dams consultant on pre-feasibility studies to select 14 dams of height less than 30 meters for feasibility studies and detailed design, which will be done in future and are required to be supervised by PPU. The upgrade of Shatoot Feasibility study was intended to provide on-the-job training on feasibility study development, however this activity was dropped at project close.

52. Training began from a very low base, where many PPU members could not speak English at the beginning of the project. Whereas on-the-job training with the resident civil engineering consultant was effective to some degree over approximately 15 months of effective project implementation, the PPU is not yet proficient in conducting these activities independently.

53. In spite of the GoA's interest in using the basin approach to plan investments, the development of water resources was a high priority of the government, and with that the political pressure to proceed with infrastructure development. There appeared to be a rush to get as many studies and detailed designs completed as possible, with less emphasis and ownership on spending time and resources to get such studies up to international standards. By the end of the project, the portfolio consisted of thirty five projects, five at detailed design, four contracted as design and build contracts, fourteen at feasibility design stage, and ten at pre-feasibility stage. However none of these projects had economic, environmental or social assessments to the extent that could be considered suitable for donor financing.

3.3 Efficiency

54. There was no economic or financial analysis done during preparation of the ARTF proposal. At the end of the four year project period, a total of US\$ 3,09m had been disbursed, which was 61% of the project allocation for two years. Seventy eight percent of this disbursement was against the TISC consultancy. For the amount spent on the generation of technical outputs, the quality of the outputs was not to the standard envisaged for the project. The further efforts required developing the requisite analytical tools and to continue to build the capacity of the WRPU and PPU to effectively utilize these tools independently indicates that funds were inefficiently spent, and a substantially greater value for money could have been obtained with a project that was appropriately designed and effectively implemented.

55. The undisbursed portion was predominantly for overseas training courses, purchase of satellite imagery, data processing and optimization software, specialized individual consultancies, and office equipment. Many of these relate to more specialized activities provided under the project design that were not achievable in the project

context. The substantial unutilized training allocation points to the lack of commitment from MEW to grant the requisite permission required for staff to leave Afghanistan for training purposes.

3.4 Justification of Overall Outcome Rating

Rating: Moderately Unsatisfactory

56. The project remains highly relevant to the sector context in Afghanistan. Water resources are highly under-developed and the strategic development of water resources has far reaching development impacts in many sectors, including agriculture, energy, industry and domestic water supply. The project objectives are consistent with the Government of Afghanistan's National Priority Programs (NPP), as well as World Bank's Interim Strategy Note for the period FY12-FY14, which outlines how the Bank would extend support for the NPP. Relevance: Highly Satisfactory.

57. Within this context, the project did not sufficiently meet the development objective to allow the GoA to undertake strategic basin planning, or to prepare investments that are ready for international financing. After four years of implementation, the project produced some results, and built some capacity towards establishing an integrated water resources management approach. However, these results were hardly to the level required for systematic and comprehensive analysis to support the basin development decisions that the government very urgently needs to make. PDO: Moderately Unsatisfactory, Efficiency: Unsatisfactory.

3.5 Overarching Themes, Other Outcomes and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

58. The project did not specifically take account of gender disparities in the Ministry in the design of the capacity building initiatives within WRPU and PPU. Two women out of the total of fourteen staff were trained under the project.

(b) Institutional Change/Strengthening

59. WRPU and PPU are fully integrated into the organizational structure of MEW. The units now fall under the Director of Water Projects, rather than General Director-Planning, resulting in greater recognition of the value of the two units. Over the short actual implementation period, some capacity was built within WRPU, and to a lesser degree in PPU.

(c) Other Unintended Outcomes and Impacts (positive or negative)

No unintended outcomes or impacts were identified.

3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

No Beneficiary Survey or Stakeholder Workshop was held.

4. Assessment of Risk to Development Outcome

Rating: High

60. Skills are concentrated with a few key individuals within the WRPU and PPU teams. The sustainability of the program depends heavily on the retention of trained staff. With the project close, and the cessation of supplemented salaries supported by the project, staff were seeking other opportunities outside of the government, and even outside the water sector. A major concern at project close was the potential loss of the skills that had been built. The departure of key staff will have a significant impact on the continuity of institutional knowledge of the team.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry

Rating: Unsatisfactory

61. The project was prepared to an expedited timeline, resulting in a lack of analysis of the baseline level of capacity that existed, the developmental needs for the sector, and appropriate activities to meet those needs, in the context of the post-conflict environment in Afghanistan. Even though risks were identified, especially related to procurement, they were not adequately accounted for in the decision making for implementation. The difficulty of attracting quality expertise to do capacity building in the high risk security environment of Afghanistan was underestimated. The lack of specificity in the type of skills required in the TISC and their level of commitment required for the project became a major impediment to the achievement of the development objective. The project timeline was overly optimistic and did not take into account the full risks of procurement delays. Though the development objectives were relevant, there was a complete lack of appropriate indicators and targets to ensure that the development results were precisely articulated and measured.

