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PROJECT PERFORMANCE ASSESSMENT REPORT

REPUBLIC OF TAJIKISTAN

EMERGENCY FLOOD ASSISTANCE PROJECT
(CREDIT 31230 & 31231)

May 28, 2008

Sector Evaluation Division
Independent Evaluation Group (World Bank)

Currency Equivalents (annual averages)

Currency Unit = Tajik Somoni (TJS); Currency Unit = Tajik Rubles (TR)

1999	US$1.00	TR 1436.00
2000	US$1.00	TJS 2.20
2001	US$1.00	TJS 2.55
2002	US$1.00	TJS 2.95

All currency units are US dollars unless otherwise noted.

Abbreviations and Acronyms

ADB	Asian Development Bank
AH	Agency for Hydrometeorology
CAS	Country Assistance Strategy
CES	Commission for Emergency Situations
DIPECHO	Disaster Preparedness ECHO
ECA	Europe and Central Asia
ECHO	European Union, Humanitarian Aid Department
EFAP	Emergency Flood Assistance Project
ERL	Emergency Recovery Loan
ERR	Economic Rate of Return
GDP	Gross Domestic Product
GoT	Government of Tajikistan
IBRD	International Bank for Reconstruction and Development
ICR	Implementation Completion Report
IDA	International Development Association
IEG	Independent Evaluation Group
IEGWB	Independent Evaluation Group (World Bank)
INT	Department of Institutional Integrity
IWRM	Integrated Water Resources Management
JICA	Japan International Cooperation Agency
Km	Kilometer
MOP	Memorandum of the President
MOTRA	Ministry of Transportation and Road Administration
MWRLR	Ministry of Water Resources and Land Reclamation
NGO	Non-governmental Organization
OED	Operations Evaluation Department
PCU	Project Coordination Unit
PPAR	Project Performance Assessment Review
PRSP	Poverty Reduction Strategy Paper
REACT	Emergency Assessment and Coordination Team
RPCU	Republican Project Coordination Unit for the Liquidation of Consequences of Natural Disasters
SDC	Swiss Agency for Development and Cooperation
TA	Technical Assistance
UN	United Nations
UNDP	United Nations Development Programme
UNDRMP	United Nations Disaster Risk Management Project
USAID	United States Agency for International Development
WRM	Water Resources Management
WSS	Water Supply and Sanitation

Fiscal Year

Government: January 1 – December 31

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IEGWB Mission: Enhancing development effectiveness through excellence and independence in evaluation.

About this Report

The Independent Evaluation Group assesses the programs and activities of the World Bank for two purposes: first, to ensure the integrity of the Bank's self-evaluation process and to verify that the Bank's work is producing the expected results, and second, to help develop improved directions, policies, and procedures through the dissemination of lessons drawn from experience. As part of this work, IEGWB annually assesses about 25 percent of the Bank's lending operations through field work. In selecting operations for assessment, preference is given to those that are innovative, large, or complex; those that are relevant to upcoming studies or country evaluations; those for which Executive Directors or Bank management have requested assessments; and those that are likely to generate important lessons.

To prepare a Project Performance Assessment Report (PPAR), IEGWB staff examine project files and other documents, interview operational staff, visit the borrowing country to discuss the operation with the government, and other in-country stakeholders, and interview Bank staff and other donor agency staff both at headquarters and in local offices as appropriate.

Each PPAR is subject to internal IEGWB peer review, Panel review, and management approval. Once cleared internally, the PPAR is commented on by the responsible Bank department. IEGWB incorporates the comments as relevant. The completed PPAR is then sent to the borrower for review; the borrowers' comments are attached to the document that is sent to the Bank's Board of Executive Directors. After an assessment report has been sent to the Board, it is disclosed to the public.

About the IEGWB Rating System

IEGWB's use of multiple evaluation methods offers both rigor and a necessary level of flexibility to adapt to lending instrument, project design, or sectoral approach. IEGWB evaluators all apply the same basic method to arrive at their project ratings. Following is the definition and rating scale used for each evaluation criterion (additional information is available on the IEGWB website: http://worldbank.org/ieg).

Outcome: The extent to which the operation's major relevant objectives were achieved, or are expected to be achieved, efficiently. The rating has three dimensions: relevance, efficacy, and efficiency. *Relevance* includes relevance of objectives and relevance of design. Relevance of objectives is the extent to which the project's objectives are consistent with the country's current development priorities and with current Bank country and sectoral assistance strategies and corporate goals (expressed in Poverty Reduction Strategy Papers, Country Assistance Strategies, Sector Strategy Papers, Operational Policies). Relevance of design is the extent to which the project's design is consistent with the stated objectives. *Efficacy* is the extent to which the project's objectives were achieved, or are expected to be achieved, taking into account their relative importance. *Efficiency* is the extent to which the project achieved, or is expected to achieve, a return higher than the opportunity cost of capital and benefits at least cost compared to alternatives. The efficiency dimension generally is not applied to adjustment operations. *Possible ratings for Outcome:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Risk to Development Outcome: The risk, at the time of evaluation, that development outcomes (or expected outcomes) will not be maintained (or realized). *Possible ratings for Risk to Development Outcome:* High Significant, Moderate, Negligible to Low, Not Evaluable.

Bank Performance: The extent to which services provided by the Bank ensured quality at entry of the operation and supported effective implementation through appropriate supervision (including ensuring adequate transition arrangements for regular operation of supported activities after loan/credit closing, toward the achievement of development outcomes. The rating has two dimensions: quality at entry and quality of supervision. *Possible ratings for Bank Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Borrower Performance: The extent to which the borrower (including the government and implementing agency or agencies) ensured quality of preparation and implementation, and complied with covenants and agreements, toward the achievement of development outcomes. The rating has two dimensions: government performance and implementing agency(ies) performance. *Possible ratings for Borrower Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

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This report was prepared by Silke Heuser, who assessed the project in November and December 2007. The report was edited by William B. Hurlbut, and Marie Charles and Romayne D. Pereira provided administrative support.

Principal Ratings

	*ICR**	*ICR Review**	*PPAR*
Outcome	Unsatisfactory	Unsatisfactory	Moderately Unsatisfactory
Institutional Development Impact**	Moderate	Negligible	———
Risk to Development Outcome	———	———	Substantial
Sustainability***	Unlikely	Unlikely	———
Bank Performance	Satisfactory	Satisfactory	Satisfactory
Borrower Performance	Unsatisfactory	Highly Unsatisfactory	Unsatisfactory

* The Implementation Completion Report (ICR) is a self-evaluation by the responsible Bank department. The ICR Review is an intermediate IEGWB product that seeks to independently verify the findings of the ICR.
**As of July 1, 2006, Institutional Development Impact is assessed as part of the Outcome rating.
***As of July 1, 2006, Sustainability has been replaced by Risk to Development Outcome. As the scales are different, the ratings are not directly comparable.

Key Staff Responsible

Project	*Task Manager/Leader*	*Division Chief/ Sector Director*	*Country Director*
Appraisal	Felix A. Jakob	Margret Thalwitz	Ishrat Hussain
Completion	Gailius Draugelis	Sumter Lee Travers	Dennis de Tray

Preface

This is a Project Performance Assessment Review (PPAR) of the Emergency Flood Assistance Project (EFAP) in Tajikistan, for which Credit 31230-TAJ in the amount of $5 million was approved in August 1998 and made effective in September 1998. A Supplemental Credit 31231-TAJ in the amount of $2 million was approved in December 1999. The Supplemental Credit was complemented by a $5.00 million credit from the Asian Development Bank (ADB), which was implemented using the same Project Coordination Unit (PCU). The original Closing Date of June 30, 2001 was extended in 1999 to December 31, 2001 to allow for the implementation of the Supplemental Credit Program. The Credit was closed on December 31, 2001. On April 30, 2002 $2.44 million (35% of the original IDA commitment and the Supplement) was canceled.

The PPAR was prepared by the Independent Evaluation Group (IEG). It is based on the Memorandum of the President (MOP), sector and economic reports, special studies, Country Assistance Strategies (CASs), Policy Framework Papers, credit documents, review of the project files, and discussions with Bank staff. An Implementation Completion Report (ICR, Report No. 24209, dated June 13, 2002) was prepared by the Europe and Central Asia Region. An IEG mission visited Tajikistan in November and December 2007 and discussed the effectiveness of the Bank's assistance with government officials, other development organizations, beneficiaries, and stakeholders (see Annex B). Their kind cooperation and invaluable assistance in the preparation of this report are gratefully acknowledged. Special thanks go to Ashurov Nurullo Ashurovich, Sodiq Abduvalievich Haitov, Takhmina Mukhamedova, Bobojon Yatimov, and Janna Yusupjanova.

The IEG PPAR mission selected the full universe of sub-project sites in one out of three regions where infrastructure was rehabilitated. Based on these field visits and interviews with officials and beneficiaries, this PPAR supports ICR findings in all important particulars and finds it to be an accurate portrayal of the difficulties encountered during implementation. IDA effectively supervised an extremely weak implementation agency under a tight supervision budget and in a difficult security situation stemming from the civil war. IDA discovered misprocurement and dealt with it effectively, which was recognized by ECA regional management through a performance award in 2001.

Furthermore, this report reviews changes in the country's overall disaster management structure, especially with respect to other international and bilateral organizations and NGOs. It also takes a broader look at longer-term water and flood management in Tajikistan, which was covered by an ADB loan. In particular, this PPAR identifies lessons learned for future in-country work with respect to the water-energy link important for Tajikistan's and the region's future.

Copies of the draft PPAR were sent to the relevant government officials and agencies for their review and comments. Comments from the borrower have been taken into account and are included in Annex G.

Summary

Tajikistan is prone to natural disasters. Rugged mountain ranges reaching up to 7,000 meters, melting glaciers in spring and summer, and degraded hillsides lead to annual flooding in the highly populated valleys where most of Tajikistan's 6.7 million people are concentrated. Floods affect not only settlements, roads, and bridges but also wash away valuable topsoil on critical crop land. In 2007 alone, Tajikistan suffered $20 million in economic damage from 33 floods, multiple mudflows, landslides, earthquakes, and snow avalanches.[1]

The World Bank financed the Emergency Flood Assistance Project (Credit 31230 and Supplemental Credit 31231; $5 and $2 million respectively) in response to devastating floods in 1998 and 1999. The Board approved the project just two months after the project identification mission and the project became effective soon afterwards. The design of the EFAP focused on reconstructing infrastructure vital to help the rural population of Tajikistan to resume their social and economic activities. The project did not have any institutional objectives (not even technical assistance for the newly established Project Coordination Unit) and assigned assistance with medium- and longer-term flood management planning to the ADB. The project's two main components were: (i) reconstruction of bridges, roads, and embankments; and (ii) reconstruction and repair of protection dikes, irrigation systems, hydropower plants, transmission lines, and water supply systems. Under the supplemental credit, target numbers of infrastructure to be reconstructed were increased and the operating expenditures of the Project Coordination Unit (PCU) were covered.

