

**ASIAN DEVELOPMENT BANK**

**RRP: TAJ 33483**

**REPORT AND RECOMMENDATION  
OF THE  
PRESIDENT  
TO THE  
BOARD OF DIRECTORS  
ON A  
PROPOSED LOAN  
AND TECHNICAL ASSISTANCE GRANT  
TO THE  
REPUBLIC OF TAJIKISTAN  
FOR THE  
EMERGENCY FLOOD REHABILITATION PROJECT**

**November 1999**

## **CURRENCY EQUIVALENTS**

(as of 31 October 1999)

Currency Unit	–	Tajik Ruble (TJR)
TJR1	=	\$0.0007
\$1.00	=	TJR1,436

For the purpose of calculation in this report, a rate of \$1.00 = TJR1,350 is used. This was the official rate at the time of Project appraisal.

## **ABBREVIATIONS**

CLCND	–	Center for the Liquidation of the Consequences of Natural Disaster
DEES	–	Department of Environment and Emergency Situations
EFAP	–	Emergency Flood Assistance Project
EIA	–	environmental impact assessment
FSU	–	former Soviet Union
GBAR	–	Gorno-Badakhshan Autonomous Region
GDP	–	gross domestic product
IEE	–	initial environmental examination
MESCD	–	Ministry of Emergency Situations and Civil Defense
NGO	–	nongovernment organization
PIU	–	project implementation unit
RRS	–	Regions of Republican Subordination
TA	–	technical assistance
UNOCHA	–	United Nations Office for the Coordination of Humanitarian Affairs

## **NOTES**

- (i) The fiscal year of the Government ends on 31 December.
- (ii) In this report, "\$" refers to US dollars.

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## LOAN AND PROJECT SUMMARY

<b>Borrower</b>	Republic of Tajikistan
<b>Project Description</b>	<p>The Project will rehabilitate public infrastructure damaged by severe floods and landslides that occurred throughout the country in July 1999. The public infrastructure includes (i) roads, bridges, associated riverbank protection, and irrigation systems; and (ii) municipal water supply systems, power distribution, telephone networks, and schools.</p>
<b>Classification</b>	Primary: Poverty Reduction
<b>Environmental Assessment</b>	<p>Category B</p> <p>An initial environmental examination was prepared during appraisal and will be reviewed for Project sites during implementation. A summary is included as an Appendix.</p>
<b>Rationale</b>	<p>The Project has been proposed under ADB's policy on rehabilitation assistance after disasters. There is an urgent need to help the Government cope with the disaster as it is experiencing severe budget constraints. The Project will assist in (i) rehabilitating public infrastructure damaged by floods and landslides in July 1999, and (ii) mitigating the risk that these expenditures will disrupt the Government's macroeconomic stabilization and postconflict development programs.</p>
<b>Objectives and Scope</b>	<p>The immediate project objective is to help restore public infrastructure damaged by the severe floods and landslides in those areas of the country that were hardest hit. The long-term objective of the Project is to help rehabilitate the poor in the affected rural areas on a sustainable basis. The Project consists of civil works, construction materials, equipment, resettlement, and consulting services for construction supervision, environmental monitoring and social impact assessment.</p>
<b>Cost Estimates</b>	<p>The Project is estimated to cost \$6.25 million equivalent, of which the foreign exchange cost is \$3.25 million (52 percent) and the local currency cost is \$3.00 million equivalent (48 percent).</p>

**Financing Plan**

(\$ million)				
Source	Foreign Exchange	Local Currency	Total Cost	Percent
ADB	3.25	1.75	5.00	80
Government	0.00	1.25	1.25	20
<b>Total</b>	<b>3.25</b>	<b>3.00</b>	<b>6.25</b>	<b>100</b>

**Loan Amount and Terms**

The loan will be for the equivalent of SDR 3,601,000 in various currencies from ADB's Special Funds resources. The loan will carry an amortization period of 32 years, including a grace period of 8 years, with an interest charge of 1 percent per annum during the grace period and 1.5 percent per year thereafter.

**Allocation and Relending Terms**

The loan proceeds will be made available to the Executing Agency through budgetary appropriations.

**Period of Utilization**

Until 30 June 2002

**Executing Agency**

Department of Environment and Emergency Situations

**Implementation Arrangements**

The Implementing Agency will be the Center for the Liquidation of the Consequences of Natural Disaster, which is serving the same function for the 1998 World Bank-financed Emergency Flood Assistance Project. The Project will be coordinated with the Ministry of Emergency Situations and Civil Defense, which is responsible for the initial disaster-relief measures in Tajikistan, and with the United Nations Office for the Coordination of Humanitarian Affairs, which is responsible for humanitarian aid and coordination of the disaster-relief efforts of nongovernment organizations in Tajikistan.

**Procurement**

Advance procurement action has been approved for civil works construction materials and equipment from 8 July 1999 to loan effectiveness, with retroactive financing of \$1 million. Procurement of goods and services to be financed from ADB loan will be undertaken in accordance with ADB's *Guidelines for Procurement* through force account and local competitive bidding for civil works and direct purchase for equipment.

**Technical Assistance**

A technical assistance comprising about five person-months of international consulting services will be provided for Flood Disaster Management with a grant of \$205,000 financed by ADB from the Japan Special Fund, funded by the Government of Japan. The Government will finance the remaining \$30,000

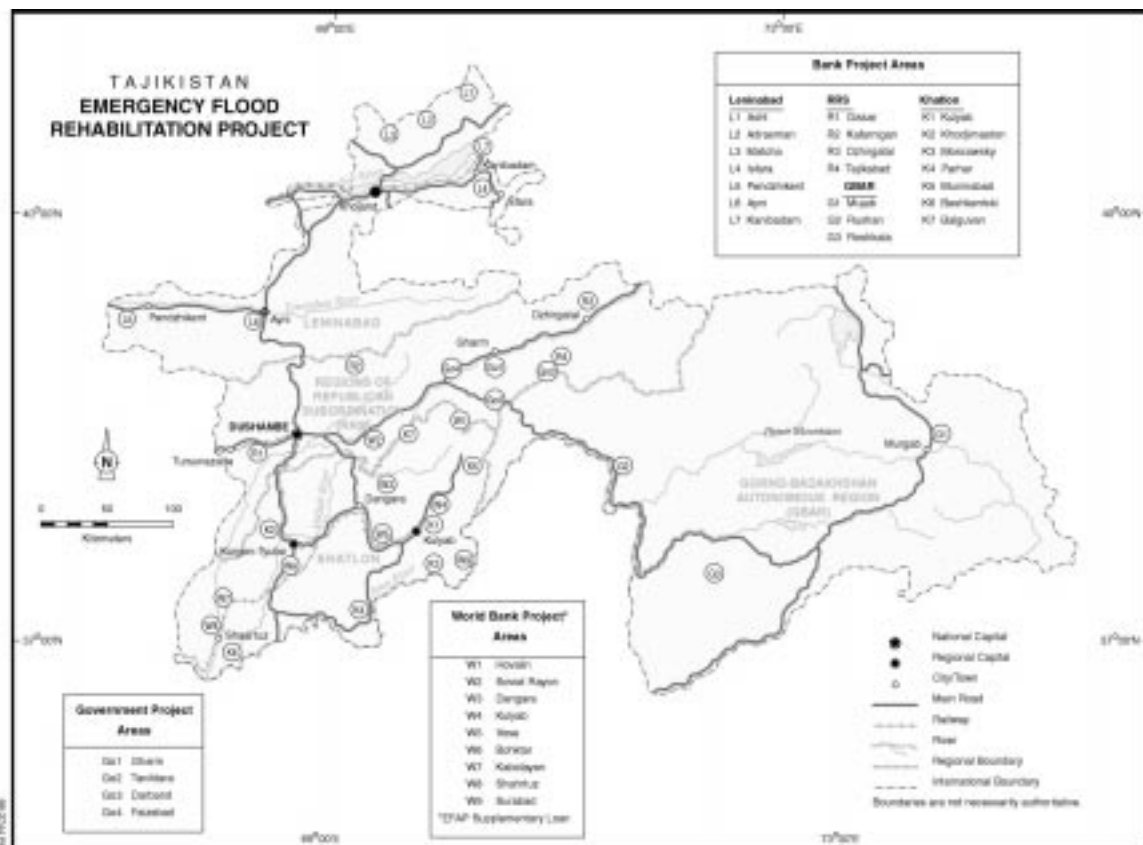
equivalent of local currency costs. The consulting services may be procured through direct selection considering the emergency nature of the Project.

**Estimated Project  
Completion Date**

31 December 2001.

**Project Benefits  
and Beneficiaries**

The Project components such as the reconstruction of roads and bridges, river bank protection, rehabilitation of irrigation facilities, restoration of power, telephones, water supply and schools, and the resettlement of 288 affected households to safer areas, will help restore key socio-economic infrastructure in the affected areas. The Project will directly benefit and ease the hardships suffered by the affected communities totaling more than 30,000 people. The Project will benefit the poor disproportionately because more than 80 percent of the population living in the affected areas are poor.



## **I. THE PROPOSAL**

1. I submit for your approval the following Report and Recommendation on a proposed loan to the Republic of Tajikistan for the Emergency Flood Rehabilitation Project. The Report also describes proposed technical assistance (TA) for Flood Disaster Management, and if the proposed loan is approved by the Board, I, acting under the authority delegated to me by the Board, shall also approve the TA.

## **II. INTRODUCTION**

2. Severe flooding and landslides occurred in Tajikistan as a result of intense monsoon rains from 6 to 12 July 1999. Damage occurred throughout the country, affecting Leninabad and Khatlon regions, the Regions of Republican Subordination (RRS) and the eastern, high mountain area of Gorno-Badakhshan Autonomous Region (GBAR). Mountain streams and rivers swollen by melting snow earlier in the year received further inflows from the unusually intense monsoon rain. This resulted in massive slope failures, landslides, and widespread floods, which caused the loss of 20 lives and considerable damage to houses, crops, farm animals, roads, bridges, associated riverbank protection works, irrigation and water supply networks, drainage, power and telephone distribution systems, schools, and other social and municipal facilities (see para. 15).

3. The Government released TJR6 billion (about \$4.5 million equivalent) for the immediate relief and urgent rehabilitation works. In addition, in view of the large amount of work to be done and budgetary constraints (paras. 10 to 12), the Government requested emergency assistance from ADB, World Bank, and other international aid agencies to help meet the requirements of the disaster-affected areas.

4. ADB received an official request from the Government for emergency assistance on 21 July 1999. The Appraisal Mission<sup>1</sup> visiting Tajikistan from 17 to 28 August 1999 undertook a joint assessment with the World Bank of the impact of the floods and landslides;<sup>2</sup> and prepared the Emergency Flood Rehabilitation Project for possible ADB support. The Mission visited affected areas and held discussions with the local people, national and local government authorities, and representatives of various international aid agencies. This report is based on the Mission's findings and understandings reached with the Government and the local authorities.

## **III. BACKGROUND**

### **A. Regional Geography**

5. Tajikistan is bordered to the north by the Kyrgyz Republic, in the east by the People's Republic of China, Afghanistan to the south, and in the west by Uzbekistan. The population of Tajikistan is 6 million; two thirds are ethnic Tajiks, the remainder are mainly of Uzbek, Kyrgyz, and Russian origin. Unlike most people of Central Asia, the Tajiks and their language are Persian in origin and Islam is the dominant religion. Administratively, the country is divided into four regions, with the central RRS being administered directly from Dushanbe, which is the

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<sup>1</sup> The Appraisal Mission comprised J.F. Brooks, Senior Project Specialist/Mission Leader; A.M. Malik, Senior Project Specialist; and B. Hitchcock, Senior Programs Officer.