(b) Quality of Supervision

Rating: Moderately Unsatisfactory

62. The Bank's supervision performance in the first two years of implementation was unsatisfactory. The Bank conducted only three supervision missions in the first two years of the project implementation. The Bank had opportunities to advise the client to restructure and rebid the TISC contract, but time pressures created incentives to push ahead with a TISC that was sub-optimal. Regular supervision at the start of the project could have contributed to more timely resolution of the contractual issues the Client was facing with the TISC. In the context of this consultancy being the backbone of the entire project, further proactive action by the Bank could have resulted in a greater degree of progress towards achievement of the PDO in the first two years of implementation.

Ratings tended to be optimistic, and implementation performance continued to be rated as moderately satisfactory, in spite of less than a fifth of the grant amount being disbursed. Bank supervision did provide capacity building support to WRPU, even before the TISC was appointed.

63. Restructuring could have provided an opportunity to redesign the project, but the hasty decision to approve the contract signing of the TISC left little further room for significant redesign. Within these constraints, the Bank's supervision team in the second two years of implementation was very proactive in supervising the project and providing more realistic ratings of performance, and can be rated at satisfactory. The Bank's technical support to improve the TISC's technical proposal and inception report, as well as on-going engagement to improve the quality of TISC outputs, ongoing engagement with the client on issues of trans boundary waters, and on the importance of preparing investments to international standards, were substantial contributors to what the project was able to achieve in a short period of time.

(c) Justification of Rating for Overall Bank Performance

Rating: Moderately Unsatisfactory

Overall, the Bank performance is rated as moderately unsatisfactory.

5.2 Borrower Performance

(a) Government Performance

Rating: Moderately Unsatisfactory

64. The Ministry did not demonstrate a firm commitment to the project and its activities. Project staff was continuously asked to undertake non-project related tasks, and often only spent half of their time on project activities. There was no project champion in the Ministry to provide leadership to overcome the internal bureaucratic hurdles that the project faced. The basin planning approach is new to Afghanistan, and the project required lobbying by a bureaucrat to convince political decision makers of the value of the approach. The Ministry continued developing the pipeline of projects without conducting comprehensive feasibility studies, and taking due account of environmental and social impacts.

(b) Implementing Agency or Agencies Performance

Rating: Moderately Unsatisfactory

65. The performance of the implementing agencies was hampered by the performance of the TISC. The performance of the TISC was poor, especially at the beginning of the contract, but improved substantially towards the project close.

66. Staff in both units showed a deep commitment to the work they were doing in the context of the future development for Afghanistan. Their enthusiasm and hard work was notable.

(c) Justification of Rating for Overall Borrower Performance

Rating: Moderately Unsatisfactory

Overall, the Borrower performance is rated as Moderately Unsatisfactory.

6. Lessons Learned

Lessons on Capacity Building

67. Capacity building projects should not be designed as two-year projects. In a conflict country environment such projects should be designed for at least a five-year period. In addition, a two-year project duration does not give enough scope for the Bank implementation support team to consider adequate restructuring of the project.

68. In post-conflict situations capacity building is a real challenge due to the difficulty in attracting suitably qualified experts to the field. The objectives of such projects should be clear, realistic and well defined in terms of the level of change targeted in the individuals and the institution. Indicators should be clear and should not be stated in vague language such as ‘improve, enhance, strengthen, or increase capacity.’ Measurement should go beyond counting numbers of people trained, and focus of the evaluation of specific competencies targeted by the project.

69. On the job training, supplemented by short-term courses, can be an effective capacity building approach, but it requires sustained effort over a long period of time, and may not be relevant for a post conflict context. Effective on the job training can only take place if the consultant is resident in the country, available on a day-to-day basis, and willing to help even on non-project related matters within the consultant’s field of expertise. Apart from technical capability, the consultant requires particular skills to be successful as a trainer, for example patience, the ability to listen, the ability to communicate technical content simply, and flexibility to train on the basis of existing need and level of skill of the trainee. Consultants should be recruited on the basis of these skills, as well as their technical capability.