To mitigate the economic and social effects of the floods (objective 1), critical "lifeline" facilities were reconstructed or repaired. This included reconstruction of roads and bridges. In addition, the PCU attempted to reinvigorate the local economy (objective 2). Since most families depended on agriculture, restoring access to markets was a priority. Irrigation canals vital for cotton production, the predominant crop planted in flood-affected areas, were repaired. Local labor was used to fabricate gabions for some of the riverbank strengthening. Finally, bridges were designed to withstand a once-in-one hundred year flood, and other mitigation measures proved more effective than expected (objective 3).

With respect to disaster management, the government of Tajikistan was assisted by more than 70 international organizations, bilateral donors, and NGOs cooperating in monthly meetings. Two flood management plans were developed with financing from ADB and the Japanese government, and a water management strategy was developed with the assistance of UNDP. The EFAP was not aligned with any strategic longer-term flood management plans.

Project outcome is rated moderately unsatisfactory, risk to development outcome is rated substantial. This is a slight upgrade compared to the Implementation Completion Report

1. The Committee of Emergency Situations and Civil Defense under the Government of Tajikistan. Disaster Overview for 2007.

(ICR). The reason for this upgrade is that although the implementation agency was extremely weak, the project achieved results that encouraged the revival of social and economic activities in areas damaged by the floods. Infrastructure reconstructed to higher design standards was also found to have been sustainable.

Bank performance is rated satisfactory because of quick project appraisal and extensive supervision. Borrower performance is rated unsatisfactory because the government did not agree to use an existing experienced PCU and or to finance technical assistance in support of the newly created PCU. As a result, the EFAP was fraught with problems throughout its lifetime.

The lessons learned under the project are the following:

- It is important for the Bank to be at a disaster site early, but a false sense of urgency may compromise the quality of what is being constructed.

- Donor coordination is important not only with respect to damage and needs assessment but also in the transition from the relief to the recovery phase of a disaster.

- The Bank would be well advised if it involved local specialists in the identification and design of flood reconstruction projects.

- Under the EFAP, a PCU was set up under the Executive Office of the President of the Republic. While in many disaster situations a direct link to the highest levels of power is important, line agencies in Tajikistan may be better equipped for project implementation, given their technical know-how, to provide for medium- and long-term rehabilitation needs.

- A water strategy that integrates flood management with the Tajikistan's irrigation and hydropower needs could prevent future flooding rather than providing only temporary relief.

Vinod Thomas
Director-General
Evaluation

1. Background and Context

1.1 Tajikistan is prone to natural disasters. Rugged mountain ranges reaching up to 7,000 meters, melting glaciers in spring and summer, and degraded hillsides lead to annual flooding in highly populated valleys, where most of Tajikistan's 6.7 million people are concentrated. Floods affect not only settlements, roads, and bridges but also washes valuable topsoil from crop land. In 2007 alone Tajikistan suffered $20 million in economic damage from 33 floods, in addition to multiple mudflows, landslides, earthquakes, and avalanches.[2] The probability of economic losses exceeding $860 million in one year is estimated at about 0.5 percent, or about 71 percent of the country's GDP.[3]

1.2 During the Soviet era, the government of Tajikistan built large amounts of massive infrastructure, such as dams, embankments, roads and irrigation systems. This construction used low-cost techniques that required high maintenance. Maintenance was neglected when the Soviet Union collapsed and internal rivalries emerged in Tajikistan. Rivers that had been squeezed into tight channels to gain more land for farming occasionally flooded, ripping loose parts of roads and embankments and threatening human settlements and farmland.

1.3 An especially destructive flood occurred in 1998. Heavier than usual snowfalls during the 1997/98 winter and several successive periods of torrential rains in April and May caused many rivers to swell to levels above any recorded in the previous 75 years. Over 100 people died, and numerous dwellings were destroyed or damaged. Dozens of bridges and stretches of roads were washed away, cutting off access to entire areas. Agricultural losses were considerable. Future production was compromised by damage to irrigation systems. The economic damage was estimated at $40 million. More floods occurred in 1999 causing damage estimated at about $20 million.

IDA Involvement

1.4 Tajikistan gained independence from the Soviet Union in 1991 and became a member of IBRD and IDA in June 1993. Before signing the credit for the Emergency Flood Assistance Project (EFAP), IDA had been involved in six operations. These operations were marked by extremely difficult circumstances due to the civil war, during which an estimated 50,000 people were killed and 600,000 displaced. When the war ended with a peace agreement in 1997, IDA fielded a mission to prepare a Post-Conflict Emergency Reconstruction Project. Thus, when the floods occurred in 1998, IDA was already assisting Tajikistan with emergency reconstruction. The government turned to IDA on June 11, 1998, to request assistance for reconstruction after the flooding.

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2. The Committee of Emergency Situations and Civil Defense under the Government of Tajikistan. Disaster Overview for 2007.

3. Pusch, Christoph (2004), Preventable Losses: Saving Lives and Property through Hazard Risk Management. A Comprehensive Risk Management Framework for Europe and Central Asia. (Disaster Risk Management Working Paper Series, No. 9). Washington, DC: The World Bank.

1.5 In June 1998, the government created an International Assessment Group comprised of experts from the Asian Development Bank (ADB), United Nations agencies, and the major NGOs active in Tajikistan. A damage and needs assessment was conducted under the coordination of the World Bank's field office and in cooperation with the Commission for Emergency Situations (SCE) and local authorities of the affected areas. The World Bank and ADB initially were to split responsibility for reconstruction according to geographic boundaries, the World Bank providing financial assistance for the severely damaged south and the ADB for the northern region. This approach changed during implementation, the World Bank providing assistance in three of the four regions of Tajikistan (Khatlon in the south, Sughd in the north, and the Regions of Republican Subordination around the capital Dushanbe) and the ADB for all four regions.

2. Objectives and Design

Project Objectives

2.1 The Emergency Flood Assistance Project (EFAP) focused on reconstructing infrastructure that existed before the floods. This approach was tailored to the difficult circumstances of a country ravaged by civil war and in which a good part of the old Moscow-supported political elite had fled, depriving the country of institutional memory and technical know-how. The Memorandum of the President (MOP) specified three objectives for the project: (a) support the Tajikistan government in its efforts to mitigate the economic and social effects of the floods through the immediate repair and reconstruction of essential infrastructure; (b) establish the conditions for a rapid and effective resumption of economic exchanges and growth in the rural areas affected; and (c) help reduce the risk of future occurrence of similar damage.

Project Components

2.2 The project components consisted of infrastructure to be repaired or reconstructed. As flooding occurs every year in Tajikistan it is important to finish a subproject before flash flooding in spring can damage unfinished works. In 1999 another especially heavy flooding season affected mostly parts of the country not under the EFAP. Only some of the Bank-financed works were affected and had to be reconstructed again. As a result, the government asked for a supplemental credit of $2 million with a total cost estimated at $2.2 million. The supplemental credit was appraised in August and approved in December 1999. Neither the objectives nor components of the project changed, but financing for more infrastructure subprojects was made available. The original closing date of June 30, 2001, was extended in 1999 to December 31, 2001, to allow for the implementation of the Supplemental Credit Program. On April 30, 2002, $2.44 million (35 percent of the original IDA commitment and the Supplement) was canceled.

2.3 The 1998 MOP specified two project components:

- **Transport infrastructure works:** Transport infrastructure providing for the repair or reconstruction of about nine bridges and a total of about 270 kilometers of damaged roads in various regions of the country, including the reconstruction of embankment protections (using labor-intensive work methods) in the proximity of the works implemented to prevent future damage from floods, river-scouring, or erosion.

- **Other infrastructure works:** Providing for the repair or reconstruction of infrastructure pertaining to the agriculture (repair of flood protection dikes and irrigation systems), power (repair of small rural hydropower plants and transmission lines), and municipal services (repair of water supply systems) sectors.

In addition, the 1999 Supplemental Credit Program was to finance (a) transport infrastructure works that included reconstruction of two additional bridges and repair works on about 60 kilometers of roads; (b) other infrastructure works that included 12 kilometers of riverbank reinforcement, repair of about 2 kilometers of power lines, and reconstruction of 6 power substations; and (c) operating expenditures of the Republican Project Coordination Unit (RPCU).

2.4 The lending instrument chosen for the project, an Emergency Recovery Loan/Credit (ERL), was selected to respond quickly to the flood emergency. Given the standard three-year implementation period of ERLs at the time, it was important to focus on the infrastructure works, so little attention was given to the operation of the RPCU or to sustainability issues. In hindsight it would have been preferable to include in the project design training on World Bank procedures for the newly created RPCU. Doing so would have helped prevent the misprocurement that later occurred. In addition, training RPCU staff in effectively supervising implementation would have improved the quality of reconstructed infrastructure. Finally, a more forward-looking project design would have taken into account the recurrent nature of disasters in Tajikistan, perhaps with the development of a flood management plan to improve project sustainability. These shortcomings were the consequence of rushed preparation, a general tendency in older emergency projects that was addressed in the Bank's revised policy for a Rapid Response to Crises and Emergencies (March 2007). The new OP/BP 8.00 ensures that reconstruction projects are not pressed in a three-year time limit, which was exceeded anyway in 91 percent of all ERLs completed between 1984 and 2005.[4] Not having to deliver a project in three-years opens up opportunities to more carefully select and design subprojects, which is beneficial for the longer-term recovery process.

4. IEG-World Bank (Independent Evaluation Group; formally OED). 2005. Natural Disasters: Response, Recovery and Mitigation: Project Timing. IEG Background Paper in preparation for the Natural Disaster Study, October 2005, p. 5 (available on request).

3. Implementation Experience

3.1 Guided by its policy on emergency recovery assistance at the time (OP/BP 8.50), IDA granted a $5 million credit on August 27, 1998, a little more than two months after the government's request for assistance.[5] The credit became effective one month later, on September 21, 1998. The Memorandum of the President (MOP) from August 1998 identified Bank experience relevant for disaster reconstruction that the project design was to take into account: (a) early Bank involvement in defining a reconstruction strategy and (b) willingness to help local authorities with project preparation. The Bank's field office quickly assessed damages in coordination with other donors and developed a reconstruction strategy. However, since the government did not agree to finance technical assistance (TA), no international consultant was available to help select and prepare subprojects. After the project became effective in November 1998, there was a six-month gap in supervision for security reasons (from November 1998 until May 1999), the most critical time for subproject selection and for training the RPCU in World Bank financial management and procurement procedures.

3.2 The ADB had acquired Japanese Trust Funds in order to provide TA to the newly established RPCU—an implementation unit for project coordination and supervision under the President's office—which both agencies shared. However, since it took the ADB until December 1999 to approve its Emergency Flood Rehabilitation Project, and since the Japanese Trust Fund was approved only in December,[6] no training was available for the inexperienced RPCU at the outset.[7] Although there was effective coordination at the disaster site, the project would have benefited, had Bank and ADB staff communicated better and aligned their timing and actions back at headquarters.

3.3 The RPCU's lack of experience with the requirements and procedures of international organizations created difficulties with procurement, financial management, and supervision. Procurement proved particularly difficult because works and goods had to be procured separately. Metal, cement, and other construction material was procured centrally and shipped to rural flood-affected regions where local government agencies were rebuilding infrastructure. Coordinating the delivery of goods with the availability of

5. Elapsed time between the flooding in April and May of 1998 and the presentation of the credit to the Bank's Board of Executive Directors was a little more than two months (77 days). The average amount of time that elapsed between an emergency event and the presentation of a loan or credit to the Bank's Board of Executive Directors (for all Bank-financed ERLs between 1984 and 2005) was 6.7 months (201 days). Compared with the Bank's average for ERL processing, this credit was prepared in a very short amount of time.