<sup>2</sup> The floods in 1999 were similar to those caused by the highest ever recorded river levels in 1998, which led to the World Bank-financed Emergency Flood Assistant Project.



capital and has a population of about 500,000. Apart from the 30 percent of the population living in urban areas, the remainder live in over 3,000 small, dispersed rural communities of 100-1,000 persons where poverty is estimated to exceed 80 percent.

6. The economy is based on three key resources: cotton, aluminum, and hydropower. Prior to independence in 1991, trade was dominated by interrepublic transactions within the former Soviet Union (FSU). Since independence, trade with non-FSU countries has grown rapidly. The industry sector accounts for 20 percent of the gross domestic product (GDP). The country has one of the world's largest aluminum smelters. Hydropower-based light industry comprising small firms is also important. Most firms are operating below capacity due to the civil conflict between 1991 and 1996, dependency on imported raw materials, and inability to compete efficiently in the world markets. They also suffer from remote location, transport problems and recent weakening of world prices for aluminum. Power supply is provided by separate networks in the Khujand and Dushanbe-Khulyab regions, which are connected only through Uzbekistan. While hydropower generated along the Vakhsh River is exported, its value is exceeded by energy imports from Uzbekistan. The energy deficit has a negative impact on the overall balance of payments. Electricity is highly subsidized, as is liquefied petroleum gas fuel, which is the main source of energy for most of the rural population.

7. Agriculture contributes about 30 percent to GDP and to export revenues. The sector is also crucial for poverty reduction as it accounts for 50 percent of employment. Due to the mountainous terrain, arable land is scarce and is restricted to the valleys, amounting to only 0.05 ha per capita in some densely populated rural areas. However, irrigation serves about 85 percent of the arable areas, the soils are fertile, and the climate is favorable for growing a wide range of agricultural produce. Cotton, the main crop, occupies 40 percent of the irrigated area, and along with fruit and tobacco accounts for most agricultural exports. Agricultural imports include machinery, fuel, animal feed, and fertilizers. Because of the small size and isolation of rural settlements, Tajikistan has a tradition of household farming. The sustenance of poverty-affected rural households is therefore ameliorated by household garden production.

8. Transport problems are acute due to the long distances products have to travel to reach markets. Road transport accounts for over 80 percent of freight and virtually all passenger traffic, and uses a 29,000 km network. The 450 km rail network is the only other significant transport mode. Traffic has contracted significantly since 1991 due to the civil unrest and economic decline, and there is virtually no maintenance of assets due to the scarcity of resources. The same problems face the telecommunications sector. Most equipment is obsolete although cellular phone services are now available within Dushanbe. The transport and communications networks have also suffered from severe dislocation due to the civil unrest to 1996 and the series of disastrous floods.

9. Over 90 percent of the total 143,100 square kilometer land mass is mountainous; high snow-covered ranges with impassable roads for eight months of the year separate Leninabad Region from the central and southern regions, while the remote Pamir ranges in GBAR contain several of the world's highest mountains. The climate is continental with incursions of subtropical air during the summer months. Monsoon rains, melting snow, and steep valleys give rise to seasonal flooding and landslides. Channels are typically braided and changeable in the lower portions of the main river basins. While Tajikistan is also prone to severe earthquakes, erosion-prone slopes and increased bed and suspended load of the fast-flowing rivers have worsened ever since the country became independent, thereby increasing poverty and deforestation of the steep hillsides, mainly for firewood.

## B. Recent Economic Developments<sup>3</sup>

10. At independence in 1991, Tajikistan was the poorest republic of the FSU. Although indicators of human development were high, they were primarily attributable to a social safety net system and full employment policy financed by large transfers from Moscow. Since independence, the civil conflict, economic collapse, and natural disasters have adversely affected the economy. The GDP fell by more than 55 percent between 1991 and 1997. GDP per capita in 1997 was estimated at only \$178. In addition, the civil conflict resulted in resources being diverted from needed investments in the social, municipal, and infrastructure sectors. About 40 percent of the country's 6 million inhabitants were directly affected by the civil conflict, including 50,000 lost lives and over 500,000 who fled or emigrated to other countries. The civil conflict also resulted in major damage to about 35,000 homes and a wide range of public infrastructure. The situation was exacerbated by a series of earthquakes and floods in the 1990s, with the most severe floods on record occurring in 1998.

11. After six years of crisis, following the signing of a peace accord in June 1997 to end the civil conflict, the economy began to recover. The gradual improvement in the macroeconomic situation over the past two years has encouraged the Government to focus more on stimulating economic growth and reducing poverty. In 1996, the Government embarked on an economic stabilization program, supported by the International Monetary Fund under a standby arrangement, together with postconflict emergency assistance during 1997-1998, and a three-year enhanced structural adjustment facility approved in June 1998. In 1998, real GDP increased by 5.3 percent and monthly inflation declined to 2.7 percent. Price liberalization has been virtually completed; a liberal trade and exchange rate system is being established; and initial steps have been taken toward privatization, and legal and banking reforms. However, external shocks such as the Russian Federation's economic crisis and weak world prices for cotton and aluminum make it difficult to sustain economic performance in 1999. The budget position remains weak and limits the Government's spending on disaster rehabilitation. Nevertheless, Tajikistan's medium-term economic prospects appear promising. The progress made on macroeconomic stabilization and structural reform has laid the basis for the country's economic recovery. GDP is projected to grow by 4 percent annually in 1999-2001, driven primarily by a recovery in agriculture and continued growth of the service sector. Hydropower and mining output are also expected to increase. Despite this, unemployment and poverty will remain major concerns over the medium term.

12. Restoring fiscal balance constitutes one of the main elements of the Government's macroeconomic stabilization program. Besides instituting fundamental tax reforms, the Government has been making strenuous efforts to further rationalize expenditures, strengthen tax collection and administration, and improve the budget process. There are inherent weaknesses, however, in the tax administration and budget systems. These are being addressed with the help of the International Monetary Fund and other agencies, but the results will only be apparent in the medium term. In the short run, the Government's focus has been on reducing public expenditure, which has constrained the availability of funds for social sectors and public infrastructure. The Government's fragile fiscal situation has been further strained by the unforeseen expenditures from the severe flooding and landslides that occurred in April-May 1998 and July 1999.

13. As part of the international assistance needed to promote economic recovery, ADB approved a program loan in 1998.<sup>4</sup> The first \$10 million tranche was released in December 1998

<sup>3</sup> For details see IN.253-98: *Economic Report and Interim Operational Strategy for Tajikistan*, 9 November.

to support structural reform of the transport and power sectors. The reform involves institutional and policy changes to move from a centrally planned economy to a market-driven economy. Parallel to the program loan, an advisory TA was approved.<sup>5</sup> This was followed in March 1999 by a project preparatory TA for the rehabilitation of roads.<sup>6</sup> The World Bank approved a \$5 million loan in January 1998 for the Postconflict Emergency Reconstruction Project to rehabilitate damaged infrastructure, and another loan for \$5 million in response to the April-May 1998 floods, for the Emergency Flood Assistance Project (EFAP) in August 1998.

#### IV. DETAILS OF THE DISASTER

##### A. Description of the Damage

14. The flooding and landslides of July 1999 caused substantial damage throughout Tajikistan. ADB, the national and local government authorities, and a World Bank mission jointly assessed the damage caused to public infrastructure. The damage was due to floodwaters and land/mudslides; both were caused by exceptionally heavy rains and were interrelated. Flooding resulted from rivers and streams breaking their banks because they could not carry the increased load of silt and volume of water. For example, in Asht District in Leninabad Region, mudslides and raging floodwaters resulted from saturation of soils that partly liquefied and slid or flowed down steep slopes and through narrow valleys. These swept aside village houses, adjacent roads, municipal water supply, and power distribution systems, and filled river channels with large boulders and debris. Peak flood flows in the mountain streams often resulted from landslides temporarily damming streams and then bursting, releasing the trapped water. It is also apparent that some bridges were inappropriately designed, without sufficient cross-sectional open area or adequate foundations to withstand the exceptional and erosive flood flows, estimated to have a 50-year return period. In some parts of Leninabad Region, it was estimated that over 400 millimeter (mm) of rain fell in a nine-hour period, an intensity never previously recorded. Inadequate and obsolete rain and stream recording instruments and modeling, and other deficient resources, prevented a well-documented account of the conditions that led to the flood. These deficiencies also contributed to the lack of adequate warning to the population, especially in remote areas. However, the Ministry of Environment has conducted a postassessment based on analysis of the sparse data and regional information gathered from the World Meteorological Organization, of which Tajikistan is a recent member.

15. A summary of the damage to private and public infrastructure throughout the country is in Appendix 1. The total cost of the damage is conservatively estimated at \$25 million. Of the private infrastructure, about 1,000 houses were destroyed or badly damaged, especially those built with clay brick walls that disintegrated in the water. Approximately 14,000 ha of crops and over 2,000 farm animals were lost. In Asht District in Leninabad Region, 288 households are being resettled in safer areas. Of the public infrastructure, about 400 km of roads, over 700 linear m of bridges, and nearly 60 km of related riverbank protection works were seriously damaged. In addition, about 80 km of irrigation channels, 100 ha of irrigation headworks, associated pumps, approximately 10 km of water supply channels, 40 km of power distribution lines, about 50 electrical transformers, 17 km of telephone networks, and 5 schools were also seriously damaged.

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<sup>4</sup> Loan 1651-TAJ: *Postconflict Infrastructure Program*, for \$20 million, approved on 10 December 1998.

<sup>5</sup> TA 3114-TAJ: *Institutional Strengthening of the Transport and Energy Sectors*, for \$1.5 million, approved on 10 December 1998.

<sup>6</sup> TA 3168-TAJ: *Road Rehabilitation Project*, for \$840,000, approved on 1 March 1999.

## **B. Impact of the Damage**

16. The flood-caused damage has worsened the misery of the poor living in the flood-affected areas, especially in the Asht District where widespread destruction of houses, and loss of farmland and livestock occurred. Many families have also lost their assets, and damage to public infrastructure has deprived them of basic needs such as access to markets, health services, drinking water, electricity, irrigation, and education. The risk of disease under these conditions is high, and the light tents provided under relief assistance will not be suitable accommodation for the approaching winter.

17. It is essential to restore road access in the flood-affected areas for the supply of basic commodities. Furthermore, many of the temporary repairs undertaken on landslides and washouts are vulnerable to damage from further rain. Even normal rain will isolate communities, and deprive them of access to vital food, medical supplies, and electricity. Electricity has been restored to most communities using makeshift power lines, but such power lines strung across mudslides and through riverbeds are vulnerable. Communities will suffer great hardship during the approaching winter without heated water. Because water supply systems are extremely important to the health of the people, damage to these piped systems places people in affected areas at a very high risk of disease. Prompt action by authorities, by effecting temporary repairs and using disinfectants, has so far prevented outbreaks of disease. Rebuilding of schools is progressing, but some are still not ready. Since the new school year began in September, education has experienced a serious setback. Replacement of furniture and equipment is a necessary part of the rebuilding, as is cleaning and refurbishing playgrounds and sports areas. Damage to municipal buildings has included losses of important records and damage to buildings, furniture, and equipment, all of which are necessary to continue normal municipal functions. Although damage to telephone facilities is only a small proportion of the total damage cost, it affects a vital component that requires more than the makeshift repairs. It is also essential to restore the damage to river courses and irrigation facilities which, if not repaired, could disrupt irrigated food-crop cycles, and cause further flood damage due to raised riverbed levels and changed river courses.

## **C. Government Response**

18. The representatives of the Ministry of Finance, the Ministry of Emergency Situations and Civil Defense (MESCD), and the Prime Minister's Office, as well as of line ministries and concerned local governments, mobilized government resources to restore essential services in the worst hit areas and allocated land for the establishment of two resettlement centers. The work was well organized, and by the end of July 1999, many essential services including road access, water, and electricity had been restored to most communities, albeit temporarily. This was a considerable achievement considering the widespread nature of the disaster, the difficult terrain, and continuing heavy rain through July. Voluntary work from the affected communities has also played an important part in the recovery, particularly in public buildings and in cleaning out and repainting flood-affected schools.