70. There are greater incentives within the Government to implement technical assistance programs when they are linked to specific investments, rather than as standalone projects.

71. In many cases staff was seconded to the AWARD project and were not recruited specifically on the basis of specific skill. Capacity building began from a low base. English proficiency and basic word processing and spreadsheet capability were low.

Deliberate recruitment of project staff with a higher level of basic skill would have resulted in a greater speed and capacity to absorb capacity building initiatives

72. Future capacity building programs could consider over-staffing, to cater for staff turnover, or providing training to multiple members of the team to ensure greater distribution of skills. In post-conflict areas, more active training of trainers should be considered to ensure sustainability of knowledge creation.

Lessons on the use of a technical support consultancy

73. When a technical support consultancy is the backbone of the project, it is essential to have: (a) detailed professional qualifications expected from the consultancy clearly analyzed and linked to project outputs and outcomes and laid out in the Terms of Reference and request for proposals; (b) such a consultancy be awarded or nearly awarded before the start of implementation of the project.

74. The over-reliance on one technical support consultancy to provide all the requisite specialist skills for a project places the entire implementation at risk from a poor quality consultant. A detailed needs assessment can lead to greater specificity of the types of skills required, and the extent to which they are needed. These skills could be acquired through a variety of channels, from specialist consultants, twinning arrangements with other institutions, and training courses.

75. Many international consultancy firms are not eager to work on projects in post-conflict areas and contracting good firms who can bring high quality experts is a real challenge under these circumstances. Even if companies are willing to submit proposals they in turn will face difficulties in mobilizing good experts to the field as long as these individuals find opportunities to work in safer regions. The project design of future projects in post-conflict areas should lower its ambitions with this reality.

Lessons on project design and supervision

76. GIS skills to build in-country knowledge bases can be built relatively easily and become a useful platform for data consolidation and visualization. There is less value in developing in-house, very specialized analytical capability, in environments of very low capacity. Government agencies do not require the specialist knowledge required to build effective simulation and optimization models, analyses and understand results, and test hypotheses. These skills can be easily outsourced to specialist consultants and universities, where models can be rigorously tested and applied, and the results passed on to policy makers for decision making.

77. Project design requires time and effort to assure the commitment of the Borrower. Integrated water resources management is a new concept in the country, and it requires significant effort to ensure that the Borrower thoroughly understands what is required. Projects designed without adequate consultation with the Borrower perform unsatisfactorily as evidenced in this project with weak commitment shown by MEW. It is

essential to have a dedicated Project Director and team right from the start to have a reasonable chance for satisfactory implementation of the project.

78. In-country supervision teams, especially in conflict areas, are more effective by their ability to closely interact with the client and follow up on project activities.

7. Comments on Issues Raised by Grantee/Implementing Agencies/Donors

(a) Grantee/Implementing agencies

Not applicable.

(b) Cofinanciers/Donors

Not applicable.

(c) Other partners and stakeholders

Not applicable.

Annex 1. Project Costs and Financing

(a) Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Component A: Capacity Building for Multi-Sectoral River Basin Planning	0.990	0.380	38%
Component B: Preparation of Water Resources Development Investments	0.385	0.299	78%
Component C: Technical and Implementation Support	3.680	2.411	66%
Total Baseline Cost	5.055	3.090	61%
Physical Contingencies	0.223		
Price Contingencies	0.222		
Total Project Costs	5.500	3.090	56%
Project Preparation Costs		0.067	
Total Financing Required	5.500	3.157	57%

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Afghanistan Reconstruction Trust Fund		5.5	3.157	57%

Annex 2. Outputs by Component

Component A: Capacity Building for Multi-Sectoral River Basin Planning

The major outputs of this component were the development of a) Knowledge Bases, b) Basin models, c) Investment Plans

a) Knowledge base

The core of the Knowledge Base is the development of a geo-database in GIS. A geo-database allows for the consolidation of all spatial data in one database, and for mapping, geographic analysis and preparation of spatial inputs for modeling. Prior to the project, data was collected in spreadsheets, and there was no spatial analysis or GIS capability within WRPU. The project purchased ArcGIS software and extensive on-the-job training was conducted by the consultant using short term consultants, resulting in the development of basin atlases for five basins, namely the Kabul, Panj-Amu, Helmand, Northern and Harirod-Murghab Basins. Two GIS specialists within WRPU are confident in the use of GIS, and the basin atlases for the Harirod-Murghab Basin and Helmand Basins were developed by the WRPU independently of the consultant. The basin atlases consist of the following types of data:

- Base maps: River and sub basin base maps, river infrastructure and irrigation, hydro-meteorological station locations, administrative units, basin administration and management, population and population concentration, topography
- Thematic maps: Precipitation and temperature, river hydrographs, snow coverage, energy infrastructure, soil taxonomy, land use and land cover, terrestrial eco-regions, geology, geological faults

Basin profiles were prepared for the Kabul and Panj-Amu Basins. The basin profiles are short, concise summaries of the river basin data in the knowledge base, which can be used to provide information to interested stakeholders.

A time series database was developed in MS Access for hydro-meteorological and population data, for the Kabul and Panj-Amu basins. Training was conducted in the use of the database and one database specialist within WRPU is responsible for the maintenance of the database.

A Publications Database was developed to allow access to the data available in all the pre-feasibility and design studies conducted in the basins since the 1970s to the present day. The WRPU publications library houses all digital and paper based reports related to water resources development in the basins.

b) Basin Models

The WRPU received training in the use of the General Algebraic Modeling System (GAMS) by the Bank supervision team before appointment of TISC. The WRPU was trained in the preparation of GAMS inputs, especially for the Kabul River Basin.

An assessment was done by TISC on the range of modeling tools available and the decision was made to use the Water Evaluation and Planning (WEAP) system. WEAP is a widely used decision support system for integrated water resources management and policy analysis. The model was set up for the Kabul and Panj-Amu River Basins. WEAP is a simulation model that uses a basic water balance approach to simulate hydrological systems, municipal and agricultural systems, reservoir operations and hydropower generation, among a range of other functions. WEAP is not designed for optimisation, and a Large Ensemble Approach was used for the Kabul River Basin, where a large number of runs (approximately 25,000) were performed in which a range of parameters were varied. The LEA was used to generate a database for the analysis of various basin development scenarios. A software program called Tableau was used for data output analysis and presentation. A total of 12 weeks of training was conducted by the TISC on the use of WEAP and Tableau.

c) Investment Plans

Investment Plans, based on the modelling done in WEAP, were prepared for the Kabul and Panj-Amu Basins. The investment plans were based on the existing portfolio of investments which had feasibility studies prepared, some of which had been prepared as far back as the 1970s. The following schemes were analysed for the Kabul and Panj-Amu Basins:

Kabul Basin	Panj Amu Basin
1. Shatoot Dam (Multi-purpose)	1. Kelagai Dam (Hydropower and Irrigation)
2. Gulbahar Dam (Multi-purpose)	2. Hasantal Dam (Irrigation)
3. Baghdara Dam (Hydropower)	3. Warsaj Dam (Hydropower and Irrigation)
4. Sarubi II Run-of-River (Hydropower)	4. Khanabad (Hydropower)
5. Shal Dam (Hydropower)	5. Qalai Mamay Dam (Hydropower)
6. Konar A Dam (Hydropower)	6. Lower Kokcha Barrage (Hydropower)
7. Gambiri Scheme (Hydropower and Irrigation)	
8. Kama Scheme (Hydropower and Irrigation)	

The parameters considered in the modelling included three flow scenarios (median flow, dry year with probability of occurrence every 5 years, dry year with probability of occurrence every 10 years), irrigation efficiency and cropping, operational rules for hydropower generation, irrigation water supply and reservoir filling, and population. Cost-benefit analysis was conducted to identify investment options with the highest net benefits. Results were presented in terms of the best investment combinations for a range of total investment tranches.