6. Japan Special Fund, TA 3319-TAJ, in the amount of $205,000, approved on 2 December 1999.

7. According to the ADB's 2007 evaluation report, "The impact of the TA on project implementation and contract management was limited because the assignments of the DMEs were not aligned with implementation of the Project. […] The TA funded about 7 person-months of services of international disaster management experts (DMEs). The 7 person-months were utilized by three DMEs, who visited Tajikistan on an intermittent basis between February 2000 and January 2003. The first DME conducted two workshops and prepared a draft disaster management plan and a benefits monitoring plan for the loan project. The second DME was replaced, and the third DME assisted DEES [Department of Environment and Emergency Situations] in monitoring and evaluating the civil works and in reporting progress to ADB. The DMEs submitted an inception report, six field visit reports, and a final report."

local construction workers and finishing construction before the reoccurrence of annual flooding in spring was a problem. A post-review of contracts found that contracts for a total value of over $1.20 million had been awarded to firms that had made misrepresentations and engaged in collusion. IDA requested the refunding into the credit account of $588,463 of payments already made on the misprocured contracts, the government complied with the request in December 2000.

3.4 Even though the civil war had ended in 1997, insecurity persisted in Tajikistan, complicating early project efforts. Security problems made it difficult to supervise project implementation in certain areas of the country until 2000. The project, prepared based on a damage assessment undertaken in June 1998, was then affected by severe floods that struck again before reconstruction could be fully initiated. In June 1999, regions of the country that had escaped the first catastrophe were also devastated. This distracted the government and made attaining the project's economic recovery goals more challenging. Total damages from the second event were estimated at about 1 percent of GDP. In response to the event and the government's request, IDA amended the Credit Agreement (approved by the Board on December 14, 1999) to increase the amount of resources available for repair and reconstruction.

3.5 The amount of infrastructure damaged by both floods challenged the administrative capacity the government had dedicated to emergency-related operations. The implementation of the EFAP was constrained by institutional weaknesses from start to finish. The continuing instability and insecurity in the country severely restricted IDA's ability to supervise the project, which in turn robbed it of detailed insights into the location and nature of capacity deficiencies. While efforts were made to ensure flexibility in the identification and preparation of subprojects, the government was nevertheless overtaxed and therefore never effectively responded to the problems that arose during project implementation.

3.6 By the time the credit closing date arrived, numerous works, including both free-standing infrastructure and road repair, were incomplete. Not surprisingly, supervision reports, when missions could make it to the field, found overall quality of the works to be poor. The overall suboptimal result was seen (in supervision reports) attributed to the lack of experience of local enterprises and the lack of timely technical supervision by the RPCU. Enterprises neither followed the construction designs nor complied with the specifications for construction materials.

3.7 Even though many of the works could not be completed by closing, a post-closing mission in March 2002 reported that the roads and bridges included in the project had been finalized and opened to traffic. Notwithstanding, critical infrastructure that supported and protected the roads and bridges, such as abutment protections and river embankments, were left for the government to finish with its own resources.

Monitoring and Evaluation Design, Implementation, and Utilization

3.8 Monitoring and evaluation is rated modest based on the lack of outcome indicators at the M&E design stage, limited use of output indicators to track progress, and a lack of beneficiary surveys or impact evaluations to assess project outcomes.

3.9 Both the MOP and the supplemental MOP provided target values for outputs—the number of bridges, kilometers of roads, embankments, and transmission lines to be rehabilitated. Neither included outcome indicators. The output indicators were used to establish steps to be taken and to set completion dates in the project's TA. The MOP stated that agreement had been reached with the borrower during negotiations on methods and arrangements for continuous monitoring of project performance. The Technical Annex added that performance monitoring indicators would be used to monitor the achievement of the project objectives.

3.10 With respect to M&E implementation, the Project Status Reports (PSRs) tracked output indicators and described the achievement against targets. They also listed actions to be undertaken to reach targets. However, while the ICR tracked the achievement of the five basic output indicators, including their costs (see Annex A), it did not discuss M&E in a meaningful way.

3.11 Due to the limited nature of output indicators and the absence of any beneficiary surveys, indicators were not used to provide feedback to the various stakeholders. The only time that output indicators were revised was when Bank staff found that one bridge selected for rehabilitation had not been destroyed by flooding. As a result of the review the bridge was taken off the list of infrastructure to be rehabilitated.

Safeguards, Fiduciary Compliance, and Unintended Outcomes

3.12 The policy on Emergency Recovery Assistance OP/BP 8.50 allowed for safeguard compliance through environmental assessments undertaken after project approval. In the case of EFAP, the MOP and Technical Annex stated that the project would have a limited environmental impact given the nature and size of the works it would fund. The project was classified Category B for the purposes of OD 4.01, since it repaired, rehabilitated, and/or reconstructed existing infrastructure. The project did not raise any resettlement or property rights issues and was executed within the rights of way of the existing public roads network or embankment protection systems. The potential for mitigation measures related to construction disturbances were to be discussed with construction teams and were to be included in the contractors' agreements.

3.13 The ICR did not discuss safeguards. However, supervision reports and contracts reviewed by the IEG mission provided evidence that environmental and safety concerns were monitored during implementation as far as security in the country and the poor condition of equipment allowed.

3.14 As discussed earlier, the RPCU faced major difficulties with fiduciary compliance. Contracts for a total value of over $1.20 million had been awarded to firms that made misrepresentations and likely engaged in collusion.

3.15 In terms of unintended outcomes, the IEG mission noticed that a large area adjacent to a river that flooded every year was no longer cultivated. This corresponds to the latest thinking on flood management—designating as floodplain an area of cultivated land that is regularly flooded. This not only makes economic sense but also provides ecological benefits.

4. Outputs and Outcomes by Objective

4.1 The three project objectives identified by the MOP were partially achieved as follows.

Objective 1

Support the Tajikistan government in its efforts to mitigate the economic and social effects of the floods through the immediate repair and reconstruction of essential infrastructure (**modest**).

4.2 Critical "lifeline" facilities were reconstructed or repaired. This included reconstruction of roads and bridges. Under the project, roads were cleared of rubble, and the most damaged sections in 210 kilometers of roads were repaired and asphalt sealed (of an original target of 330 kilometers). In addition, the project funded reconstruction of seven bridges and undertook repairs on three additional ones (of an original target of 11 bridges). Since the project was terminated early, it fell short of the targeted kilometers of roads and numbers of bridges to be reconstructed, thus providing access to markets and social facilities to fewer communities than originally intended (see Annex A).

4.3 A post-project assessment was conducted in April 2002 by an engineer from Louis Berger International Inc. The consultant visited project sites where works had been implemented between June 2000 and December 2001 and verified civil works undertaken under 17 (out of 59) contracts and assessed the quality in a detailed report supported by about 200 photographs.

4.4 The Berger assessment considered whether infrastructure was completed or not; the quality of infrastructure designs; discrepancies between designs and implementation; and the quality of rehabilitated infrastructure (see Annex C). The assessment found that 10 of the 17 works contracts had been completed, while seven were incomplete. Works in the amount of $1,120,566 were implemented compared with $1,330,093 of contracted amounts. Designs reviewed by the engineers were assessed as preliminary at 10 project sites. This means that construction plans and longitudinal profiles were produced as a sketch without topographical/layout surveys, which made it difficult to calculate the precise quantities of materials needed for works required. Designs for seven project sites were assessed as satisfactory by the engineer. Works at five sites deviated significantly from original designs. In four cases deviations had negative effects on the quality of works (embankments were eroded, or the road showed potholes). At one site the design deviation had a beneficial effect since the road was directed away from the riverbank. Overall quality was described as satisfactory in six project sites, less than satisfactory in seven project sites, and unsatisfactory in two project sites.

4.5 **Project design and supervision**: The IEG mission found that the quality of the bridges varied with respect to design as well as implementation (see pictures in Annex E). Infrastructure designs for bridges and roads were generally prepared or reviewed by the Tajikgyprovodkhoz Design Institute. Due to the collapse of the Soviet Union and the civil war, many of the younger engineers at the time of implementation had left the institute for private firms and other countries. Therefore, most of the designs were drawn by a single

engineer, who lacked modern equipment. This may explain why designs were often prepared as sketches without topographical surveys or longitudinal profiles—during the Soviet era, it was assumed that construction was supervised and quantities strictly controlled.

4.6 There were several deviations from the original designs during implementation, only some of them approved by the design institute. For example, the IEG mission saw one bridge that spanned only 32 meters, while it would have been necessary to be about twice the length to span the valley. An embankment topped by a road leading to the bridge was being eroded by flooding, and the bridge was in danger of being washed away (see pictures in Annex E, Box 3). In addition, the bridge was constructed without anchors for fixing pedestrian railings on some of the slabs. Therefore, to this day, the pedestrian rail is missing, putting pedestrians in jeopardy. In other cases, deviations from the original design were justified, as in the case of a road that had previously been atop an almost vertical embankment. Deviating from the original design, the local engineer decided to construct the road further inland away from the riverbed. In this case, deviation from the design met the project's objective of helping reduce the risk of future occurrence of similar damages.

4.7 **Lack of maintenance is worsening the risk of flooding**: Bridge maintenance varied between districts depending on the designs, availability of funds for maintenance, and the level of engagement of the responsible maintenance team. Appraisal documents had already noted a chronic lack of maintenance in Tajikistan and had attributed some of the damage caused by flooding to neglected maintenance.

4.8 Roads to some bridges had been eroded by floods and in some cases holes in the concrete structures had not been fixed. Furthermore, since surface drainage had not been considered in the construction of some bridges, the asphalt had been damaged and had not been repaired. As noted earlier, one bridge spanned only half way over the river valley. The dam leading up to the bridge, which consisted of gravel, had been heavily eroded. For lack of other material, such as concrete or boulders, junk cars had been used to prevent further erosion.

4.9 The IEG mission did observe a road maintenance team at work on one bridge. In that particular district, the effectiveness of the maintenance was a function of effective and dedicated leadership. In addition, judging by the condition of embankments and gabions, a recently painted railing, and the road it seemed apparent that more funds were available for maintenance.[8]

8. According to the 2007 ADB evaluation of the Tajikistan: Emergency Flood Rehabilitation Project, "Tajikistan's 26,000 kms road network consists of 4,700 kms of national roads and 21,300 kms of local roads. The Ministry of Transport has jurisdiction over 13,700 kms, including all national roads and 9,000 kms of local roads, and is responsible for planning and coordinating the maintenance of these roads. Road maintenance and construction are funded from the general state budget. The Ministry of Transport's current road budget is about $11.3 million, of which 80% is spent for construction and rehabilitation and 20% for maintenance. On a per-kms basis, an average of $100 is available for road maintenance. This amount is grossly inadequate considering the climate and topography of Tajikistan and the substantial backlog in deferred maintenance."