19. The local authorities decided that two flooded communities in Asht District faced too high a risk from further flooding and 288 households are being resettled to safer areas. The construction of two resettlement centers (residential developments with homestead gardens for each dwelling, serviced by roads, water, and electricity) commenced almost immediately after the floods with Government financing. Funds were allocated to the resettlement centers so that the affected residents can be housed before the onset of winter. The Government was also quick to initiate a cash compensation package for the affected families.

#### D. Aid Coordination and External Assistance

20. The response of the aid community to the July 1999 floods and landslides has been mainly for relief assistance (Table 1) and is being coordinated by the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA). The United States Agency for International Development and Germany, through German Agro Action, are providing further grant assistance, especially for providing shelter to those households whose homes were totally destroyed. A number of nongovernment organizations (NGOs) are also providing assistance by providing relief goods and arranging for disaster preparedness and training, including in local communities.

**Table 1: Summary of Relief Assistance for the 1999 Floods in Tajikistan**

Organization	Nature of Assistance
Humanitarian Assistance (from the United States)	Tents, mats, water boilers, cauldrons, cutlery, buckets, tarpaulins, kettles
German Agro Action	Flour, vegetable oil, salt, food parcels, shelter
International Committee of the Red Cross and International Federation of the Red Cross	Blankets, tents, bed linen, pillows, mats, picks, shovels, cooking sets, soap, used clothing, food parcels
Medecins Sans Frontieres (Netherlands)	Dispensary kits, soap, fuel
Relief International	Medicines
United Nations Children's Fund	Surgical kits, water purification tablets, educational materials, water containers, emergency kits
United States Agency for International Development	Shelter materials
World Food Program	Food parcels

21. The World Bank received a request for emergency assistance from the Government at about the same time as ADB. The ADB and World Bank response has been closely coordinated from the very start. The World Bank sent a mission to Tajikistan concurrently with the ADB Mission. Taking into account ADB's operational experience in public infrastructure and the similar range of assistance being provided by the World Bank under the ongoing EFAP, it was agreed that a geographic and sector arrangement be adopted in coordinating the relative financing arrangements. The proposed Project focuses on a wide range of public infrastructure in Leninabad Region, anticipated nonconflict areas of the RRS, and those districts of Khatlon Region where the World Bank is not involved. Using EFAP supplementary financing, the World Bank will mainly concentrate on those districts of Khatlon Region already being assisted under the EFAP. Consistent with the EFAP, the scope of the World Bank intervention will be for roads, bridges, riverbank protection, and power facilities.

22. ADB presented its assessment of the damage caused by the floods and landslides in the affected regions at a special coordination meeting of local representatives of international aid agencies and NGOs convened by UNOCHA in Dushanbe. The meeting confirmed the extent and seriousness of the damage and noted the participants' support of the Government's request for additional assistance to the main affected areas of the country. The United Nations Development Programme, UNOCHA and NGOs agreed that the proposed ADB TA, both for flood disaster management as well as possible longer-term assistance for a flood management plan, was important (para. 52). Coordination of the NGOs by the United Nations Development Programme, and general coordination of aid assistance, including ADB and World Bank project activities by UNOCHA, will be essential for sustainable flood rehabilitation in the country.

## **E. Lessons Learned**

23. The Project draws on experience gained by ADB in providing emergency rehabilitation assistance loans. Although such loans have been extended relatively infrequently relative to the number of disasters that have occurred in Asia and the Pacific, ADB has responded quickly where the scale of damage is beyond developing member countries capacity to handle. Based on a review of the performance of these emergency assistance loans, some important lessons have been learned that will be useful for designing similar projects in the future: (i) delays have occurred in the procurement and engagement of consultants; and (ii) inadequate quality of works was observed in some cases. Delays occurred for various reasons including weak institutional capacity and shortage of technical and managerial skills in the implementing agencies, as well as inadequate familiarity with procedures for the release of funds. Delays in consultant recruitment and procurement have unduly prolonged project implementation schedules. In some cases, inadequate quality control has seriously affected both the expected life of the completed project facilities and capacity for withstanding further disasters.

24. These lessons were taken into consideration in designing the Project. Particular attention was given to the implementation arrangements, in defining clearly the responsibilities and functions of the concerned agencies, and utilizing and building on the experience gained under the World Bank's EFAP. To avoid implementation delays, advance action, retroactive financing, and simple arrangements for procurement and the recruitment of domestic consultants were approved. An international consultant recruited under the associated TA will carry out capacity building in the Government's disaster agencies to ensure sustainable design, improve the quality and efficiency of disaster management, and enhance coordination with the aid community and NGOs. In addition, the Government has ensured adequate provision of budget and personnel for proper maintenance of project facilities after completion. The need for additional TA was also discussed with the Government, and a request has been made to ADB and World Bank for urgent support in developing a long-term flood management plan. This future TA is expected to help the Government better manage the impact of floods, and improve natural disaster preparedness, as well as the overall long-term coordination of disaster project implementation in the country.

## **V. THE PROPOSED PROJECT**

### **A. Rationale**

25. The floods and landslides of July 1999 caused significant damage to public infrastructure. There is an urgent need to help the Government cope with the disaster, given its budgetary constraints, which are expected to continue over the medium term. The Project will assist the Government to (i) rehabilitate public infrastructure in the affected areas; and (ii) mitigate the risk that these expenditures could disrupt the Government's macroeconomic stabilization and postconflict development program. In line with ADB's policy to support the rehabilitation efforts of its developing member countries after they are struck by disasters, the proposed emergency loan will enable Tajikistan to continue with development expenditures that otherwise would have been diverted for disaster rehabilitation.

26. Extensive field visits were undertaken in the disaster-affected areas. The Project was formulated in close consultation with local government officials, the affected communities, NGOs, and local groups. Due care was taken in the design of the Project to ensure a significant role for the concerned regional and district authorities, including their participation in project implementation.

## B. Objectives

27. The immediate objective of the Project is to help restore public infrastructure damaged by the severe floods and landslides in those areas of the country that were hit hardest. The long-term objective of the Project is to reduce poverty, as it will help rehabilitate the poor in the flood-affected areas on a sustainable basis.

## C. Scope

28. Damage in seven districts of Leninabad Region, seven districts of Khatlon Region, and seven districts of the RRS and GBAR will be rehabilitated under the Project based on the priorities established jointly with the national and local government authorities and the World Bank (Map).<sup>7</sup> The TA provided in conjunction with the Project will support capacity building in flood disaster management. The Project comprises the following components, the details of which may be adjusted during implementation (see Appendix 2).

- (i) **Civil Works.** The main civil works for the rehabilitation or replacement of 81 km of priority roads, 300 m of bridges, 38 km of riverbank protection works, 47 km of irrigation channels and 52 ha of irrigation headworks will be provided, along with minor municipal civil works for the reconstruction of 17 km of water supply networks, 37 km of power distribution lines, and 17 km of telephone lines, and 5 schools.
- (ii) **Construction Materials.** Construction materials will comprise sand, stones, bitumen, reinforcing steel, cement, fuel and lubricating oil, drainage and sewer pipes, poles and towers, electrical and telephone cables, school building materials, and fittings.
- (iii) **Equipment.** Damaged irrigation and water supply pumps, meters, and regulators, electric power transformers, telephones, and fittings will be replaced as well as school furniture, educational equipment, and textbooks.
- (iv) **Resettlement.** Public infrastructure to be provided comprises access roads, power, water supply, and a school at two resettlement areas for 288 households in the Asht District of Leninabad Region.
- (v) **Consulting Services.** A total of about 290 person-months of domestic consulting services will be provided for design review, construction supervision, quality control, and environment and social impact monitoring. Training will be provided by the TA consultant or under fellowships for government bodies and community groups in disaster project management.

## D. Cost Estimates

29. The Project is estimated to cost \$6.25 million equivalent, of which \$3.25 million (52 percent) is the foreign exchange cost and \$3.00 million equivalent (48 percent) the local

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<sup>7</sup> The World Bank will focus on nine districts in Khatlon Region and two districts in the RRS under the EFAP supplementary financing of \$2 million.

currency cost. The cost estimates include land acquisition and compensation for resettled persons and physical and price contingencies, and are net of taxes and duties. A summary of the cost estimates is in Table 2 and a detailed cost estimates are in Appendix 3.

**Table 2: Summary of Project Cost Estimates**  
(\$'000)

<b>Sector</b>	<b>Foreign Exchange</b>	<b>Local Currency</b>	<b>Total Cost</b>
A. Civil Works	700	1,680	2,380
B. Construction Materials	1,530	740	2,270
C. Equipment	420	0	420
D. Resettlement <sup>a</sup>	180	170	350
E. Consulting Services	70	80	150
F. Contingencies			
1. Physical	140	150	290
2. Price	160	180	340
<b>Subtotal (A-F)</b>	<b>3,200</b>	<b>3,000</b>	<b>6,200</b>
G. Interest During Construction	50	0	50
<b>Total</b>	<b>3,250</b>	<b>3,000</b>	<b>6,250</b>

<sup>a</sup> Land acquisition, compensation, housing, and public infrastructure; Bank-financing will be for the rehabilitation of public infrastructure including roads, water supply, power, and a school.

## **E. Financing Plan**

30. The proposed ADB loan of \$5.00 million equivalent will finance the entire foreign exchange cost of \$3.25 million and \$1.75 million equivalent of the local currency cost, or 80 percent of the total project cost. The provision of local cost financing is justified on country and project considerations (paras. 12 and 27). The Government will meet the remaining local currency costs of \$1.25 million equivalent, or 20 percent of the total project cost. Government financing will cover the local expenditures for land acquisition, compensation of resettled persons, taxes, and duties, and 48 percent of civil works costs.<sup>8</sup> The Borrower will be the Republic of Tajikistan. The Government will make the loan proceeds available to the Executing Agency through budgetary appropriations. The loan will be provided from ADB's Special Funds resources and will have a term of 32 years, and an interest charge of 1 percent per year during the grace period of eight years and 1.5 percent per year thereafter. The financing plan is summarized in Table 3.

**Table 3: Financing Plan**  
(\$ '000)

<b>Source</b>	<b>Foreign Exchange</b>	<b>Local Currency</b>	<b>Total</b>	<b>Percent</b>
ADB	3,250	1,750	5,000	80
Government	0	1,250	1,250	20
<b>Total</b>	<b>3,250</b>	<b>3,000</b>	<b>6,250</b>	<b>100</b>

<sup>8</sup> Civil works comprises labor, equipment operation, site preparation, and other items not covered under construction materials, equipment, and resettlement costs.



## **F. Implementation Arrangements**

### **1. Execution and Coordination**

31. The Project will utilize the arrangements already established by the Government for the World Bank's EFAP (Appendix 4). The Executing Agency will be the Department of Environment and Emergency Situations (DEES), which is headed by a vice prime minister. The Implementing Agency will be the Center for the Liquidation of the Consequences of Natural Disaster (CLCND). Its director, who reports to the head of the DEES, will be the project director for both the Project and the EFAP. A full-time CLCND deputy director will be accountable for day-to-day project implementation as head of the project implementation unit. The unit, which will be located in Dushanbe, will (i) review designs prepared by the Government's design offices, prepare and evaluate tenders, award civil works contracts, and procure materials, and equipment; (ii) recruit and supervise domestic consultants; (iii) supervise implementation and quality control of the project works and equipment installation; (iv) ensure feedback from beneficiaries on project responsiveness to their needs; and (v) prepare the various reports to and communications with ADB.