Component B: Preparation of Water Resources Development Investments

The major outputs of this component are a) Programming and portfolio development b) Portfolio Review c) Standards and Guidelines.

a) Programming and portfolio development

At the project start, there were a total of 28 project studies for a variety of water resources investment projects underway. On the job training by the TISC civil engineer, and procurement and contracts management specialist, who assisted the PPU to develop and manage the portfolio of studies for the preparation of investment projects, determine priorities, sequence the implementation and manage the program budget. Tools were created in MS Project and MS Excel and training was provided to assist PPU to manage the portfolio of studies at various points in the design process. On the job training was also provided on the steps of the procurement process (from preparation of ToRs and Expressions of Interest to bid evaluation and contract negotiation), on financial management, and monitoring, review and oversight of consultants activities and outputs.

b) Portfolio Review

Many of the completed studies in the portfolio were not to international standards and therefore not attractive to donor financing. The portfolio review of a sample of eight completed feasibility studies were reviewed by an engineering consultancy to identify and highlight deficiencies, assess the causes of these deficiencies and to formulate lessons learned and recommendations for improvement. The TISC created a template for a review checklist to ensure consistency and to enable PPU to conduct further reviews systematically. The evaluation comments were used by the PPU to improve ToRs for new studies, and the review checklist was used to prepare comments for prefeasibility studies for projects underway. The portfolio review was conducted by an engineering sub-consultant as a desk study and there was limited on the job training during the review. The resident civil engineering consultant was available for on the job training on the use of the checklists and review finding in subsequent work.

c) Standards and Guidelines

A comprehensive manual was developed by the engineering sub-consultant on a range of topics relevant to dam construction, hydropower, water supply and irrigation projects. The manual covers the types of investigations required for pre-feasibility and feasibility studies, level of detail, methods and outputs required from these investigations, methodologies, standards and guidelines that should be followed. The manual covers a range of topics, including basin planning to environmental assessments, social assessments, cost estimation, financial and economic analysis, seismicity, dams and flood control, among others. There was a very low technical capacity base in PPU. The manual was developed by the engineering sub-consultant that did not travel to Kabul due to security concerns. Technical training on the topics presented in the manual that took

place in Kabul was not appropriately designed, and the training program arranged in Dubai was unsuccessful due to the PPU staff's inability to get the necessary approvals from the Ministry to travel.

The provision of workplace infrastructure, including the construction of an additional floor on the MEW office building for office space, conference rooms, computer hardware and software was an important output of the project for both Components A and B. The WRPU and PPU are institutionalized within the MEW structure, and have modern facilities and tools available to conduct their jobs comfortably and productively.

Component C: Technical and Implementation Support

The outputs generated by Components A and B were done with the assistance of the TISC provided under Component C. In addition, assistance was provided for a) project management, b) procurement management, c) financial management.

a) Project Management

Annual work plans were created for each component, taking into account activity and budget schedules and estimates, identification of milestones and outputs, and resource requirements, as well as the development of procedures and systems to monitor and manage the implementation of these plans. The annual work plans then formed the basis against which activities were monitored through quarterly and monthly work plans and progress reports. A base design of the river basin management website was designed within the current ministry site. The website was still to be approved by project close.

b) Procurement management

A manual of procurement procedures was prepared that was consistent with the Grant Agreement between the Government and the World Bank, and the Bank's guidelines, particularly its guidelines for the procurement of consulting services.

c) Financial management

A financial management system was developed for AWARD supported activities in accordance with the regulations of the Government, World Bank guidelines, and the Grant agreement between the Government and the World Bank. The TISC developed a Financial Management Manual used by the Project's Finance Team. On-the job training was provided in procurement and financial management, to the finance officer in the Department for Water Projects, and WRPU and PPU staff. Training covered the use of the accounting and financial procedures manual, compliance to AFMIS implementation, and the use of AFMIS forms for advances, withdrawals and reconciliation of loan and special account.

Annex 3. Economic and Financial Analysis
Not Applicable

Annex 4. Grant Preparation and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending/Grant Preparation			
Supervision/ICR			
Deepal Fernando	Senior Procurement Specialist	ECSO2	Procurement Management
Walter A. Garvey	Consultant	AFTN2	Water Resources Management
Nagaraja Rao Harshadeep	Senior Environmental Specialist	AFTN1	Water Resources Management
Asha Narayan	Sr Financial Management Specialist	SARFM	Financial Management
Kenneth O. Okpara	Sr Financial Management Specialist	SARFM	Financial Management
Srinivasan Raj Rajagopal	Consultant	SASDI	Water Resources Management
Mohammad Arif Rasuli	Senior Environmental Specialist	SASDI	Water Resources Management
Ranu Sinha	Consultant	CSAAP	Implementation Support
Sanjay Pahuja	Senior Water Resources Specialist	SASDI	Task Team Leader
Jun Matsumoto	Senior Water Resources Specialist	SASDA	Task Team Leader

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY08		2.50
FY09	9.60	64.38
Total:	9.60	66.98
Supervision/ICR		
FY10	3.28	66.94
FY11	10.13	40.19
FY12	30.71	102.44
FY13	53.59	197.47
FY14	0.00	2.60
Total:	97.71	409.64

Annex 5. Beneficiary Survey Results
Not Applicable

Annex 6. Stakeholder Workshop Report and Results
Not Applicable

Annex 7. Summary of Grantee's ICR and/or Comments on Draft ICR

The Borrower completed a Completion Report as at March 2013. Key aspects of this report are provided below.