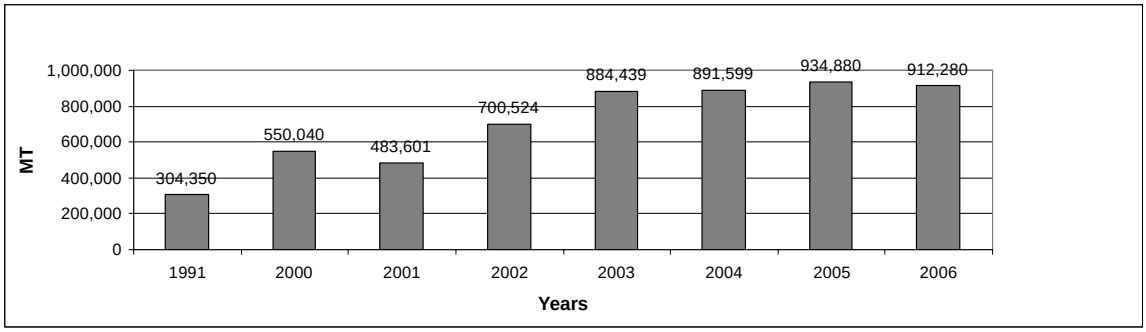
Objective 2

Establish the conditions for a rapid and effective resumption of economic exchanges and growth in the rural areas affected (**modest**).

4.10 The RPCU attempted to reinvigorate the local economy to some degree. Since most families depended on agriculture, restoring access to markets was a priority. Irrigation canals were repaired, which are vital for cotton production, the predominant crop planted in flood-affected areas. Local labor was used for some of the riverbank strengthening by fabricating gabions under the supervision of the local officials from the Irrigation Department under the Ministry of Water Resources and Land Reclamation. Thirteen kilometers of riverbanks were protected to prevent farmland from being damaged by future floods. In addition, 9 kilometers of power lines and three generators were reinstalled. These outputs were below targets due to slow implementation and early project termination (see Annex A).

4.11 Flood control structures and the rehabilitation of roads and bridges have contributed to Tajikistan's economic and social recovery from the civil war, two major floods, and a drought in 2000/2001. No surveys were undertaken to assess project impacts. While attribution to this particular project is not possible, the economy and living standards have improved markedly in Tajikistan. According to the 2006 PSIA, "over the last five years the GDP growth rate has averaged about 8 percent, while poverty rates, measured at $2.15 per day (at purchasing power parity), have fallen—from 81 percent in 1999 to 64 percent in 2003." In addition, cereal yields increased dramatically between 2000 and 2006 (see Figure 1), indicating improvements in living standards for Tajikistan's rural residents, who rely heavily on bread for their diet.

Figure 1. Cereals Production for 1991-2006



Source: WB Resident Mission

4.12 **Low-quality construction compromises sustainability**: The IEG mission visited half of the sites where riverbanks had been strengthened. Several methods had been used: gabions, concrete lining of riverbanks, and prefabricated ferroconcrete blocks in the form of cones or tetrahedrons, which were bound together by iron cords.

4.13 Quality varied between project sites and structure types. A detailed description of the sites visited is provided in Annex D. Generally, gabion protection worked well. However, some gabions were made out of wire mesh too thin to withstand the impact of

annual flooding. In some sections, they were properly fixed, but knots in joints were not strong enough to resist the water stream, which resulted in damage to small sections. In each of the eight places with such makeshift gabion structures, the IEG mission observed that a few gabion nets had been damaged: some had been sliced open or stones had washed through the mesh. The same was true for gabion baskets constructed closer to international standards. In those cases, the net cells were too large, and no extra lines of steel wire had been used to stop more stones from being washed out of the baskets. Stretches most affected by flooding were at the toe of a pylon or embankment, or at the beginning of a gabion structure. Overall, however, after seven years of annual flooding gabions were still protecting riverbanks.

4.14 In six locations, where flow velocity during the spring had been calculated as relatively low, riverbanks had been plastered over with concrete. Here as well the picture was mixed. While some of the concrete had been eroded, the basic function of protecting riverbanks and nearby fields and settlements was fulfilled. Trees planted on top of the riverbank and in the river bed provided additional mitigation against flooding.

4.15 A more controversial method was the construction of spur dykes as flood breaks. Spur dykes, which are built at a 30 or 80 degree angle into the river, are intended to deflect water flow away from the riverbank. The deflection reduces flow velocity and encourages siltation. Spur dykes are commonly used in Tajikistan, especially in wide, meandering rivers. They are constructed at intervals of 40 to 90 meters depending on the site. Spur dykes that the IEG mission visited had been built out of pre-cast ferroconcrete tetrahedrons with metal loops on top of the structure. They were bound together with relatively thin wire, which was missing in many places. According to local engineers, some of the tetrahedrons and iron cords had been stolen, though poor quality seems a more likely reason for their absence. Project supervision reports reveal that at the time of construction, cement for concrete blocks was not strictly controlled, and the concrete mix was not compacted well. This led to early erosion in some of the tetrahedrons.

4.16 The mission visited a water supply channel where water for irrigation was collected from the mountains and channeled into an aqueduct under a bridge. The channel was accurately aligned and appeared recently cleaned, and was serving its function well.

4.17 Seven years after project completion, rehabilitated road sections were still unblemished by potholes, with shoulders leveled and smoothed and guard rails in place except where there were signs of a recent accident. While in the rural areas of Tajikistan roads are usually poorly compacted and constantly need to be repaired, this was not true for the World Bank-financed sections.

4.18 By project closure on December 31, 2001, electrical equipment had been purchased and stored at a pumping station with installation having presumably started. The IEG mission was not able to visit any of the 9 kilometers of power transmission lines or three power substations referred to in the ICR. However, the ADB, which used the same RPCU for the implementation of electrical equipment under its Emergency Flood

Rehabilitation Project, reported that "subprojects in power and telecommunications performed best and are rated highly successful."[9]

4.19 One explanation for the relatively poor quality of works was low costs. All civil work contracts under the project followed the existing State Standards (SNiPs) and Regulations (EniR) in force in Tajikistan since Soviet times. Since contracts were awarded by direct contracting to local government departments and unit rates were identified based on state-regulated tariffs and prices, which were extremely low, there was little incentive for maintaining good quality. As reported in a supervision report in 2002, one hour's work of machinery was priced between $3 and $5 including cost of fuel and labor, whereas similar equipment in Tajikistan as per international contracts would cost between $12 and $64. Costs for labor ranged between $8 and $20 per month, whereas in internationally procured contracts for labor, costs would have ranged between $60 and $150 per month. Quality of works would have probably improved, had there been international competition. However, given the scattered nature of subprojects and the precarious security situation in the country, no interest was signaled by foreign firms.

Objective 3

Help reduce the risk of future occurrence of similar damages (**substantial**).

4.20 Bridges were reconstructed to higher design standards, taking the risks of a once-in-one hundred year flood into account. In addition, bridge pylons were protected through gabion structures and prefabricated concrete blocks to prevent bridges from being washed away. Riverbanks were protected through concrete lining and gabion nets and baskets. The project protected fields and settlements by reinforcing embankments and by constructing spur dams. The mission found evidence of at least one road relocated further inland away from the river to prevent future damage. However, nothing was done to stabilize steep hills or to prevent erosion on bare hillsides.

4.21 **Mitigation measures more effective than expected**: The project's approach, conceptualized before the establishment of the World Bank's Hazard Management Unit, had been to reconstruct infrastructure that existed before the flooding. Thus, no longer-term disaster-risk reduction measures were planned, except that infrastructure was to be reconstructed to design standards able to withstand future flooding. In addition, World Bank staff contacted during the PPAR process were critical of the project's design, which did not sufficiently take account of the recurrent nature of floods. Appraisal and supervision documents, however, show that mitigation was discussed with officials with the unexpected result that mitigation measures were implemented at five sites visited by the IEG mission. Some of these mitigation measures are discussed below.

4.22 In addition to the road that had been moved further inland to prevent erosion and future flood damage, bridges were adjusted to accommodate a once-in-one hundred year flood, the designs and calculations being undertaken by the Design Institute Tajikigpro-vodkhoz following recommendations by World Bank staff. In addition, an embankment was reconstructed to a greater elevation, made thicker, and the slopes were reinforced

9. ADB 2007: Tajikistan: Emergency Flood Rehabilitation Project. Performance Evaluation Report.

with concrete and flood diversion boulders (ferroconcrete tetrahedrons, and ferroconcrete slabs). Furthermore, a large part of the floodplain that used to be irrigated by a well was left fallow, thus returning some parts of the floodplain to the river.

4.23 As of December 2007, the reinforced embankment is effectively protecting some 22,000 people from annual flooding and bridges effectively connect remote villages to markets. Thus, though mitigation was not an explicit objective of the project, it was implemented quite effectively in some locations.

5. Ratings

5.1 This assessment rates project outcome as moderately unsatisfactory, risk to development outcome as substantial, Bank performance as satisfactory, and borrower performance as unsatisfactory. This is a slight upgrade compared to the ICR with respect to project outcome and risk to development/sustainability. The reason behind this upgrade is that although the implementation agency was extremely weak, the project achieved results that encourage the revival of social and economic activities in areas damaged by the floods. Infrastructure reconstructed to higher design standards has also been found sustainable.

5.2 **Outcome** is rated **moderately unsatisfactory**. The project achieved highly relevant physical and institutional objectives, but with major shortcomings. The quality of infrastructure reconstructed is fair to poor, but roads, bridges, and embankments still serve their basic functions. Maintenance of infrastructure varies between districts. Mitigation was better than expected, but Tajikistan still lacks an operational plan for flood management, an objective implemented in parallel by the ADB. Per unit cost of the infrastructure constructed was comparatively low, but quality was correspondingly poor.

5.3 **Relevance** is rated **high**. The project was conceptualized after major floods had destroyed important transport links. The population was suffering because entire villages had been cut off from access to the main road and to electricity. In addition, Tajikistan was under transition from the Soviet system to a market economy, which fundamentally changed the functioning of government and institutions. Furthermore, Tajikistan had suffered from a five-year civil war, in which much of the existing infrastructure had been destroyed or neglected, and during which the Russian elite and other highly skilled people had left the country.

5.4 The project is still relevant to what was described by the 2005 Country Assistance Strategy as primary objectives: (i) to encourage equitable, labor-intensive economic growth, with an emphasis on exports; (ii) to support the efficient and fair provision of basic social services; (iii) to target support to the poorest groups of the population; and

(iv) to improve governance and security. In addition to the above objectives, the 1998 CAS had emphasized investments in rural infrastructure.[10]

5.5 Project design and selection of the ERL instrument was relevant in response to the flood emergency in 1998. The ERL instrument expedites project preparation and takes less time to get to approval by the Board of Directors. The EFAP was approved in a little more than two months and became effective soon afterwards. Therefore, both IDA and the government of Tajikistan can be commended for quickly processing and making the credit effective. However, as the 2006 IEG evaluation *Hazards of Nature, Risks to Development* pointed out, there is a trade-off between careful project preparation and quick action. The quick-preparation approach had a cost however—poor design and insufficient attention to maintenance, as well as a failure to take account of medium- and long-term disaster management issues. The intended "benefits" of speedy preparation consist in reopening transport links, allowing access to markets and improving people's livelihoods. The new policy OP/BP 8.00 allows for both. It expedites the processing of the loan/credit, and then leaves enough time to carefully select, prepare, and implement subprojects by allowing more time for implementation and completion. For the EFAP, more supervision or TA would have been necessary immediately after project appraisal. However, the security situation within the country did not allow for any supervision at the time and the government did not agree to finance TA, which accounts for the project's poor performance.