32. The recently approved ADB-financed Social Sector Rehabilitation Project<sup>9</sup> will engage the United Nations Office for Project Services as implementing agency for construction supervision; this is to avoid the risks associated with the Government's lack of experience in providing the needed support for internationally funded projects. However, CLCND was specifically established to deal with natural disaster rehabilitation and while CLCND was slow in starting the World Bank-financed EFAP, it is now performing satisfactorily after more than one year of experience. The majority of the civil works and equipment installation under the EFAP and the proposed Project are on a force account or direct purchase basis using experienced Government construction units under the supervision of well-qualified domestic consultants, including a team of accountants recruited for the EFAP. The operational procedures and capacity of the EFAP accounting team were recently reviewed and strengthened by the World Bank, and the team's performance is satisfactory.

33. Benefiting from the satisfactory experience under the EFAP, the head of the PIU will be supported in supervising construction of the Project by a team of ADB-financed domestic consultants in Dushanbe and field engineers in the affected districts of Leninabad Khatlon, RRS, and GBAR. Because of the distance between Leninabad Region and Dushanbe, a project supervisor will coordinate with two field engineers in Khojand (see Map). Provision of the additional PIU resources for CLCND will avoid the risk of overburdening the entity. To ensure effective use of advance procurement action and retroactive financing, appointment of the PIU head and the project supervisor in Khojand is a condition for loan negotiations.

### **2. Consulting Services**

34. About 290 person-months of domestic consulting services financed from ADB loan will be required to implement the Project. As the EFAP experience of the World Bank indicates, adequately qualified and experienced domestic consultants are available for these relatively simple works. The consultants will carry out detailed design review in cooperation with the Government's design institutes, prepare contract documents, conduct bid evaluations, supervise construction, perform quality control, and prepare the covenanted project reports. Field engineers will be responsible for day-to-day supervision of the various contractors. The

<sup>9</sup> Loan 1705-TAJ: *Social Sector Rehabilitation Project*, for \$20 million, approved on 26 October 1999.

Mission's initial social analysis will be reviewed by two social analysts who will also gather baseline data, and carry out benefit monitoring for the Project, in close coordination with an international consultant disaster management expert recruited under the TA grant. The social analysts will also review the Government's Resettlement Plan for the 288 families in Asht District being relocated by the Government to safer areas. The resettlement is on a voluntary basis and not covered under ADB's policy on involuntary resettlement. Nevertheless, it is an opportunity to develop an understanding with the Government on ADB's perspectives on the social aspects of project design. The environment specialist will ensure that the mitigation measures outlined in the initial environmental examination are followed and that the Project is implemented in line with the Government's and ADB's environmental assessment requirements for each project area. The environment specialist will also ensure that, if necessary, a full environmental impact assessment (EIA) and a summary EIA will be prepared for any of the project sites.

35. The domestic consultants will be recruited by the Government as individual consultants in accordance with ADB's *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB on the engagement of domestic consultants. The terms of reference for the consulting services are in Appendix 5.

### **3. Procurement**

36. Procurement of goods and services to be financed by ADB will be carried out in accordance with ADB's *Guidelines for Procurement*. In view of the nature of the Project, with civil works contract values well below \$1 million and project sites scattered in remote areas with security risks, it is unlikely that the Project will attract international contractors. The only local contractors in Tajikistan with adequate experience and resources to undertake the main civil works for roads, bridges and riverbank protection, and irrigation works are the two State-owned enterprises Mostospetsstroi for bridges and Tajikdorstroy for roads. Both enterprises operate under the supervision of the Ministry of Transport and Roads. These enterprises are currently engaged under the EFAP and their performance is satisfactory. As such, ADB agreed to the Government's request for these two firms to carry out the main civil works on a force account basis. Minor civil works for irrigation, water supply, power and telephone systems, and schools, and for the procurement of construction materials and equipment will be carried out on a local competitive bidding or direct purchase basis, consistent with the EFAP. Most of these contract packages are expected to have a value of less than \$100,000. The contract packages are in Appendix 6.

### **4. Advance Procurement Action and Retroactive Financing**

37. Following the Government's request, ADB has approved (i) advance action for the recruitment of the consultants for construction supervision, (ii) advance action on procurement of equipment and civil works under the Project, and (iii) retroactive financing under the Project. These actions are required to expedite project implementation particularly for components that are critical for restoring normalcy in the social and economic life of the affected communities. The retroactive financing is limited to loan-related expenditures incurred from 8 July 1999 until loan effectiveness, and is subject to a maximum of \$1.0 million. The Government was advised that ADB's approval of advance action and, in principle, retroactive financing does not imply commitment to finance the Project.

## **5. Disbursement Procedures**

38. To expedite implementation of the Project through timely release of the loan proceeds, the Government will establish an imprest account promptly after loan effectiveness with an initial deposit of \$0.5 million. The imprest account will be established in the National Bank of Tajikistan, and will be managed and liquidated in accordance with detailed arrangements agreed upon by the Borrower and ADB, consistent with ADB's *Loan Disbursement Handbook*. ADB's statement of expenditures procedure will be used for reimbursement of expenditures and for the liquidation of the imprest account for payments not exceeding \$50,000 each. Based on experience under the EFAP and a recent World Bank review of CLCND's accounting system, the Government has the capacity to maintain an imprest account and expenditure record in accordance with generally accepted accounting standards.

## **6. Implementation Schedule**

39. The Project will be implemented over a period of about two years, with completion expected by 31 December 2001. Except for the main civil works for roads, bridges, and riverbank protection, the other components are expected to be completed during 2000. A tentative project implementation schedule is in Appendix 7.

## **7. Reports, Accounts, and Audit**

40. The Government will provide brief monthly and annual reports to ADB. These reports will indicate the progress made and problems encountered during the period under review, the steps taken or proposed to remedy the problems, the proposed program of activities, and the expected progress during the following period. Within three months of physical completion of the Project, the Government will submit to ADB a completion report that provides details about implementation, costs, benefits, and other information requested by ADB.

41. CLCND will maintain separate accounts for the Project. These will be coordinated and consolidated by DEES, which will be responsible for preparation and audit of the accounts and the related financial statements (expenditure and imprest account) by domestic auditors acceptable to ADB. Certified copies of the audited accounts and financial statements will be submitted to ADB within nine months of the end of each related fiscal year.

## **8. Midterm Review**

42. The Borrower, the World Bank, and ADB will jointly carry out a midterm review of the Project, if necessary, after the end of the first year of its implementation. The midterm review will assess (i) implementation status, (ii) design and construction standards, (iii) physical progress made and disbursements in relation to the implementation schedule, (iv) performance of the consultants and contractors, and (v) status of compliance with the covenants stipulated in the Loan Agreement. The midterm review will also assess the need for any additional works or changes in the project scope to take account of any additional landslides resulting from the 1999 floods.

## **9. Community Participation**

43. The Project was formulated in close consultation with the concerned local governments, communities affected by the floods and landslides, and other local groups and NGOs. Affected

families in the disaster areas, including those headed by women, were visited, and interviewed to understand their difficulties and the nature of the assistance needed.

## **10. Operation and Maintenance**

44. The restored infrastructure facilities will be turned over to the concerned local governments for operation and maintenance. The Government has given an assurance that the completed project facilities will be maintained properly by the regional authorities through the concerned departments and utility companies. The ongoing TA (footnote 5) has reviewed the Government's transport policy statement and recommended that the existing Road Fund be strengthened to provide for the road maintenance. This matter was discussed with the Government by the TA Review Mission in October 1999 and will be followed-up during Project implementation.

### **G. The Executing Agency**

45. DEES is responsible for rehabilitation following natural disasters and ensuring that sustainable reconstruction is implemented through zonal offices at the regional level. DEES is capable of carrying out the executing agency functions. DEES also has a close relationship with MESCD, whose principal functions are to gather data on the scope and nature of disasters, respond to the immediate relief and welfare of the affected people after disasters, and restore temporary civil services. At present, MESCD is carrying out this important role following the July 1999 floods and landslides.

46. CLCND is suitably experienced to act as the Implementing Agency for the Project, and following its establishment in 1998 to implement the World Bank's EFAP, it is expected to be retained as a permanent body in the Government structure. Besides being led by an official of high standing in the Government, CLCND has over 30 current staff at its headquarters, including engineers of various disciplines and accountants. CLCND, as a separate legal entity, maintains its own bank accounts, and is the official agency directly responsible for the planning, design, and implementation of permanent rehabilitation works after disasters.

### **H. Environmental and Social Measures**

#### **1. Environmental**

47. An IEE of the Project was conducted during appraisal. The Government agrees to give due attention to the environmental aspects and to follow the mitigating measures outlined in the IEE during implementation (Appendix 8). The Government will also require DEES and other agencies concerned with project implementation to review the applicability of the IEE for each of the project sites in accordance with ADB's guidelines and the Government's environmental standards and regulations. Where necessary, EIAs will be prepared and submitted to ADB for approval. If an EIA is found necessary, ADB financing will be contingent upon approval by ADB of a summary EIA.

#### **2. Social**

48. The initial social analysis prepared during appraisal is in Appendix 9. It is estimated that more than 80 percent of the approximately 30,000 population in the project areas are living in poverty. The Project will help bring social and economic life back to normal in the flood-affected communities. Rehabilitation of the roads, bridges, and riverbank protection works will assist in

restoring the supply and distribution network for basic goods and in regaining access to health and education facilities, particularly for poor communities in remote areas. The reconstruction of five damaged schools will help restore the basic foundation for social and economic advancement, and support the Government's efforts to improve the quality of social services. Design, construction, and the provision of equipment for the project schools will be carried out in close coordination with implementation of the Social Sector Rehabilitation Project. The irrigation, water supply, power, and telephone facilities to be reconstructed will help restore a sustainable living environment to affected families, including the 288 households relocated from the disaster areas. The poor people living in the remote areas will receive the most direct benefits from the Project, as these people are the most affected by the damaged public infrastructure and disrupted social services.

### **3. Resettlement**

49. While the project works do not require any resettlement of people, 288 households in Asht District of Leninabad Region, whose houses were totally destroyed, are regarded by the Government as living in flood-prone areas. Accordingly, the Government has established two resettlement areas in that same district, and these have been made available at no cost to the householders, together with the provision of housing, homestead land, and the same amount of cash compensation as payable to all flood-affected people. In addition, NGOs are providing food, clothing, seeds, medical and other relief goods. Persons being resettled who were interviewed by ADB's Mission indicated they welcomed the Government's initiative and assistance in the face of their dire need. While the resettlement is voluntary, the Project is an opportunity to develop an understanding with the Government on ADB's perspectives on the social aspects of project design and resettlement. Accordingly, ADB financing and retroactive financing for access roads, power, water supply, and a school in the resettlement areas will be accompanied by a review of the Government's resettlement plan by social analysts being engaged under the Project.

#### **I. Benefits and Justification**

50. The Project will directly benefit the poverty-affected communities. In some remote areas where roads have become impassable due to landslides and floods, the supply of basic commodities will be restored. The Project will also deliver such socioeconomic benefits as the restoration of power supply, reconstruction of irrigation facilities, and resumption of access to health services and education. Because more than 80 percent of the population in the Project areas are poor, the Project is strongly justified as it will restore damaged public infrastructure and improve the social and economic conditions for the flood affected and poverty stricken communities.

51. The project benefits are mostly nonincremental. The project components are designed to restore disrupted public services in the affected areas in the shortest possible time, based on a least-cost solution. However, in addition to the baseline data to be prepared by the domestic consultant social analysts, the TA consultant will assist the Government in assessing the net present value of damaged facilities before and after restoration, and the economic costs of the traffic disruptions due to the flood damage. In general, the process of benefit monitoring to be adopted will be consistent with ADB's project performance management system, and some baseline data will be obtained from an ongoing World Bank-financed living standards measurement survey.