Government of Afghanistan's Strategy and Policy

Basin approach and integrated water management forms the cornerstone of the Governments approach to water resources development. Although a gradual transformation to integrated water resource management (IWRM) is actually in progress; the vast majority of current development undertakings are still being implemented on a project-to-project basis. This is because IWRM requires a significant infusion of relevant water and land use data pertaining to the analysis of river basins and/or sub-basins. Some of this data is non-existent at this time.

The Key Constraints

At present the Ministry has little or no capacity to organize, carry out and manage a program to plan and develop water conservation infrastructure and implement river basin management of water resources. Creating new capacity for this purpose, as well as to support its dialogue with its riparian neighbors, is therefore vital. Recruitment of new qualified staff will be needed. Previous project experience suggests that with patience, well-designed and well-staffed technical assistance, and a clear, time-bound work program, capacity can be further developed.

Key Lessons Learned

The leadership and management of the Ministry of Energy and Water had some misconception about the actual objectives of the project. The project's objective was to build the capacity of both the Water Resources Planning Unit and the Project Preparation Unit, however, their function showed otherwise. Their tasks and responsibilities were quite essential for MEW's operation. Although the design of the project was to be through a "learning by doing" model, it had been very difficult to put into practice because of the nature of their work.

There had been some difficulties faced in implementation of the project's objective of training personnel from other entities due to non-cooperation from various stakeholders. Formally, these entities were not a part of the project team. Also, these trainings require substantial commitment of time and resources during implementation. These factors were not taken into account in the project design. Thus, the project was only partially successful in achieving the water resources management capacity.

There were provisions for Short-term International and In-Country training courses for the trainees, however these were not realized because it had been very difficult to get the team to be released from Ministry responsibilities to take part in these programs. Also, the government was hesitant to authorize training expenditures. The government

assumed that the cost was to be covered by the Technical Support and Implementation Consultants.

Procurement was supposed to be handled by the project team however; the Afghan Government mandated that this was to be the responsibility of the Ministry's Procurement Department. Although the arrangement seemed logical, this posed a problem for the project because most of the items that were to be procured were technical items that the Department was not familiar with. There had been problems in coordination because the Department did not have enough staff to process procurement documents that were in English. The project team has to have the documents translated but still ends up processing the documents after they had been pending for several weeks, even months.

The World Bank Coordination is an integral part of the project and it is important for the successful implementation of the project. The WB coordination was useful for controlling the consultant in terms of project deliverables. At the beginning of the project, the Bank conducts semi-annual missions, however it was made apparent that more frequent reviews are required to make sure the project was progressing on target. Monthly reviews of project updates helped the Ministry and the Consultant focus on pressing needs. Although AWARD did not progress to Phase II, we commend the Bank for their valuable efforts in coordinating this project. Considering the current capacity of the Ministry, it would be beneficial for future projects to have frequent interaction between the Bank and the Ministry.

Although WEAP may have not been entirely compatible with the original plan of optimization, the Water Resources Planning Unit and the Ministry as a whole had fully benefited from the training it received on the Modeling System. Through WEAP, WRPU had been able to incorporate information that have been gathered from different resources into a practical tool that the Ministry could utilize for Water Resources Planning. WEAP's integrated approach to simulating Water Systems whereby demand (i.e. water use patterns, equipment efficiencies, re-use, prices and allocation) is analyzed on an equal footing with supply (i.e. stream flow, groundwater, reservoirs and water transfers) makes it relatively easy to understand the logic of the DSS. WEAP is a digital laboratory for examining alternative Water development and management strategies.

WEAP as a simulation model is advantageous in terms of understanding water demand coverage and it works well in identifying the demand priority. Power production, irrigation coverage, urban water supply coverage and environmental flow allocation are easily recognized and could be modified with the introduction of constraints to certain parameters.