5.6 **Efficacy** is rated **modest**. This rating is based on the assessment of outputs and outcomes by objectives in the preceding chapter. Reopening of roads and bridges helped rural families in isolated areas regain access to markets, schools, and hospitals. Access to markets was especially important, since many families depended on agriculture for their livelihoods. Areas most affected by the 1998 floods were situated in the cotton growing areas of Tajikistan. Harvested cotton needed to be transported to cotton gins, and in the absence of bridges, farmers had to walk or drive through river beds to reach the main road, putting the harvest at risk and making rivers even more vulnerable to flooding by destroying grass cover and contributing to erosion.

5.7 **Efficiency** is rated **negligible**. This rating is based on the low implementation and supervision capacity within the RPCU. For example, procurement arrangements separated into goods and works did not prove efficient. They were adopted from the 1998 Post-Conflict Rehabilitation Credit Project, but made implementation cumbersome. Given the difficulties in procuring and transporting goods, state contractors were often not able to carry out their work. However, in some cases because civil works had to be terminated before the next flood season, some government agencies managed to complete works with their own funds before being reimbursed.

10. According to the 1998 Tajikistan - Country Assistance Strategy, Report No. 18075 TJ: The Bank Group's strategy focuses on poverty reduction by concentrating on: (i) restructuring farms under private ownership and investing in rural infrastructure as means of creating rural growth and better livelihoods; (ii) reducing economic inefficiencies by transferring publicly owned enterprises into the private sector; (iii) improving coverage, access and quality of social services; and targeting assistance to the poorest groups; and (iv) enhancing institutional capacity.

5.8 The project introduced international and national shopping methods for the procurement of goods, which enabled the RPCU to obtain a higher quality of products at a better price. However, direct contracts for works did not benefit from competition for the following reasons: (i) At the time of implementation there was no market for contractors. Only one contractor per region was able to undertake the works. (ii) Prices were set according to a price list that was decided by the government. Contractors did not price their works as they had to conduct all civil works activities according to the price list. Project objectives did not include a reform of this practice because of the project's emergency nature.

5.9 Since EFAP was an emergency project, no economic analysis was done either at appraisal or in the ICR on completion.[11] The argument for conducting cost-benefit analysis for disaster reconstruction is that infrastructure wiped out during a disaster needs to be reconstructed to allow for the resumption of economic and social activities. Therefore, not only economic but also social, political, and cultural aspects are important when deciding whether infrastructure needs to be reconstructed. Flood protection measures in the United States usually show high returns on such investments. In Tajikistan, however, agencies are still not willing to share data on flood occurrences over time and damage estimates, so it was not possible ex post to calculate the benefits of risk reduction measures taken under this project.

5.10 The project was cost-effective in that at least some bridges and embankments were reconstructed to withstand a once-in-one hundred year flood. Calculations were based on flood events over a 53-year period. While these calculations were important, they may still underestimate future flood occurrences, since they do not take the dynamics of variations in climate into account, given melting glaciers and increasing rain and drought events.

Risk to Development Outcome

5.11 Risk to development outcome is rated **significant**. Roads were constructed to higher design standards, and some bridges were designed to withstand a once-in-one hundred year flood. So far most of the infrastructure has withstood annual flooding. However, nothing has been done to address medium- and long-term issues of flood management, such as planting trees on hillsides, enforcing grazing bans on fragile lands, and stopping deforestation. In addition to nonstructural mitigation measures, more needs to be done with respect to developing an integrated water strategy for Tajikistan and exploring the water/energy nexus by generating energy while also protecting from flooding (discussed further at the end of this report).

Bank Performance

5.12 Bank performance is rated **satisfactory**. Quality at entry is considered satisfactory with minor shortcomings. The reason for the rating is that the Bank responded quickly to

11. BP/OP 8.00 relaxes the economic analysis required at appraisal for emergency response operations, saying that "if essential data cannot be obtained within a reasonable period of time, cost-benefit calculations are not required".

the government request for assistance and prepared the project in an extremely short time. Nonetheless, it implemented the project with an inexperienced RPCU without any technical assistance, even though it bore a high risk of poor performance. In addition, IDA quickly approved a supplemental credit after more floods caused damage in the following year. The Quality Assurance Group has not reviewed the quality at entry.

5.13 Bank supervision is considered satisfactory. In spite of the precarious security situation that characterized Tajikistan after the civil war, Bank supervision was frequent (nine supervision missions between November 1998 and April 2002). Supervision compensated for some of the TA not approved by the government of Tajikistan. Bank staff frequently went out into the field to improve record keeping.

5.14 The quality of infrastructure rebuilt under the project could have been improved had there been competition between local and international contractors. However, given Tajikistan's transition from a command to a market economy, the Bank took the right course in deciding to use line agency specialists to execute the works in accordance with Tajikistan's quality standards and regulations, especially given the urgency of need for the infrastructure. In addition, the Bank complied with its policy on Emergency Recovery Assistance, which states that ERLs do not attempt to address long-term economic, sectoral, or institutional problems.

5.15 A regular procurement portfolio post-review discovered procurement irregularities in the summer of 2000. According to the ICR, the IDA project team acted swiftly and in concert with the Bank's Institutional Integrity Department (INT), which is responsible for investigating fraud and corruption. The quality of the IDA project team's performance in this matter was recognized by ECA Regional Management through a Performance Award in 2001.

Borrower Performance

5.16 Borrower performance is rated **unsatisfactory**. The government did not consent to use an experienced Project Coordination Unit for implementation, nor did it agree to finance technical assistance to help the newly created project coordination unit to become familiar with the procurement procedures and financial management required by international organizations. Once misprocurement had been detected, and the borrower was asked to replace the RPCU director, it took the government a year to fulfill the Bank's request.

5.17 Performance of the implementing agency is rate unsatisfactory as well. Subproject selection was slow, and the RPCU was not able to spend the funds available even though the country's infrastructure was in dire need. After misprocurement was discovered, the Bank revised procurement rules for Tajikistan and did not cancel the $1.2 million of misprocured contracts. It did agree to keep the $588,463 the government had to refund in the credit account for the funding of new subprojects. However, even under the new procurement arrangements, the RPCU was not able to implement more subprojects.

6. Lessons

- *It is important for the Bank to be at a disaster site early, but a false sense of urgency may compromise the quality of what is being constructed.* Infrastructure design, implementation, and supervision take time. Rapid reopening of transport links was important for Tajikistan in the short term, but given that floods and landslides damage the same roads repeatedly, scarce resources may have been better used to find long-term solutions, such as reinforcing hillsides or relocating roads away from hazard-prone areas. Although detailed planning would have been more time-consuming, it would more likely have prevented repeated repairs in the future. This experience is reflected in the Bank's revised policy on emergency lending (OP/PB 8.00) of March 2007, which ensures that reconstruction projects are no longer pressed into a three-year time limit.

- *Involve local specialists in the identification and design of flood reconstruction projects*. Tajikistan inherited a highly centralized institutional structure from Soviet times. This is why, during project preparation, subprojects were identified and designed in the capital Dushanbe without consulting highly skilled technical people in far-flung valleys of rural Tajikistan where the floods occurred. In hindsight, project identification and design would likely have been improved had local staff been consulted.

- *A water strategy that integrates flood management with the county's irrigation and hydropower needs could prevent future flooding rather than providing only temporary relief*. Floods and landslides regularly occur throughout Tajikistan. It would have been useful to help the government learn to deal with the fundamentals of disaster management and to support the preparation and implementation of a comprehensive, affordable, and sustainable natural disaster prevention and mitigation strategy that also took other water management aspects into account.

- *Donor coordination is important not only with respect to damage and needs assessment but also in the transition from the relief to the recovery phase of a disaster*. More coordination between the World Bank and the ADB would have been beneficial, especially since both organizations shared the same RPCU.

7. Broader Issues Arising from the Evaluation

Integrated Water Resource Management in Tajikistan

7.1 Tajikistan is rich in water. Annual flow volumes consist of 64 cubic kilometers per year of water from some 25,000 watercourses, 1,300 lakes, and 24,000 glaciers with a volume of 845 cubic kilometers. Much of the water runs through riparian countries of Afghanistan, Turkmenistan, Uzbekistan, and Kazakhstan to the Aral Sea. Water has obvious benefits, but also the potential for destruction. For example, there are 142 settlements in Tajikistan that flood constantly and 490 settlements that flood seasonally.[12] Flooding is not the only risk. Environmental degradation, contamination of water sources, earthquakes, pests and drought also create setbacks for the rural population and have a particularly debilitating effect on the poor. Severe energy shortages in the winter lead people to cut down trees on fragile hillsides. Goats and sheep graze the hills and destroy grass cover. When water pours down in winter and snowmelt from glaciers sets on in spring, water carries with it mud from the hills, destroying infrastructure and settlements.

7.2 World Bank strategy papers such as Country Assistance Strategies (CASs) and the country's own Poverty Reduction Strategy Papers (PRSPs) have addressed different aspects of water at different times (see Table 1). While the first CASs focused on more efficient use of water supply for irrigation, the 2003 CAS more fully considered the root causes of flooding, such as environmental aspects of soil degradation and deforestation. The most recent 2007 CAS progress report explored the water/energy nexus and highlighted the great potential for hydropower development. Tajikistan could be generating 317 billion kilowatt hours per year, but currently produces only 5 percent of its potential.[13] While every CAS has given some attention to flooding and other natural disasters, the link between better water management and the potential for hydropower has not been explicit. Thus, future CASs could take a broader view of water management by integrating the different aspects of water management into one strategy.

Table 1. Potential for an Integrated Approach to Water Management

CAS	Irrigation	WSS	WRM	Hydropower	Flooding / ND	Environmental Degradation
1996 CAS	X		X		X	X
1998 CAS	X	X			X	X
2003 CAS			X	X	X	X
2005 CAS					X	X
2007 CAS Prog. Rep.		X	X	X	X	

Source: IEG

12. The Ministry of Irrigation and Water Management of the Republic of Tajikistan, UNDP, the Executive Committee of the International Fund for Saving the Aral Sea. 2006. Water Sector Development Strategy in Tajikistan. Dushanbe.

13. Ministry of Irrigation and Water Management of the Republic of Tajikistan, et al. 2006, p. 15.

Disaster Management

7.3 Project design focused on simplicity and flexibility, but did not take account of the medium- and long-term issues of disaster management. Medium- and long-term flood management was left to the ADB, which approved a parallel project in the amount of $6.25 million in December 1999.[14] In addition, the ADB, using Japanese trust funds, completed a "Strategy for Improved Flood Management"[15] in February 2002. That strategy described the institutional arrangements for disaster management in Tajikistan, cooperation among international donors, and forecasting and preparedness mechanisms for institutions and local communities. Among the 10 recommendations offered by the strategy (see Annex F), little progress can be recorded for six (implemented mostly by international donors and NGOs). Two recommendations have been fully implemented: one on changes to Tajikistan's legal and policy framework, the other on the Lake Sarez risk management program, which was funded by the World Bank and other donors. One recommendation that has not been acted upon concerned institutional reform. Tajikistan has four agencies that deal with flood warning, evacuation, and rehabilitation.[16] Nothing has changed so far with respect to developing an institutionally integrated approach to flood management, as recommended by the strategy. The ADB's evaluation department criticized the flood strategy for not having been put into operation and assessed the overall outcome of the consultancy as unsuccessful.[17] Notwithstanding the ADB's evaluation, the IEG mission was informed by the Tajikistan CES that an emergency flood plan would be ready for implementation by January 2008.