## **J. Risks**

52. The major risks involved are (i) breakdown of the postconflict peace accord, (ii) fresh landslides and flooding that would damage the completed works, (iii) inadequate construction supervision due to the relative inexperience of CLCND and the multisectoral coverage of the Project over a widespread area, and (iv) inadequate maintenance of completed works. These risks would all tend to detract from the poverty reduction objective of the Project. They will be mitigated through lessening of tensions that foster conflict; wide geographic coverage and flexibility to avoid direct conflict areas; close coordination of review missions conducted by the World Bank and ADB; careful project design, including a design review of riverbank protection works to be completed in December 1999 under the EFAP; regular coordination with NGOs; the input of accompanying TA consulting services; and the application of recommendations under the ongoing TA 3114. An assessment will also be made during the midterm review of any need for additional works or change in project scope. In addition, a Government request in September 1999 for a separate ADB-financed TA is being considered for a comprehensive Flood Management Plan. This latter TA will deal with the long-term sustainability of flood-prone infrastructure and improved land use, particularly for erosion-prone mountain slopes.

## **VI. THE TECHNICAL ASSISTANCE**

53. The Government has requested the TA to build the Government's capacity to manage flood disasters following the episodes in 1998 and 1999. While MESCD, DEES, and CLCND have gained useful experience under the EFAP, further capacity building is necessary in the efficient coordination of the preparedness, relief, and rehabilitation response phases of disaster management. The TA will help to improve flood disaster management and provide suitable training. The TA will also provide guidance in dealing with the requirements and opportunities available through international funding agencies and NGOs, and provide a useful basis for the preparation of a long-term flood management plan. The TA will cost \$235,000 equivalent, comprising foreign exchange costs of \$204,000 and local currency costs of \$31,000 equivalent. ADB will finance \$205,000 equivalent, to cover all the foreign exchange costs and \$1,000 equivalent of the local currency costs. The funding will be on a grant basis from the Japan Special Fund, funded by the Government of Japan. The Government will finance \$30,000 equivalent of the local currency costs. Terms of reference for the 5 person-months of consulting services are in Appendix 10, and cost estimates are in Appendix 11. Because of the close linkage of the TA with the loan, a direct appointment of the consultant will be considered, using the firm currently engaged under TA 3114 (footnote 5) and TA 3168 (footnote 6).

## **VII. ASSURANCES**

### **A. Specific Assurances**

54. The Government has given the following assurance, in addition to the standard assurances, which have been incorporated in the legal documents: In implementing the Project, mitigating measures in the IEE will be implemented for each project site. Government permits will be obtained promptly, and if necessary, any EIAs will be conducted in accordance with the Government's environmental regulations and ADB's *Environmental Assessment Requirements, Environmental Guidelines for Selected Infrastructure Projects*, and *Environmental Guidelines for Selected Agriculture and Natural Resources Projects*.

55. No disbursement will be made by ADB for public infrastructure in the resettlement areas until the resettlement plan of the Government has been received by ADB and found to be satisfactory.

**B. Condition for Loan Effectiveness**

56. The Government will recruit an adequate number of staff, with skills agreed by ADB, for the project implementation unit.

**VIII. RECOMMENDATION**

57. I am satisfied that the proposed loan would comply with the Articles of Agreement of ADB and recommend that the Board approve the loan in various currencies equivalent to Special Drawing Rights 3,601,000 to the Republic of Tajikistan for the Emergency Flood Rehabilitation Project, with a term of 32 years, including a grace period of 8 years, and with an interest charge at the rate of 1 percent per annum during the grace period and 1.5 percent per annum thereafter, and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan Agreement presented to the Board.

TADAO CHINO  
President

5 November 1999

**APPENDIXES**

<b>Number</b>	<b>Title</b>	<b>Page</b>	<b>Cited on (page, para.)</b>
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2	Project Scope	19	8, 28
3	Cost Estimates	20	9, 29
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**DETAILS OF THE FLOOD DAMAGE  
(TJR' 000)**

Sector	Leninabad		Khatlon/RRS/GBAR		Total	
	Quantity	Cost	Quantity	Cost	Quantity	Cost
<b>A. Public</b>						
Roads (km)	62	1,330	327	12,510	389	13,840
Bridges (m)	448	2,160	294	2,089	742	4,249
Riverbanks (km)	41	907	16	2,681	57	3,588
Headworks and Dams (ha)	93 ]	-	2 ]	-	95 ]	-
Irrigation (km)	50 ]	300	30 ]	200	80 ]	500
Water Supply (km)	8	100	1	50	9	150
Power Lines (km)	24 ]		13		37 ]	
Transformers/Power Station	1 ]	122	43	3,542	44 ]	3,664
Telephone Lines (km)	17	60	0	0	17	60
Schools	5	225	0	0	5	225
Other Facilities	-	66	-	428	-	494
<b>Subtotal (A)</b>		<b>5,270</b>		<b>21,500</b>		<b>26,770</b>
<b>B. Private</b>						
Houses						
Damaged	429 ]	2,300	16 ]	700	445 ]	3,000
Destroyed	395 ]	-	20 ]	-	415 ]	-
Agricultural Crops (ha)	13,600	1,930	400	800	14,000	2,730
Livestock	2,230	500	770	0	3,000	500
Deaths/Seriously Injured	42	0	0	0	42	-
Resettlement (households)	288	0	0	0	288	-
<b>Subtotal (B)</b>		<b>4,730</b>		<b>1,500</b>		<b>6,230</b>
<b>Total</b>		<b>10,000</b>		<b>23,000</b>		<b>33,000</b>
						(approximately \$25 million)

ha = hectare; km = kilometer; m = meter.

Source: Mission estimates.

## PROJECT SCOPE

Table A2.1: Leninabad Region

Sector of Intervention	District							Total
	L1 Asht	L2 Adrasman	L3 Matchi	L4 Isfara	L5 Penjikent	L6 Aini	L7 Kanibabam	
Roads (km)	15	2	15				5	37
Bridges (m)	87		27	17	16			147
River Bank Strengthening (km)	20			1	5			26
Power Facilities (km)	24							24
Telephone Facilities (km)	17							17
Irrigation (km)	2					2	5	9
Irrigation Headworks (ha)	46				2	2		50
Water Supply Facilities (km)	8							8
Schools	5							5
Resettlement (households)	288							288

Table A2.2: Khatlon Region

Sector of Intervention	District							Total
	K1 Kulyab	K2 Khojamaston	K3 Moscowsky	K4 Parhar	K5 Muminabad	K6 Beshkenski	K7 Balijuvan	
Roads (km)	18			5				23
Bridges (m)	27		50				36	113
River Bank Strengthening (km)	2	1	1	1	1		1	7
Power Facilities (km)				2		4	2	8
Water Supply (km)							8	8

Table A2.3: Regions of Republican Subordination and Gorno-Badakhshan

Sector of Intervention	RRS				GBAR			Total
	R1 Gissar	R2 Kafarnigan	R3 Djirgital	R4 Tajikabad	G1 Murgab	G2 Rushan	G3 Roshkala	
Roads (km)	7	2	8	2	1		1	21
Bridges (m)			20		20			40
River Bank Strengthening (km)	1	1	1		1	1		5
Power Facilities (km)			3	2				5
Irrigation (km)	12	7	2	9				30
Irrigation Headworks (ha)	1	1						2
Water Supply Facilities (km)	1							1

Table A2.4: Summary of all Regions

Sector of intervention	RRS and		Total Project	Total Damage <sup>a</sup>
	Leninabad	Khatlon	GBAR	
Roads (km)	37	23	21	389
Bridges (m)	147	113	40	747
River Bank Strengthening (km)	26	7	5	57
Power Facilities (km)	24	8	5	86
Telephone Facilities (km)	17	0	0	17
Irrigation (km)	9	8	30	59
Irrigation Headworks	50	0	2	93
Water Supply Facilities (km)	8	8	1	17
Schools	5	0	0	5
Resettlement (households)	288	0	0	288

<sup>a</sup> From Appendix 1.

## COST ESTIMATES

Table A3.1: Leninabad Region  
(\$' 000)

Sector of Intervention	District							Total
	L1 Asht	L2 Adrasman	L3 Matchi	L4 Isfara	L5 Penjikent	L6 Aini	L7 Kanibabam	
Roads	200	60	100				30	390
Bridges	500		100	50	60			710
River Bank Strengthening	350			80	50		40	520
Power Facilities	250							250
Telephone Facilities	42							42
Irrigation Facilities	84				50	60	40	234
Water Supply Facilities	73							73
Schools	166							166
Resettlement (Asht)	350							350
<b>Total</b>	<b>2,015</b>	<b>60</b>	<b>200</b>	<b>130</b>	<b>160</b>	<b>60</b>	<b>110</b>	<b>2,735</b>

Table A3.1: Khatlon Region  
(\$' 000)

Sector	District							Total
	K1 Kulyab	K2 Khojamaston	K3 Moscowsky	K4 Parhar	K5 Muminabad	K6 Beshkenski	K6 Baliyuvan	
Roads	183			100				283
Bridges	230		100				50	380
River Bank Strengthening	300	60	400	300	20		100	1,180
Power Facilities				15		62	15	92
Irrigation Facilities							50	50
<b>Total</b>	<b>713</b>	<b>60</b>	<b>500</b>	<b>415</b>	<b>20</b>	<b>62</b>	<b>215</b>	<b>1,985</b>

Table A3.3: Regions of Republican Subordination and Gorno-Badakhshan  
(\$' 000)

Sector	RRS				GBAR			Total
	R1 Gissar	R2 Kafarnigan	R3 Djirgital	R4 Tajikabad	G1 Murgab	G2 Rushan	G3 Roshkala	
Roads	50	40	30	30	20		20	190
Bridges			20		20			40
River Bank Strengthening	50	100	15		20	30	20	235
Power Facilities			20	20				40
Irrigation Facilities	60	50	15	20				145
Water Supply Facilities	50							50
<b>Total</b>	<b>210</b>	<b>190</b>	<b>100</b>	<b>70</b>	<b>60</b>	<b>30</b>	<b>40</b>	<b>700</b>

Table A3.4: Summary for all Regions  
(\$' 000)

Sector	REGION			Total
	Leninabad	Khatlon	RRS & GBAR	
Roads	390	283	190	863
Bridges	710	380	40	1,130
River Bank Strengthening	520	1,180	235	1,935
Power Facilities	250	92	40	382
Telephone Facilities	42	0	0	42
Irrigation Facilities	234	50	145	429
Water Supply Facilities	73	0	50	123
Schools	166	0	0	166
Resettlement Areas	350	0	0	350
<b>Total</b>	<b>2,735</b>	<b>1,985</b>	<b>700</b>	<b>5,420<sup>a</sup></b>

<sup>a</sup> Excluding consulting services contingencies and interest and other charges during construction.