For comparing the results of cost benefits analysis of projects within the basin, the Kabul Basin WEAP model was developed with a number of potential infrastructures within the basin. Due to the number of possible combinations, it had to be analyzed with the same number of runs to figure out the most beneficial scheme. This had been done through a series of runs known as a Large Ensemble Approach. The resultant information or

database can then be viewed and evaluated with the use of the Tableau Program which lays out the data in a visual representation, thus allowing for the comparative evaluation of the best possible scenario or scenarios.

The project utilized the WEAP model for water management allocation. The model that was developed had two components: Hydrology and Water Management.

However, the decision to apply the model only for Water Management during this phase of the AWARD project was done because of time constraints. If WRPU continues with its functions either through AWARD or another project, it should proceed to implement the Hydrology component of the Model. WRPU began working on the WEAP model in 2011 and had familiarized itself to some extent on the use of the System for modeling. Although the learning by doing approach was a useful method and helped them appreciate the value of the information that had been accumulated, it would have been more effective for the WRPU Team if they had been developing the model themselves under the supervision a senior consultant. Experience in river basin planning and WEAP modeling would be very helpful.

The model is also user friendly not to mention the availability of a user manual that assisted well in clarifying methods. However, there are still components that need to be incorporated in the model like wastewater treatment and catchments. Due to limited information and lack of time, these had not been incorporated in the current model.

The Project Portfolio Review of the Ministries' priority projects provided the Project Preparation Unit with a guide on how the team should assess and review Feasibility and Pre-Feasibility Studies. The team was able to gain knowledge and acquire the following:

- A better understanding of a Feasibility Study Report review methodology (including identification of shortfall, deficiencies and other potential issues of the study) as well as conducting follow-up or secondary stage reviews
- An overview of the structure and parameters of a Feasibility Study
- Guideline on the preparation of a Standardized Terms of Reference for Pre-Feasibility/ Feasibility Studies
- Develop an outlined list of causes of inadequacies and corresponding suggested solutions to address these shortcomings from the study in review
- Formulation of Lessons Learned and Recommendations
- Development of a Checklist for use in forthcoming reviews
- Conduct comparison analysis of Reviews and Amendments to check for consistency of documents

The Technical and Implementation Support Consultant developed a Manual on Planning and Design Standards and Guidelines for Pre-Feasibility and Feasibility Studies for use by the Project Preparation Unit of the Ministry of Energy and Water and other units engaged in project preparation. The document was developed in consultation with the PPU and other senior technical staff at MEW. This document will be used as a Guide in

the preparation, development and monitoring of Pre-Feasibility/ Feasibility Studies implemented by MEW.

Thus far, the document had been a helpful tool in the preparation of Terms of References of several projects under the Ministry's current portfolio as well as in the review of preliminary reports from the Small and Medium Dams Project that is currently conducting an investigation on One Hundred and Eleven (111) potential Water Resources projects.

The Manual provides guidance in the preparation or respective documents for us in the following areas:

- Hydrologic analysis (e.g., floods, drought frequency, water yield of un-gauged streams)
- Agriculture (e.g., cropping patterns, yields, technologies)
- Irrigation (e.g., technology, efficiency, returns flows)
- Hydropower (load forecasts)
- Urban and rural water supply (population forecasts, service standards, losses, industrial and mining demand)
- Cost estimation (methodologies and data for reconnaissance, pre-feasibility and feasibility studies)
- Economic and financial analysis (e.g., methodology, energy values, output prices, production costs)
- Watershed sediment yield and reservoir sedimentation
- Dam engineering and geotechnical investigation (e.g., standards for layouts, selection of sites)
- Hydropower, basin planning, simulation and operation studies
- Environmental and social assessment
- Resettlement and compensation of project affected people

Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders
Not Applicable

Annex 9. List of Supporting Documents

Afghanistan Reconstruction Trust Fund Proposal Document, December 17, 2008

Afghanistan Reconstruction Trust Fund Grant Agreement March 23, 2009

Project Aide Memoires and Implementation Supervision Reports 2008 - 2013

Project Restructuring Paper February 28, 2011

Afghanistan National Development Strategy (2005, 2008-2013)

World Bank Interim Strategy Note (FY 07-FY08, FY12-14)

Contract MEW/957/QBS Implementation Support Consultancy Service , January 2011

Scoping Strategic Options for Development of the Kabul River Basin: A Multisectoral Decision Support System Approach, World Bank, 2011