7.4 After the floods of 2005, which damaged one World Bank-funded embankment, the ADB began implementation of a follow-up operation that involves developing a

14. The World Bank 1999: MOP for Supplemental Credit. This document states the "during discussions with the joint IDA-ADB appraisal mission in August 1999, the Government has recognized that borrowing funds for recurring natural disasters, though extraordinary in this case, is not sustainable without a flood management strategy. Following these discussions, the Government has requested the assistance of IDA and ADB for a study that would develop a comprehensive flood management plan. The study would most likely include (a) a review of the current situation; (b) recommendations for short -, medium- and long-term mitigation measures; (c) improvements in hydrological criteria for works; (d) improvements in designs and techniques for road and bridge construction as well as embankment remediation measures; (e) design of a flood forecasting and warning system; and (f) an action plan that helps the Government coordinate agencies and organizations when a flood occurs."

15. In addition, a grant amounting to $205,000 was provided by Japan (TA 3319-TAJ). This grant was to finance a disaster specialist for seven months to develop a flood management plan and to provide TA to the implementation unit jointly used by the ADB and the World Bank.

16. Key agencies responsible for flood relief and mitigation are the following: The CES, the Ministry of Water Resources and Land Reclamation (MWRLR) and the Agency for Hydrometeorology (AH). As a more recent ADB-funded study on flood management in Tajikistan found, the institutions' "specific roles and responsibilities with respect to flood management are not completely specified in the underlying legislation and are not integrated or well coordinated within a coherent system." ADB TA 4811-TAJ, 2007: Khatlon Flood Management Project. Draft Final Report. Mott MacDonald.

17. According to the ADB's evaluation report, "The TA had limited impact on capacity building, and the draft of the disaster management plan prepared under the TA has yet to be converted into an operationally useful document. […] The TA is rated relevant, less effective, and inefficient, and its sustainability is unlikely. Overall, the TA is rated unsuccessful."

detailed flood management plan for Tajikistan's southern region Khatlon.[18] This time the ADB is working in parallel with JICA, which also developed a flood management plan and is implementing an operation in the same region, though at somewhat different locations. Cooperation between the more than 70 international organizations and NGOs with in-country representation is facilitated by a donor coordination group called REACT (Emergency Assessment and Coordination Team). REACT, which was founded in 2000 by ECHO, meets every month with the CES. Minutes from these meetings as well as disaster statistics are posted on the UNDP's local website,[19] a novelty for a country that used to keep its statistics and information highly aggregated and secret.

7.5 The EFAP did not include any component on institutional strengthening. However, at the time of project negotiations, the government decided to place the newly created RPCU under the Executive Office of the President of the Republic. It was to coordinate international assistance and oversee the implementation of projects to rehabilitate and reconstruct infrastructure after disasters. As the IEG study *Hazards of Nature, Risks to Development* found, involvement of the highest levels of government is important for successful project implementation. In the EFAP, however, government officials would have deemed it more appropriate to have the PCU report to the Ministry of Water Resources and Land Reclamation, which specializes in structural aspects of water management. In addition, local engineers experienced in reconstruction after flooding wanted to be consulted on subproject selection. Such consultation would have been easier had the RPCU been set up under a line agency rather than the President's office. Thus, while in many disaster situations a direct link to the highest levels of power is important, line agencies in Tajikistan may be better equipped, given their technical know-how, to provide for medium- and long-term rehabilitation needs.

7.6 The Bank may be well advised to plan carefully for the transition from the emergency to the recovery and reconstruction phase of a disaster. Under the new OP/BP 8.00, no time limit will hurry a project to completion. Therefore, more time can be taken to carefully plan projects, taking medium- and long-term mitigation measures into account.

18. ADB Loan 4811-TAJ Khatlon Flood Management Project.

19. Disaster Management in Tajikistan: www.untj.org/react.

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ANNEX A. BASIC DATA SHEET

EMERGENCY FLOOD ASSISTANCE PROJECT (CREDIT 31230 & 31231)

Key Project Data *(amounts in US$ million)*

	Appraisal estimate	*Actual or current estimate*	*Actual as % of appraisal estimate*
Total project costs	7.7	6.25	81 %
Loan amount	7.0	4.48	64 %
Cofinancing	0	0	-
Cancellation	0	2.44	-

Project Costs *(amounts in US$ million)*

	Appraisal estimate	*Actual or current estimate*	*Actual as % of appraisal estimate*
Repair / Reconstruction of bridges	2.16	2.13	99 %
Repair / Reconstruction of roads	2.40	1.58	66 %
Other Infrastructure Works (Rehabilitation of River Embankments and Power Lines)	2.29	2.16	94%
RPCU Operating Costs/Audit Services	0.10	0.38	380%
Total Baseline Cost	**6.95**	**6.25**	**-**
Physical Contingencies	0.75	0.00	**-**
Total Project Costs	**7.70**	**6.25**	**-**

Output Indicators *(amounts in US$ million)*

	Appraisal estimate	*Actual or current estimate*	*Actual as % of appraisal estimate*
Number of bridges/structures repaired/reconstructed	11	7	64%
Number of kms of road rehabilitated	330	210	64%
Number of kms of bank strengthening works completed	15.7	13	83%
Number of power sub-stations installed	8	3	38%
Number of kms of power transmission lines replaced	0	9	-

Project Dates

	Original	*Actual*
Initiating memorandum	-	06/24/1998
Negotiations	-	07/24/1998
Board approval	-	08/27/1998
Signing	-	08/31/1998
Effectiveness	11/30/1998	09/21/1998
Closing date	01/31/2000	12/31/2001

Staff Inputs (staff weeks)

	Total
Preappraisal	55
Appraisal	0
Negotiations	0
Supervision	173
Other	25
Total	253

Mission Data

	Date (month/year)	*No. of persons*	*Specializations represented*	*Performance rating*	*Rating trend*
Identification/ Preparation	June 1998 (EFAP)	3	Urban Planner, Transport Specialist, Financial Management Specialist		
Appraisal	July 1999 (Supplemental)	3	Operations Officer, Transport Specialist Procurement Accredited Staff		
Supervision	November 1998	2	Operation Officer Transport Specialist	S	S
	May 1999	2	Operation Officer Transport Specialist	S	S
	August 1999	2	Operation Officer Transport Specialist	S	S
	November 1999	2	Operation Officer Transport Specialist	S	S
	March 2000	2	Operation Officer Transport Specialist	S	S
	May 2000	2	Operation Officer Transport Specialist	S	S
	November 2000	1	Transport Specialist	U	S
	April 2001	2	Operation Officer Transport Specialist	U	S
	August 2001	1	Financial Management Specialist	U	
Completion	April 2002	1	Infrastructure Specialist		

ANNEX B. AGENCIES MET IN TAJIKISTAN

The World Bank, Dushanbe Office

IFC, Dushanbe Office

Central Government Agencies
International Cooperation Department, Committee of Emergency Situations and Civil Defense
The Ministry of the Improvement of the Soil and Water Resources
Geodesy Cartography and Land Use Agency

Local Government Agencies
State Irrigation Management Systems, Khatlon Oblast
Ministry of Water Resources and Land Reclamation
Khatlon Oblast Water Resources Ministry, Kulyab Region
Khovalink Region Water Resources Ministry, Khatlon Oblast
Mayor's Office, Khovalink Region, Khatlon Oblast
Peredvijnaya Mehanizirovannaya Kolonna in Khamadoniy Region, Khatlon Oblast
Pumping Station No.3, Yavan Region
Pumping Station No.4, Yavan Region
Pumping Station 40 years of Tajikistan (Khujand)

PIUs
Implementation Center of the Land Registration and Cadastre System for Sustainable Agriculture Project
State Institute "Project Management Unit Ferghana Valley Water Resources Management Project"
Governmental Center of the Farm Privatization Support Project
Project Implementation Unit of the Farm Privatization in Yavan Region

National Agricultural Training Center

Non-Banking Financial Organizations (NBFOs)
Non-Banking Financial Organization, Yavan Region
"Omad" Micro-Finance Organization, Khujand

Water User Associations
WUA - Water Users Association in the Yavan Region
WUA - "Mirob" Water Users Association in the Former "Leningrad" Collective Farm
WUA - "Chilton" Water Users Association in the Former "Varzob" Collective Farm
WUA – "Kanz" Water User Association

Other Donor Organizations
UN ISDR
EU - Delegation of the European Commission to Tajikistan

EBRD
EU – ECHO
ADB
Aga Khan Development Network
German Agro Action – Welt Hunger Hilfe
FAO
UNDP
SIDA
DFID
FOCUS Humanitarian Assistance, an affiliate of the Aga Khan Development Network

ANNEX C. POST-PROJECT ASSESSMENT

Table 2. Louis Berger International Inc. April 2002. Post-Project Completion Assessment

Contract Name	Status and Duration of Construction in April 2002	Contract Amount and Amount Disbursed for Works in US$	Quality of Design	Quality of Construction	Deviations in Work Items and Quantities from Designs
BSW on the Road Kafanigan, Kolhoz Leningrad, Contract 2000-12S	Completed September 1, 2000 – September 27, 2001	$35,136	Preliminary designs without topographical/ layout surveys	Less than satisfactory	There were no variations in work items and certified quantities did not exceed the designed quantities
BSW on the river Ilok, kolhoz Leningrad, Contract 2000-13S	Incomplete	$7,162 of $22,522	Preliminary designs without topographical/ layout surveys	Satisfactory	None
BSW and road Dushanbe-Tashkent (section 36-85 km), Contract 2000-15AS	Completed July 2000 – December 2001	$76,585 of $81,191	Satisfactory quality of design, documentation prepared by Tajikgiprotransstroy Design Institute	Satisfactory	None
Road Kofarnihon-Panj (38-40 km) Contract 1998-09	Completed		Design documents presented by low quality sketches and scope of work calculated approximately	Less than satisfactory	
Road Kofarnihon-Panj (45-97 km)	Completed		Designs were prepared by Tajikgiprotransstroy	Satisfactory	