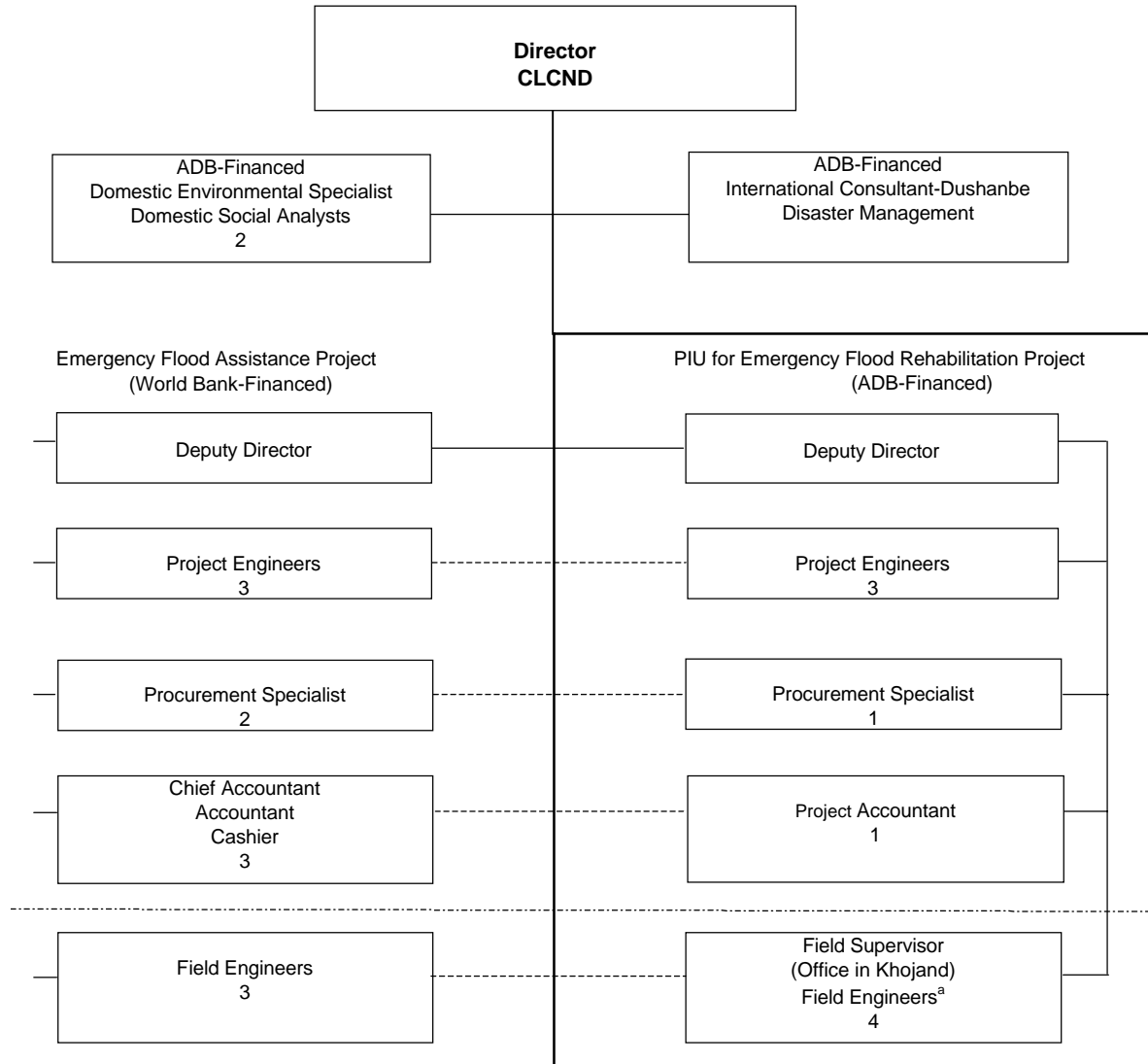
**Table A3.5: Project Cost Estimates**  
(\$'000)

<b>Item</b>	<b>Foreign Exchange</b>	<b>Local Currency</b>	<b>Total Cost</b>
<b>A. Bank Financing</b>			
1. Civil Works			
a. Main			
i. Leninabad	250	230	480
ii. Khatlon	230	220	450
iii. RRS and GBAR	90	40	130
b. Minor			
i. Leninabad	120	130	250
ii. Khatlon	5	5	10
iii. RRS and GBAR	5	5	10
2. Construction Materials			
a. Leninabad	610	300	910
b. Khatlon	620	370	990
c. RRS and GBAR	300	70	370
3. Equipment			
a. Leninabad	285	0	285
b. Khatlon	110	0	110
c. RRS and GBAR	25	0	25
4. Resettlement (Leninabad)	180	70	250
5. Consulting Services			
a. Remuneration	0	70	70
b. Equipment	50	0	50
c. Training	20	10	30
6. Contingencies			
a. Physical	140	100	240
b. Price	160	130	290
7. Interest and Other Charges During Construction	50	0	50
<b>Subtotal (A)</b>	<b>3,250</b>	<b>1,750</b>	<b>5,000</b>
<b>B. Government Financing</b>			
1. Civil Works			
a. Main			
i. Leninabad	0	370	370
ii. Khatlon	0	335	335
iii. RRS and GBAR	0	160	160
b. Minor			
i. Leninabad	0	160	160
ii. Khatlon	0	15	15
iii. RRS and GBAR	0	10	10
2. Resettlement (Leninabad)	0	100	100
3. Contingencies			
a. Physical	0	50	50
b. Price	0	50	50
<b>Subtotal (B)</b>	<b>0</b>	<b>1,250</b>	<b>1,250</b>
<b>Total</b>	<b>3,250</b>	<b>3,000</b>	<b>6,250</b>

GBAR = Gorno-Badakhshan Autonomous Region; RR= Regions of Republican Subordination.

## IMPLEMENTATION ARRANGEMENTS

Appendix 4



## TERMS OF REFERENCE FOR PROJECT IMPLEMENTATION CONSULTANTS

### A. Overall Requirements

1. The overall requirement for project implementation assistance by domestic consultants is in Table A5.1.

**Table A5.1: Consulting Services Requirements**

<b>Expertise</b>	<b>Person Months</b>
Head, Project Implementation Unit	30
Project Engineer (Roads, Bridges, River Protection)	27
Project Engineer (Irrigation and Water Supply)	18
Project Engineer (Power and Telephones)	7
Procurement Specialist	27
Project Accountant	30
Project Supervisor (Khojand)	27
Field Engineers Khojand (2)	54
Field Engineers (other areas) (2)	54
Environment Specialist	6
Social Impact Analysts (2)	10
<b>Total</b>	<b>290</b>

### B. Deputy Director, CLCND (Head, PIU)

2. The deputy director, Center for the Liquidation of the Consequences of Natural Disaster (CLCND) may be delegated by the Executing Agency to deputize for the director, and will perform the duties of head of the project implementation unit (PIU) for the Project. In communications with the Bank, the head, PIU, will act through the director, CLCND, and provide 30 person-months of service until about three months after physical completion of the Project.

3. The deputy director will

- (i) Be responsible for overall coordination of the PIU and ensure smooth and efficient implementation of the Project, consistent with the Government's directives, the project objectives, and smooth interaction with the World Bank-financed Emergency Flood Assistance Project (EFAP) and the Bank-financed technical assistance for Flood Disaster Management.
- (ii) Under the guidance of the director, CLNCD, implement the Project as outlined under the Project Administration Memorandum and the Loan Agreement. Advise the director, CLCND promptly on the need for any deviations to these expectations in the interests of the overall flood rehabilitation efforts of the Government and the aid community.
- (iii) Ensure the prompt and appropriate completion of project designs by the Government's design units for all project components.
- (iv) Assist the director, CLCND in recruiting other consultants and promptly starting up of the Project.

- (v) Manage the PIU staff and resources to ensure prompt completion of all contract documents, tender arrangements, bid and consultant evaluations, contract negotiations, and adherence to contractual provisions during implementation.
- (vi) Ensure compliance with the Bank's *Guidelines for Procurement* and the *Guidelines on the Use of Consultants*, including provisions for upholding the Bank's requirements for avoiding fraud and corruption.
- (vii) Supervise the proper maintenance of project accounts and the timely submission to the Bank of all reports as referred to in the Loan Agreement, or that may be requested by the Bank from time-to-time.
- (viii) Ensure overall compliance with the Government's and the *Bank's Environmental Assessment Requirements, Guidelines for the Incorporation of Social Dimensions in Bank Operations, and Guidelines on Involuntary Resettlement*.
- (ix) Within three months of physical completion of the Project, ensure the completion and submission to the Bank, in English, of a project completion report (PCR).
- (x) Take responsibility for ensuring that brief monthly progress reports are submitted to the Bank, in English, and that these are copied to the Tajikistan Resident Mission of the World Bank.
- (xi) As appropriate, travel to Leninabad and other project areas to conduct field inspections of project implementation and ensure the overall efficiency of the Leninabad field office operations.

### **C. Project Engineers (Dushanbe)**

6. The three project engineers, to be based in Dushanbe for (i) roads and bridges (27 months); (ii) river bank protection works, irrigation, and water supply (18 months); and (iii) power distribution and telephone network (7 person-months), will be responsible to the head, PIU for efficient project implementation on all matters related to their respective sectors. The project engineer will keep the head, PIU properly informed on matters related to compliance with the Loan Agreement; Government regulations and requirements; various Bank guidelines related to procurement, use of consultants, social dimensions, and involuntary resettlement; as well as contractor performance. Each consultant should take proactive action for regular field inspections of project implementation and closely monitor the work of the field engineers in Khojand.

### **D. Procurement Specialist**

7. The procurement specialist (27 person-months) will be based in Dushanbe and be responsible to the head, PIU for timely and efficient procurement activities under the Project. The specialist will

- (i) liaise closely with the project engineers in meeting the project implementation schedule and compliance with the Bank's *Guidelines for Procurement* and *Guidelines on the Use of Consultants*;
- (ii) follow the procurement arrangements in the PAM Loan Agreement;

- (iii) proactively adopt all possible efforts to improve the competitive objectives in procurement in consultation with the head, PIU; the Bank; and the Bank's guidelines, and the urgent nature of the Project;
- (iv) carry out regular inspection of the procurement activities being conducted under the field office at Khojand; and
- (v) contribute to the monthly progress reports and the PCR on matters relating to procurement status and planning.

#### **E. Project Accountant**

8. The project accountant (30 person-months) who will also be based in Dushanbe will
- (i) provide continuous input in organizing and maintaining the project accounts to ensure efficient recording and planning of the Government and Bank financing arrangements for the Project;
  - (ii) take responsibility for the preparation and submission to the Bank of loan withdrawal applications on a timely basis, and for ensuring that contractors and consultants are paid promptly for their services;
  - (iii) work under the supervision of the chief accountant for the EFAP and the Project, with particular responsibility for maintaining a clearly separate set of project accounts from those of the EFAP;
  - (iv) ensure that the accounts clearly show the items and services paid for by the Government and those paid for out of the Bank loan;
  - (v) be fully responsible to the head, PIU for the timely completion of the project account reports, consistent with the Government and Loan Agreement provisions and international accounting practices, and their submission, in English, to the Bank;
  - (vi) contribute to submission of the brief monthly progress reports; and
  - (vii) be responsible to the head, PIU for ensuring timely action is taken for the annual auditing of the project accounts.

#### **F. Project Supervisor (Khojand)**

9. The project supervisor (27 person-months), will
- (i) have a key role in establishing and ensuring contribution to timely and effective project implementation of the field office in Khojand;
  - (ii) procure office equipment in coordination with the procurement specialist;
  - (iii) ensure efficient, proactive, and cooperative dialogue is maintained with the oblast (region) and rayon (district) officials, contractors, NGOs, and disaster-affected people;



- (iv) give particular attention to the resettlement areas in Asht Province and the development of a close understanding of the project activities by the consultant social analysts;
- (v) be responsible to the head, PIU for maintaining the day-to-day efficiency of project implementation in full coordination with the project engineers and other consultants in Dushanbe;
- (vi) contribute to providing timely inputs to the brief monthly progress reports and other such day-to-day information and communications required by the head, PIU, and the consultant staff in Dushanbe;
- (vii) coordinate the activities of the field engineers in Leninabad Region, ensure that the office resources are used effectively meeting the project objectives, and delegate responsibility for ensuring that all Government, Loan Agreement, PAM, and Bank's provisions of the guidelines are adhered to during Project implementation; and
- (viii) delegate signatory authority on completed works as the engineer for project activities in the Leninabad Region and delegate responsibility to the head, PIU, if necessary, consistent with contractual, Government, and Bank requirements.

#### **G. Field Engineers (Khojand)**

13. Two field engineers (27 person-months each) will be based in Khojand and work under the direct supervision of the project supervisor. Two additional field officers will be assigned to Bank-financed works in Khatlon Region, RRS, and Gorno-Badakhshan Region. All field engineers will

- (i) liaise directly with the project engineers and other consultants in Dushanbe while ensuring that all communications are routed through or copied to the project supervisor in the case of the Khojand field officers;
- (ii) ensure that contract implementation activities are supervised closely and in detail;
- (iii) assist the environment specialist and ensure that recommendations of the social analysts have been cleared by the head, PIU, and project supervisor for the Leninabad Region are incorporated promptly into the Project;
- (iv) assist in efficient liaison and cooperation with the project beneficiaries and NGOs; and
- (v) contribute to project reports and carry out other tasks allocated by the project supervisor.

#### **H. Environment Specialist**

14. The environment specialist (6 person-months intermittent) will follow the Bank's *Environmental Guidelines for Selected Infrastructure Projects* and *Environmental Guidelines for Selected Agricultural and Natural Resources Development Projects*. The consultant will

- (i) review the Bank's summary initial environmental examination for each project component in each of the districts where rehabilitation works are financed by the Bank;
- (ii) where necessary, conduct full environmental impact assessments and submit them to the Bank for the required 120 days circulation prior to Bank approval;
- (iii) liaise carefully with the head, PIU and the field engineers to ensure that all possible efforts are made to improve environmental sustainability, such as by slope stabilization and bioengineering solutions as a result of the Project;
- (iv) adopt appropriate mitigation measures during project implementation to avoid adverse environmental impacts; and
- (v) contribute to the monthly progress report to be submitted to the Bank.

#### **I. Social Analysts**

15. The two social analysts (total 10 person-months) will be responsible to the head, PIU, and will also work in close coordination with the project supervisor (Khojand) and the environment specialist. They will

- (i) conduct a base line survey to develop a suitable basis for benefit monitoring of the Bank-financed components, and assist the Government in a review of its Resettlement Plan for the 288 relocated families in Asht District;
- (ii) follow the Bank's *Guidelines for Incorporation of Social Dimensions in Bank Operations* as well as the *Guidelines on Involuntary Resettlement*;
- (iii) monitor project implementation to maximize improvements to the lives and livelihood opportunities, including those in the resettlement areas;
- (iv) proactively involve NGOs working in the project areas;
- (v) commence the benefit monitoring activities and will submit reports to the Bank incorporating the baseline data and the monitoring process; and
- (vi) contribute to the brief monthly progress reports to be submitted to the Bank.

**PROCUREMENT CONTRACT PACKAGES**  
(\$ million)

<b>Item</b>	<b>Procurement Method</b>	<b>Estimated Total Cost</b> (\$'000 equiv.)
<b>A. Civil Works</b>		
<b>1. Main</b> Road, bridges, riverbank protection works, and irrigation	Force Account	1,925
<b>2. Minor</b> Water supply, power, telephones, schools	DP/LCB	455
<b>B. Resettlement Areas</b>		
Site preparation, compensation and housing <sup>a</sup>	Force Account	100
Roads, water supply, power and telephone distribution <sup>b</sup>	DP	250
<b>C. Construction Materials</b> Steel, cement, diesel fuel/lubricants, stones, sand, pipes, towers and cables, roofing, glass, and various fittings	LCB/DP	2,270
<b>D. Equipment</b> Irrigation and water supply pumps, meters and regulators, power transformers and fittings, telephones, school furniture, education equipment, and textbooks	DP	420
<b>E. Domestic Consulting Services</b>		
1. Remuneration	Individual	70
2. Khojand Field Office Equipment. Utility vehicle (1), computers (4), phones/fax machines (3), typewriter (1), photocopy machine (1), air-conditioners (3), tables (3) and chair (1), miscellaneous/stationery	DP	50
3. Training in Disaster Management	DP	30
<b>Total (A-E)</b>		<b>5,570</b>

DP = direct payment; LCB = local competitive bidding.

<sup>a</sup> Government-financed.

<sup>b</sup> Bank-financed.

## IMPLEMENTATION SCHEDULE

	1999			2000												2001											
Activity	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1. Civil Works																											
a. Roads, bridges, and river bank protection																											
b. Power and telephone facilities																											
c. Irrigation and water supply																											
d. Schools																											
e. Relocation Centers																											
2. Procurement of Equipment																											
a. Power and telephone facilities																											
b. Schools																											
c. Relocation Centers																											
3. Construction Materials																											
a. Steel																											
b. Cement																											
c. Diesel/Lube Oil																											
4. Consulting Services																											
a. Financed from Loan (Domestic Consultants)																											
b. Financed from TA (International Consultant)																											
Counterpart Officers																											

Legend:



Preparation of contract documents for procurement, and selection of consultants

Finalization of designs, and signing of contracts

Implementation of works, procurement of equipment and materials, and consulting services.

## SUMMARY INITIAL ENVIRONMENTAL EXAMINATION

### A. Introduction

1. Severe flooding and landslides occurred between 6 and 12 July 1999 in Tajikistan as a result of strong convectional wind currents and adiabatic cooling of monsoon-saturated air incursions flowing into the Himalayas. The resulting torrential rainfall was widespread but locally, in some mountainous areas of Tajikistan, the rainfall intensity had an expected return period of 50 years, and over 400 millimeter (mm) fell in a nine-hour period in one affected area in northern Tajikistan. The floods and landslides caused the death of 27 people and over 2,000 houses were destroyed or seriously damaged. Over 3,000 farm animals and about 12,000 hectares of crops were also lost. Damage to public infrastructure included about 600 kilometer (km) of roads; over 1,000 meters of bridges; associated riverbank protection works; as well as power and telephone lines, water supply systems, several schools, and a health center (Appendix 1).

2. This summary initial environmental examination concerns the proposed Emergency Flood Rehabilitation Project, in response to the disaster in Tajikistan. The IEE was prepared during the appraisal mission in accordance with the Bank's Environmental Assessment Requirements, the Environmental Guidelines for Selected Infrastructure Projects, and the Environmental Guidelines for Selected Agriculture and Natural Resources Projects. The IEE was prepared in consultation with secondary data, relevant reports, and discussions with hydrological and meteorological experts of the local environmental authorities, and design institutes responsible for the detailed design of the major civil works contracts under the Project, as well as with local residents in the project areas. Available baseline environmental and social data were reviewed, and field investigations were carried out to assess the present environmental conditions in selected project areas. Also, possible environmental impacts were estimated, and mitigating measures were selected and planned to minimize the adverse effects expected during and after project implementation.

### B. Description of the Project

3. The Project consists of the emergency rehabilitation of priority public infrastructure in flood-affected regions (provinces) and will complement a similar World Bank project. The World Bank initiated an Emergency Flood Assistance Project (EFAP) in response to similar floods affecting mainly Khatlon Region in 1998; it will now provide supplementary financing to address some of the new damage in 1999. The Bank-financed project will rehabilitate damaged infrastructure in areas of Khatlon Region not covered by the World Bank, as well as in nonconflict areas of the Regions of Republican Subordination (RRS), Leninabad Region and in the remote and apparently less-affected Gorno-Badakhshan Autonomous Region (GBAR). The Project addresses damaged roads, bridges, and associated riverbank protection; irrigation and water supply; power and telephone distribution; and schools. In addition, the Project will finance a range of public infrastructure at two existing resettlement areas for 288 households whose houses were totally damaged and were located in flood-prone areas (Appendix 2).

4. The roads, bridges, and riverbank protection works involve the rehabilitation of collapsed or seriously damaged sections. Most roads in the mountainous country closely follow the river valleys and are vulnerable to flood-induced erosion. Where necessary, the Project will rehabilitate the damaged facilities to a higher standard, to better withstand erosion. In particular, some bridges will be designed with larger cross-sectional openings than for existing box culvert designs, to allow a freer flow of water and with adequate piling and abutments to withstand

scouring and heavier river bed-load, which may be expected during flood conditions. The irrigation and water supply works will also be reconstructed with a view to improving ability to withstand future floods. Particular attention will be given to embankments, water impounding dams, irrigation channels, water supply and drainage channels and piping, water regulating structures and pumps, sediment traps, and culverts. Additional works will be considered to enhance the flow capacity and avoid contamination and erosion of these facilities. The power and telephone distribution facilities will be realigned to reduce risk of being undermined by riverbank erosion, and the existing sites of damaged schools will be examined to assess the need for re-siting or other cost-effective measures to avoid flood damage. The rehabilitation activities will have some temporary impacts during construction but no significant or permanent impacts will occur that cannot be avoided by attention to sound engineering practices in the project design and implementation.

## **C. Description of the Environment**

### **1. Physical Resources**

5. Ninety-three percent of the 143,100 square km (km<sup>2</sup>) area of Tajikistan is mountainous and prone to earthquakes, and 50 percent is above 3,000 meters. The eastern GBAR of the country includes the Pamir Mountains with peaks up to 7,500 meters, while the western part of the country is lowland plain of about 300 meters above sea level, bisected by narrow ranges with peaks of over 4,000 meters. For eight months each year, the mountain passes between northern and southern Tajikistan are blocked by snow. The climate varies from continental to subtropical with temperatures ranging from 22 degrees Celsius in July to –7 degrees Celsius in January at 2,000 meters. Most precipitation occurs in winter and spring.

6. The sun-melted mountain ice is the source of a network of nearly 1,000 fast-flowing streams with upper catchment gradients of about 40 meters per km, many of which empty into Tajikistan's two major rivers, the Syr River, rising in the Ferghana Valley, and the Amu River rising in the Pamirs, both flow into the Aral Sea. While the country comprises only six percent of the Aral Sea basin, it produces about 50 percent of the total flow into the sea, or about 70 km<sup>3</sup> per year. Flows vary according to the season, and the Vakhsh River carries 30 times more water in July than during winter. Natural erosion rates are high as are the suspended loads during summer. The total surface area of lakes in the country is 700 km<sup>2</sup> with a total volume of 44 km<sup>3</sup>.

7. Tajikistan is rich in biodiversity. The variety of natural landscapes creates conditions for more than 10,000 species of invertebrates, 49 species of fish, 2 species of amphibians, 44 species of reptiles, 348 bird species of which many are migratory, and 84 species of mammals. Some distinctive mammal species are in decline, in spite of inhabiting remote areas, including the snow leopard, Pamir mountain sheep, Bukharan mountain sheep, Bukharan deer, and Vingtorogii goat. An estimated 5,000 species of vascular plants are found in Tajikistan, many of them endemic. Native species include slow-growing pistachios, walnuts, and tulip poplars. At least 135 plants have medicinal value.

8. The country is also endowed with rich mineral resources, including aluminum, gold, silver, lead, strontium, and zinc. There are also iron, tin, and tungsten, molybdenum, and mercury deposits. It is estimated that there are 150 tons of gold resources, including alluvial deposits. A Tajik-British joint venture gold-mining operation commenced in 1996 in the Pendzhikent area, and a silver-lead mine with large remaining resources recently ceased operation in the project area of Adrasman.

## 2. Socioeconomic Resources

9. Tajikistan has a total population of 6.1 million, of which 27 percent is urban. The average population density is 42.5 per km<sup>2</sup>, and the annual population growth rate is 1.6 percent. Tajiks are 60 percent, Uzbeks 23 percent, and ethnic Russians 3 percent of the population. The remaining 14 percent are mainly ethnic Kyrgyz and Tatars. The population living below the poverty line is over 80 percent following the collapse of the former Soviet Union and loss of its social safety net, poor access to world markets, and the consequences of conflict and natural disasters since independence in 1991. The peace accord of 1997 has freed the Government to give more attention to stabilizing the economy and addressing environmental concerns.