Contract 1998-09			with detailed drawings.		
Reconstruction of central effluent, Contract 2000-03S	Completed June 2000 – November 27, 2001	$76,500	Design documents are detailed, however, no provisions were made for the protection of the outlet of the emergency discharge pipe	Satisfactory	None
BSW on river Toir-Su, sovhoz.Kangurt, Contract 2000-10S	Completed May 5, 2001 - December 24, 2001	$230,000	Preliminary designs	Less than satisfactory	None
BSW on River Obi Mazor, Contract 2000-09S	Incomplete	$19,630 of $30,000	Preliminary designs	Satisfactory, engineer improved design	The actual site deviated from designed sketches
Road and Bank Strengthening on road to Khovaling, Contract 1999-12	Completed April 2001 - December 2001	$75,954	Construction plan was produced as a sketch without topographical/layout surveys and longitudinal profiles	Less than satisfactory	None
Road Kulyab-Muminabad (20-39 km), Contract 1999-11	Incomplete	$26,626 of $43,006	Designs were lacking the vertical alignment and there were no location schedules. Designs did not cover pavement, traffic forecasts, rational for the adopted category of the road. As per design drawings the road was being upgraded from category 4 to category 3	Less than satisfactory	None
Chapaeva bridge in Kulyab, contract 2000-07S	Incomplete	$96,169 of $124,715	Design documents were prepared by the Tajikgiprotransstroy and are satisfactory	Less than satisfactory	None
Bridge over the Kulyabdarya	Completed	$75,538	Design documents were prepared by	Satisfactory	None

canal, contract 1999 – 40			the Tajikgiprotransstroy and are satisfactory		
Bridge over the Kulyabdarya canal (Ilich), contract 1999-40B	Incomplete	$160,240 of $211,822	Design documents were prepared by the Tajikgiprotransstroy and are satisfactory	Unsatisfactory	Significant deviations
Bridge over the Kulyabdarya canal (Tugarak), contracts 1999-40A	Incomplete	$83,166 of $153,709	Design documents were prepared by the Tajikgiprotransstroy and are satisfactory	Less than satisfactory	None
BSW on river Toir-Su, sovhoz.Kangurt in the Shinabai section, contract 2000-10AS	Completed August 2000-December 24, 2001	$70,000	Preliminary designs	Unsatisfactory	Flow-directing protection dikes were not placed as shown in the sketch
BSW River Vahsh in Kolhoz Nuriddinova, contract 2000-16S	Incomplete	$38,559 of $50,000	Design documents were prepared by the contractor and reviewed by Tajikgiprovodkhoz. Designs were satisfactory	Unsatisfactory	Significant deviations from the design
BSW on Kafanigan River (Kollhoz Kommunizm), Contract 2000-01S	Completed August 2000-November 2001	$49,301 of $50,000	Design documents were prepared by the contractor and reviewed by Tajikgiprovodkhoz Design Institute. Designs were satisfactory	Less than satisfactory	Significant deviations from the design

Source: Louis Berger International Inc.

ANNEX D. IEG PPAR MISSION SITE VISITS

	Subproject	Assessment
	Vose district	
1.	Bridge and river bank protection at the Kulyabdarya canal, close to Tugarak Village	A bridge was constructed to improved design standards providing higher elevation, including a sidewalk. The mission found potholes in the road leading to the bridge. River banks were protected by prefabricated concrete slabs and cones, some of which were washed down into the canal bed. Trees were planted on top of the river bank and in the canal bed to provide additional protection from river bank erosion.
2.	Bridge and river bank protection at the Kulyabdarya canal, close to Larhobi Village	A bridge was reinforced and constructed to higher elevation, without extending it from spanning 32 meters to a required 80 meters. The railing was missing, putting pedestrians at risk. The road leading to the bridge consisted of gravel with potholes. The embankment was severely eroded and damaged by floods. It was only poorly protected by junk cars, which were used for lack of other protection material. The river bank protection consisted of gabions, partly in good condition and partly damaged by floods, especially at the pylons. Pylons were in need of urgent maintenance. In addition, a tributary drainage canal was excluded from the project, which may cause a potential risk during flooding in spring.
3.	River bank protection at the Yakh-suv river	The river bank was protected with prefabricated concrete cones to divert floods. At another section, the river bank was concrete lined. The embankment effectively protects 20,000 people living in Vose district. Fields bordering the embankment have been left fallow to increase the flood plain and prevent crops from being damaged.
4.	Bridge and river bank protection at the Kulyabdarya canal, close to Shobika Village	A bridge was constructed to higher design standards, including higher elevation. It was provided with a sidewalk including railing, though the railing was damaged in one section. The river bank was protected by gabions, partly in good condition except for some metal mesh wearing away. On the other side of the river, gabion baskets were used.

	Subproject	Assessment
		While still protecting the embankment, stone boulders were washed away because the wire mesh was too large and no extra wire was used for further protection. In addition, the PPAR mission noticed a significant amount of debris and siltation around gabion baskets.
	Kulyab district	
5.	Road section Kulyab-Muminabad	3.5 kilometers of road were rehabilitated. The road is asphalt-sealed with minor potholes, but overall it is still in good condition.
6.	River bank protection of the Kizilsu river, close to Khanabad village	Flow directing spur dikes of ca. ten meters in length were constructed at an angle of ca. 80 degrees into the river. Some prefabricated concrete blocks were missing. Wire binding concrete blocks together was missing in many places. River banks were concrete lined along the very steep and eroded embankment wall. The road was directed further inland, away from the river bank. Gabions were in good condition, further protecting the dyke.
7.	Water supply channel to new Khanabad village on the Yakhsu river (road and bridge to Khovaling)	A water supply channel was constructed. It provides irrigation water to new Khanabad village. The quality of construction was good, especially with respect to the link of the effluent to the aqueduct. The concrete-lined central effluent was well maintained and generally in good condition. The bridge was protected by prefabricated concrete blocks in good condition. The road was paved and generally in good condition as well.
	Khovaling district	
8.	Bridge and river bank protection at Obi-Mozor River, Khovaling city	A bridge was reconstructed, asphalt-sealed, and provided with a pedestrian railing. However, concrete slabs of the old bridge were left in the river bed, increasing its elevation and posing a potential risk for damage. The river bank was concrete lined. Three reversed irrigation gutters were also used to protect the embankment. While this may be good practice during emergencies, it should be replaced by concrete slabs. Gabion nets were in poor condition with metal mesh wearing away. Sections around the pylons were severely damaged. Stone boulders from gabion baskets underneath the bridge were washed away because the wire covering baskets was not strong enough.

	Subproject	Assessment
9.	Bridge and river bank protection at the Obi-Mozor river, Lahuti village	A bridge was reconstructed, asphalt-sealed, and provided with a pedestrian railing. Surface drainage was not performed as required by designs. As a result, the asphalt was covered with potholes. Small tubes installed later did not remedy the problem. Prefabricated concrete blocks, bound together by iron cords, were severely impacted by floods. Gabion nets looked to be in good condition. However, the last stretch was covered by junk cars instead of gabion nets. Gabion baskets were in poor condition with stones washed out of the baskets and with other baskets almost completely covered by silt. Concrete-lined river banks were affected by erosion, but still protecting the river bank.
	Baldzhuvan district	
10.	Bridge and river bank protection at Surhob river, Baldzhuvan village	A metal bridge was constructed over one river arm. There was no evidence that a former bridge had been damaged by the 1998 or 1999 floods. Ferroconcrete tetrahedrons at one end of the bridge were eroded. Gabion baskets were constructed with sufficiently small wire mesh to keep stones from being washed away. They were also well tied together and effective in protecting the road lining the river.
	Sovetsky district	
11.	River bank protection at Toir-su river, Kangurt city	The river bank was protected by gabions; they were in fair condition with some metal mesh wearing away.
	Moscow / Khamadony district	
12.	Metal bridge and bank strengthening at Chubek canal, Moskovskiy city	A metal bridge was constructed, which seems to have been used frequently. A damaged concrete bridge is still standing and needs to be dismantled for safety reasons. Concrete lining is still in fairly good condition. Gabions, however, are almost completely covered by silt.
13.	Bank protection at Pyandzh river on the border to Afghanistan	Flow directing spur dikes made out of prefabricated concrete tetrahedrons were constructed to protect villages from flooding. They were bound together with iron cords, though some of the cords were missing. In 2005 part of the embankment was breached causing several villages to be flooded. The breached part of the embankment was reconstructed with ADB funding

Subproject	Assessment
	reallocated from the Loan 2124-TAJ(SF) Irrigation Rehabilitation Project.

Source:IEG

ANNEX E. IEG PPAR MISSION PICTURES

Box 1. Bridge and river bank protection at the Kulyabdarya canal, close to Tugarak Village

Source: IEG

Box 2. Bridge and river bank protection at the Kulyabdarya canal

Source: IEG

Box 3. Bridge and river bank protection at Obi-Mozor River, Khovaling city

Source: IEG

Box 4. Bridge and river bank protection at the Obi-Mozor river, Lahuti village

Source: IEG

ANNEX F. RECOMMENDATIONS AND PROGRESS IN IMPROVING FLOOD MANAGEMENT

Table 3. 2007 Mott McDonald Assessment of a 2002 Strategy for Improved Flood Management
Improved River Gauging Station Network - Re-establish and extend the existing network to provide adequate coverage to support the necessary measures for improved flood management, forecasting and warning. *Update: Very little progress made nationally or in Khatlon Province except in specific locations where NGOs have assisted or intend to assist e.g. Mission East, Oxfam*
Rehabilitation of Hydrometeorological Stations - Re-establish and extend the existing network to provide adequate coverage to support improved flood management, forecasting and warning. *Update: Very little progress made nationally or in Khatlon Province*
Improved Hydrometeorological Data and Analysis - The database developed under TA 3495 - TAJ, and the new technology digital instrumentation proposed for the flow gauging stations and some of the climate monitoring stations will be used to simplify data handling procedures and analysis. This will assist better analysis of flood events to develop updated design parameters and understand flood mechanisms. *Update: According to the Agency for Hydrometeorology the database software provided by TA 3495-TAJ is no longer functional, the data are inaccessible and the trained personnel are no longer employed by the Agency*
Approach to Flood Management - Flood management should continue to be coordinated by Government but with greater emphasis on the mobilization of community resources and NGOs. Flood management should be holistic incorporating structural and non-structural measures. *Update: Major structural flood management activities are polarized around the Ministry of Water Resources and Land Reclamation mainly in response to the catastrophic flood in Khamadoni in 2005. Small scale local structural improvements are being carried out by NGOs. Non-structural flood management activities, particularly flood preparedness, are gathering momentum with the Committee of Emergency situations as the focus of activity (see UNDRMP, DIPECHO, JICA).*
Improved Flood Forecasting and Warning - To develop more accurate, reliable and flexible flood alert warning systems on a national basis, with development of more sophisticated forecasting and warning systems on two pilot areas. To improve forecasts of problems from mudflows from the smaller, steep catchments. *Update: The Agency for Hydrometeorology appears to have made little progress with the development of forecasting and warning tools except in the*

case of a snowmelt model for the Vakhsh River (with assistance from SDC). The World Bank has installed a warning system downstream of Lake Sarez complemented by a local warning system in Khamadoni installed with the assistance of Focus in 2003.
Planning, Design and Implementation of Projects - To enable planning, design and implementation of appropriate structural flood protection measures using international best practice appropriate to Tajikistan whilst developing and strengthening national resources in planning, design and construction. *Update: The Water Engineering Design Institute of the Ministry of Water Resources and Land Reclamation has developed modern spurs designs which, in appropriate locations, appear to be superior to earlier designs used in Tajikistan. However construction materials, methods and supervision is generally not up to international standards so that the potential of the new spurs designs may not be realized.*
Institutional Reform - In developing an integrated approach to flood management it will be essential to ensure that flood management is coordinated by a single authority and that Government maintains a strong power of regulation through a single regulating authority. *Update: There is no single coordinating authority or single regulating authority for flood management.*
Improved Flood Preparedness - The development of better communications, improved preparedness of institutions and communities and the provision of equipment and resources. *Update: A number of donors (ECHO, SDC, USAID) are assisting the Committee of Emergency Situations to improve communications, train officials and the public in flood preparedness and evacuation planning.*
Sarez Agency Programme - With regard to the disaster preparedness work, there seems no reason to propose modifications to the present project plans that already allow for adaptation on the basis of experience as the activities proceed. *Update: The Lake Sarez Risk Management Project is complete.*
Changes to Legal and Policy Framework - The legal and policy framework of the Republic must be compatible with the proposed institutional arrangements and, moreover, must support the regulatory responsibilities in the flood management sector. This will include the development and amended legislation and the training of staff in its implementation. Other associated regulatory mechanisms such as insurance and resettlement also require review. *Update: There have been relevant legal changes since 2002.*
Community Involvement - A number of recommendations have been formulated to increase the effective role of beneficiary communities in flood management. Communities will need guidance and some instruction in order to fulfill these roles, and it is recommended that community liaison officers are appointed within the proposed strengthened RPCU to carry out this role. Perhaps the most important change is needed within the government institutions, which need to look more towards seeking and assisting local communities' participation, achieving mutual benefits. *Update: Generally community participation in flood management is not yet*

widespread. Exceptions to this rule are in Khamadoni where Focus installed a local flood warning system operated by the
Source: ADB TA 4811-TAJ Khatlon Flood Management Project. Draft Final Report. Mott MacDonald. May 2007

ANNEX G. BORROWER COMMENTS

Committee of Emergency Situations and
Civil Defense under the Government
of the Republic of Tajikistan

734013, Republic of Tajikistan, Dushanbe city,
Lohuti street, 26. Tel.: 223-31-58. Fax: 221-13-31.
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Mr. John Heath,
Acting Manager, Sector Evaluation Division,
Independent Evaluation Group (IEG)

The Committee of Emergency Situations and Civil Defense, under the Government of the Republic of Tajikistan, would like to state its great respect for the World Bank and express deep appreciation for providing overall assistance.

We would like to suggest that you provide specific shortcomings and lost opportunities during the implementation of the project in the main body of the report.

In general, we think that the evaluation of the project was carried out in an appropriate way, and we do not have any other additions or comments on the Project Performance Assessment Report.

The Committee of Emergency Situations and Civil Defense, under the Government of the Republic of Tajikistan, would like to use this opportunity to assure the World Bank of its high respect.

Chairman (colonel) Latipov H.

ANNEX G 44

КУМИТАИ
ҲОЛАТҲОИ ФАВҚУЛОДДА
ВА МУДОФИАИ ГРАЖДАНИИ
НАЗДИ ҲУКУМАТИ
ҶУМҲУРИИ ТОҶИКИСТОН

КОМИТЕТ
ПО ЧРЕЗВЫЧАЙНЫМ СИТУАЦИЯМ
И ГРАЖДАНСКОЙ ОБОРОНЕ
ПРИ ПРАВИТЕЛЬСТВЕ
РЕСПУБЛИКИ ТАДЖИКИСТАН

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№8/695 аз «24» 04 с. 2008

и. о. Менеджера отделения по оценке
сектора, группа Независимой оценке
господину Джон Р. Хиз

Комитет по чрезвычайным ситуациям и гражданской обороне при Правительстве Республики Таджикистан свидетельствует своё высокое уважение Всемирному Банку и выражает глубокою благодарность за оказание всесторонней помощи.

Предлагаем, в тексте основного содержания отчета конкретно указать выявленные недостатки и упущения по реализации проектов.

В целом, считаем, что оценка проведена на должном уровне, других дополнений и комментариев к тексту проекта «Отчета по оценке за ходом выполнения работ» не имеем.

Комитет по чрезвычайным ситуациям и гражданской обороне при Правительстве Республики Таджикистан, пользуясь, случаем возобновляет уверения в своем высоком уважении Всемирному Банку.

Председатель
полковник Латипов Х.

Исполнитель: п/п-к Камолов Дж.,
тел:2218742;

Unofficial Translation

16 June, 2008

State Advisor to
President of the Republic of Tajikistan.
23.2/286

Monika Huppi,
Head
Sector Assessment Department
Independent Evaluation Group
World Bank

Sub: *Tajikistan Emergency Flood Assistance Project*
(Credit 31230, TJ, USD5 million)

We are very grateful to the Independent Evaluation Group (IEG) for its Project Performance Assessment Report under the Tajikistan Emergency Flood Assistance Project (EFAP).

World Bank had provided financing to the EFAP to mitigate the devastating consequences of floods of 1998 and 1999YY. Two components had been comprised by the Project 1) rehabilitation of bridges, roads, and bank protection activity; 2) reconstruction and rehabilitation of bank protection dams, irrigation systems and hydropower stations, transmission lines and water-supply systems. Under the additional credit more facilities had been developed for rehabilitation works, and covered operational expenses of the PCU.

To mitigate economic and social losses, essential facilities had been rehabilitated or restored including main roads and bridges (Objective 1). In addition to that, since the majority of households mainly depends on agriculture, rehabilitation of road to the market had become the top priority task (Objective 2). Irrigation channels necessary to produce cotton and staples in the regions covered by floods had been rehabilitated. Local manpower had been used to establish the gabions to protect river's banks. In addition, flood-resistant bridges had been designed. To manage natural disaster, two action plans had been developed. This work had been financed by the ADB and Japanese Government (Objective 3).

In our view, the assessment given to the Project based on its outcomes (as moderately unsatisfactory) should be revised given that despite the tough period of the year 1999 the Project had achieved the results enabling rehabilitation of social and economic activity in the regions suffered from floods. Infrastructure, rehabilitated in accordance with the international standards of design, had been marked as sustainable.

It should be noted that the capacity of the PCU relating to requirements and procedures of international organizations at that time was very weak. Problems caused by instability of situation on the whole made the process to control the project implementation very difficult in some regions of the country until 2000. The Project designed based on the evaluated damages had been altered in June 1998 due to severe floods happened before commencement of rehabilitation works. Flood of 1999 covered the regions of the country that managed to be intact in 1998. This situation had compounded the achievements of the project goals.

Despite all difficulties, the Project objectives had been partially achieved.

Then, the Project assessment had been conducted in April 2002 by the Engineer from the Louis Berger International Inc.

As for the performance by the Borrower, that had been also assessed as unsatisfactorily, we should take into consideration that the performance of the implementing agency depended on the situation of that time that, in its turn, influenced the selection of sub-projects. Based on the experience of work, we think that we would face more serious problems in case we are guided by the Tajikistan Water Complex Management Evaluation only.

Floods are not the only threat Tajikistan can face. Environmental conditions that are getting worse and worse; water-sources pollution; earthquakes; pest and droughts - all this create problems for agriculture sector.

We support the IEG recommendations to transfer from the immediate assistance stage to the rehabilitation stage. At this time, the Government is paying more attention to detailed planning of the projects considering mid-term and long-term steps to mitigate the natural disaster consequences.

Best regards,

M.S. Davlatov.

МУШОВИРИ ДАВЛАТИИ ПРЕЗИДЕНТИ
ҶУМҲУРИИ ТОҶИКИСТОН

ГОСУДАРСТВЕННЫЙ СОВЕТНИК ПРЕЗИДЕНТА
РЕСПУБЛИКИ ТАДЖИКИСТАН

№ 23.1-2/286 «16» 06 соли 2008

госпоже Монике Хуппе,
Руководителю
Отдела оценки сектора
Группы Независимой Оценки
Всемирного Банка

Предмет: Таджикистан, Проект оказания экстренной помощи при наводнениях (Кредит 31230- Тадж в сумме 5 млн. долл. США)

Мы благодарны за предоставленный обзор оценки эффективности Проекта оказания экстренной помощи при наводнениях (ПОЭПН) в Таджикистане Группой Независимой Оценки (ГНО).

Всемирный Банк финансировал ПОЭПН в ответ на разрушительные наводнения в 1998 и 1999 годах. Проект состоял из двух основных компонентов: (i) восстановление мостов, дорог и берегозащитных укреплений; и (ii) реконструкция и ремонт защитных дамб, ирригационных систем, гидроэлектростанций, линий передач и систем водоснабжения. В рамках дополнительного кредита, было увеличено установленное число инфраструктуры для восстановления, и также были покрыты операционные расходы ЦКП.

С целью смягчения экономического и социального ущерба нанесенного наводнениями, жизненно важные объекты были восстановлены или отремонтированы, включая дороги и мосты (цель 1). Более того, так как большинство семей зависит от сельского хозяйства, восстановление доступа к рынку стало задачей первоочередной важности (цель 2). Ирригационные каналы, крайне необходимые для производства хлопка и большинства культур, выращиваемых в районах пострадавших от наводнений, были восстановлены. Местная рабочая сила использовалась для создания габионов защищающих речные берега, а также были спроектированы мосты, которые способны выдержать наводнения. В отношении управления стихийными бедствиями, было разработано два плана по управлению наводнениями при финансировании АБР и правительства Японии (цель 3).

На наш взгляд оценка результатов проекта как умеренно неудовлетворительная должна быть пересмотрена, если исходить из того, что несмотря на всю сложность 1999 года, проект достиг результатов, которые способствовали восстановлению социальной и экономической деятельности в районах пострадавших от наводнений. Инфраструктура, реконструированная согласно международным стандартам проектировки, также была признана устойчивой.

Следует учесть и тот факт, что опыт ЦКП в вопросах требований и процедур международных организаций на этот период был ограниченным. Проблемы, связанные с нестабильностью ситуации усложнили процесс по контролю реализации проекта в отдельных регионах страны вплоть до 2000 года. Проект, разработанный на основании проведённой оценки разрушений, в июне 1998 года видоизменился из-за серьёзных наводнений, которые произошли незадолго до того, как должны были начаться восстановительные работы. В июне 1999 года регионы страны, которые не пострадали от наводнения 1998, пострадали в 1999 году. Эта ситуация усложнила достижение проектом ее целей.

Однако, не смотря на все трудности определенные цели проекта, были частично достигнуты.

После проектная оценка была проведена в апреле 2002 года инженером из Louis Berger International Inc.

Относительно исполнения Заемщиком, которое расценивается как неудовлетворительное следует исходить из того, что исполнение реализующего агентства было связано с тем, что ситуация этого периода сказывалась на отбор подпроектов. Исходя, из опыта работы мы считаем, что могут возникнуть более важные проблемы, если ориентироваться на Оценку Комплексного Управления Водными Ресурсами в Таджикистане.

Наводнения не являются единственной угрозой. Ухудшение окружающей среды, загрязнение водных источников, землетрясения, вредители и засуха также создают трудности для сельского населения.

Мы согласны с рекомендациями ГНО, относительно перехода от фазы оказания срочной помощи к фазе восстановления после бедствия. В настоящие время Правительство уделяет больше внимания для детального планирования проектов, с учетом среднесрочных и долгосрочных мер по смягчению последствий стихийных бедствий.

С уважением,

М.С. Давлатов