## 3. Environmental Issues

10. While the economic downturn since independence has had positive environmental impacts in cleaner air in urban and industrial areas, and reduced soil contamination from less application of fertilizer, these problems will re-emerge as the economy improves. There have also been negative impacts during the 1990s. These include increased erosion due to deforestation for fuel wood and indiscriminate overgrazing by privately owned herds of livestock, less sewage treatment and growth of informal waste dumps contributing to contaminated water supply, and soils impaired due to poor irrigation management and salinization. Two of the country's protected areas (*zapovedniks*) also deteriorated during the civil war due to uncontrolled hunting.

11. Allegations of transboundary air and water pollution are in contention between Tajikistan and Uzbekistan due to the emission of hydrogen fluoride waste from the aluminum factory at Tursunazade. The mercury content of the Zerevshan River due to the Anzob gold processing plant, and mineralization of the Syrdarya River due to agricultural processes in the Kyrgyz Republic and Uzbekistan are also areas of transboundary concern. Most mining activity in Tajikistan has historically adopted an open-pit approach, and reclamation has not been a practice. There are also issues concerning the legacy of inadequately stored nuclear waste products in Leninabad Region.

12. Reliable data on access to safe water are not available. However, nearly all urban dwellers and about half of the rural communities rely on groundwater resources. It is estimated that about 40 percent of the water supply systems do not meet sanitary norms due to failure to protect the water source, and lack of treatment facilities or faulty distribution, including damaged facilities and inadequate wastewater treatment. Outbreaks of typhoid, dysentery, and leptospirosis attest to the inadequate supplies of potable drinking water.

13. Tajikistan has a naturally high susceptibility to water-related disasters due to the dynamic mountain terrain, heavy precipitation and spring snow melt, steep narrow valleys, and sparse mountain vegetation. These problems are exacerbated by human activity, including deforestation, overgrazing and road building. Damage due to floods over the past five years is estimated to have cost over TJR 400 billion (about \$300 million). A growing problem is salinization of agricultural soils due to capillary action induced by irrigation and raised water tables.

## **D. Potential Environmental Impacts and Project Mitigation Measures**

### **1. General Approach**

14. Because of the difficult terrain, rural roads, human settlements, and water supply and irrigation offtakes in Tajikistan tend to be located within the narrow river valleys. The construction of roads, settlements and the increased land use due to settlements have contributed to increased erosion and land losses. However, the damaged roads and other infrastructure are vital to the local communities. Moreover, reforestation, improved management of pasture, irrigation and water supply systems, and proper design and maintenance of road and riverbank protection works and river crossings may also improve environmental conditions. It is within the latter context of environmental awareness that the Project is proposed and will be implemented, although the damaged infrastructure will be rehabilitated in generally the same location and along the same alignment as before, and usually, of the same design. Exceptions will be that some river protection works may be higher and some bridges will have larger open cross-sectional area for flood flows to pass and deeper foundations to resist local scouring. In many locations, river bank protection material will be sourced from the bed-load deposits resulting from the recent 50-year return period floods, and which was dumped at constriction points such as upstream of some inadequately designed bridges. Natural stream flow will be restored in these locations. Some river channel straightening may also be needed by constructing boulder embankments within the existing, erosion-widened valleys. This will help create a buffer zone between river channels and road margins. This will be accompanied by attention to improved toe-slope design, and bioengineering solutions for planting both road margins and valley slopes above road sections damaged by slope failures and landslides. Where landslides have temporarily caused the partial damming of rivers, particular care will be given to adequate slope protection and land use management in the general vicinity. Some bridges may also be relocated to more stable sections of the river, and care will be given to the design of approach roads and abutments to avoid constricting the natural river flow. In many cases, power and telephone lines will be carefully resited to reduce the risk of their being washed out or eroded.

### **2. Construction Stage**

15. During construction, the main environmental problems will be associated with sourcing, transporting, and stockpiling materials and construction equipment. Care will also be needed in the operation of equipment to avoid oil pollution, noise, dust creation, or the contamination of water supply and irrigation systems, which may impact adversely on local communities, ecology, and livestock. While most protection materials may be sourced from constriction points created by bed load during the flood, steel and cement for road, bridge, and other civil works will be transported by truck. Attention will be needed to avoid overloading and contributing to further road and slope damage. Instructions will be given to managers to minimize dust problems during construction by water sprinkling and enforcing speed restrictions by construction vehicles. Particular attention will also be given to equipment maintenance to avoid oil spills and leaks, especially when operating in the riverbeds. Construction camps and stockpiles, including fuel, will as far as possible, use any existing facilities. In all cases, the arrangements will be small scale and located on wasteland to avoid tree or vegetation cutting, contamination, and hazards. Local communities will also be consulted and will provide the main labor force. Care and involvement of the local communities will be needed to ensure the proper demobilization of these camps at the end of the Project to ensure they do not have a lasting impact on the environment and the visual landscape.



### **3. Operating Stage**

16. The main environmental problems during operation of the rehabilitated infrastructure will, apart from the environmental risks that prevailed previously due to traffic in community areas and water use problems, be the need for proper maintenance and minimizing the risk of further damage. The main mitigation strategy to be adopted will be through Bank-financed TA for institutional strengthening on disaster awareness and management, focused on sustainable solutions. Essentially, this will involve local communities and NGOs to help create a synergy for improved maintenance, reinforced by Government allocations of maintenance budget, and planning and management resources. Attention will also be given to full use of the rehabilitated schools, provision of adequate textbooks, and monitoring by the Bank of the timely placement of teachers. Linkages will also be forged with the ongoing TA and programmed loan for a Road Rehabilitation Project and possible TA in 2000 for a comprehensive Flood Management Plan, including cooperation with the World Bank and other members of the aid community involved in land use activities.

#### **E. Initial Requirements and Environmental Monitoring**

17. A domestic consultant environment specialist will be recruited under the loan for intermittent services totaling about 6 person-months. In coordination with the head of the Government's project implementation unit, the environment specialist will visit each of the project sites to review the IEE findings and mitigation measures. If necessary, a full environmental impact assessment (EIA) will be conducted, and EIA and Summary EIA reports will be prepared; Bank approval will be a condition for financing the related project components. During project implementation, the environment specialist will advise contractors and the project implementation unit staff on mitigating measures to be followed, and liaise with NGOs and local groups to ensure their understanding to maximize opportunities for their input to the operational aspects of the environmental mitigation. The consultant's terms of reference are in Appendix 5.

#### **F. Conclusions**

18. Based on the IEE findings, the Project will have minor impacts on the environment and an EIA is not required, because the works substantially involve reinstatement of infrastructure in the existing location, to approximately the same standards (except where improvements are necessary to reduce the susceptibility of the works to recurrent floods). Careful attention to environmental concerns will nevertheless be necessary during construction such as careful siting of stockpiles, minimizing dust and oil pollution from trucks, and adopting bioengineering inslope protection. Sustainability will be improved by involving local communities and NGOs in the planning and conduct of future maintenance, and implementation of Bank-financed TA.

## **SUMMARY INITIAL SOCIAL ASSESSMENT**

### **A. Benefits and Beneficiaries**

1. The project benefits comprise restored use of damaged infrastructure, primarily rural roads and bridges, associated river-bank protection works, small irrigation and community water supply systems, power and telephone distribution networks, and schools. For 288 resettled households living in areas threatened by recurrent floods, the future outlook will be improved by new housing, cash compensation, and facilities in safe areas, while retaining the structure and membership of their previous communities.

### **B. Needs, Demands, and Absorptive Capacity**

2. The flood effects have reduced rural income; this will continue until effective rehabilitation is completed. Access to township markets has been severed or made difficult for many remote communities and farmers; there has been substantial loss of agricultural land, soil, crops, and livestock; irrigation system losses are serious in the relatively dry climate; many households have been forced to sell depleted livestock assets due to feed losses; and resettled families are especially dependent on Government and nongovernment organization (NGO) food and seed handouts until their first crops are produced.

3. Except for the rehabilitated irrigation and water supply systems, the Project will not directly resolve these problems. However, the reconstructed roads, bridges, riverbank protection works, telephones, and power will restore the necessary access to basic services and help to improve the infrastructure framework for broader economic recovery. The Project will also contribute to postconflict recovery, and generally enhance the outlook for improving vulnerable group opportunities.

### **C. Social Dimensions in Project Design**

#### **1. Poverty**

4. Poverty steadily increased in Tajikistan after the collapse of the former Soviet Union's social safety net and civil war soon after independence in 1991. Recovery and self reliance has been weakened, since the end of internal conflicts in 1997, by reduced world market prices for main exports, distance from world markets, and inflation, which has severely depressed pensions. More than 80 percent of the population are living below the poverty line. About a quarter of these people are facing chronic poverty and are unable even to claim the Government's meager social security. Rural households, which dominate the project area, are among those most affected by poverty. This is accompanied by prevailing contamination of water supply and the salinization of irrigated areas. The main feature of traditional rural life in Tajikistan, however, is the practice of homestead gardening. This provides some measure of resilience from poverty impacts and for some, provides a small resource to pay for some basic services such as power consumption, health care, and transportation. Farm families and homesteaders, among those who lost a total of 12,000 hectares of crops and over 2,000 houses during the July 1999 floods, are therefore in dire need of aid. While relief measures were prompt and are being sustained with assistance by leading NGOs, there is an acute need to restore land and access to markets and other services on a sustainable basis. The project works will also add a temporary source of income for affected households capable of providing labor.

## 2. Gender and Vulnerable Groups

5. As a result of the civil war that officially ended in 1997, and a series of earthquakes and floods in the 1990s, about 50,000 lives were lost, many of them household income earners. About 55,000 children were orphaned and 20,000 women were widowed. While peace is being restored and the aid community is making efforts to restore the economy on a sustainable basis, the economic burdens during the recovery are heaviest households headed by women and children. Because the 1999 floods were widespread and data is currently unreliable, it can only be assumed that these groups are among those worst affected by the floods, including susceptibility to disease as a result of malnutrition. In 1997, 11.4 percent of the population died before the age of 40. As the average age of marriage is 20 years and fertility rates are high (3.7 percent), it can also be assumed that the conditions for women and children are still worsening. Since the education sector was also badly affected by the events of the 1990s, the outlook for children to share in the economic recovery has been weakened further. A feature of the problem is rural to urban migration and recourse to crime and begging among the vulnerable groups, including the approximately 30 percent of the working population who are unemployed and disaffected, in spite of official statistics that indicate low levels of unemployment. Boarding institutions for orphans, old-aged, and handicapped people, called *internats*, are almost totally ineffective due to lack of funds. While NGOs are providing some relief, there is a need to move community-based rather than institutional care. This will help to reduce the cost of care and provide children with access to normal social interaction. The proposed Bank-financed Social Sector Rehabilitation Project and associated technical assistance for Social Safety Net Reconstruction will help to improve this situation and outlook. The Emergency Flood Rehabilitation Project will not add directly to these efforts, but will restore some access to basic services among those who are not facing chronic levels of poverty. It will, however, directly assist the Government, NGOs, and other project efforts in gaining access and helping to serve the interests of deeply vulnerable groups.

## 3. Resettlement

6. The restoration of facilities is not expected to entail any land acquisition, including those areas where the restoration will improve standards. Any such requirements are expected to involve wasteland. In the two resettlement areas of Asht District, for the 288 households being moved from flood vulnerable areas, the land, previously uninhabited and unused, has been provided by the local authority, and site preparation and house construction was well advanced within three weeks of the disaster. Cash compensation, new housing, and homestead gardens and crop seeds have been provided by the Government. Leading NGOs have and continue to provide temporary shelter, food, clothing, medicine, and other relief goods, and the Bank-financing will be for improved road access and provision of basic public infrastructure facilities, including power, water supply, telephone access, and a school. Persons interviewed by the Mission indicated their general satisfaction with the arrangements and efforts to house them before the coming winter. Two experienced domestic consultants, social impact analysts are being recruited under the loan to assist in reviewing the Government's Resettlement Plan to ensure compliance with Bank requirements as a condition of Bank-financing of the resettlement area facilities. These consultants will also prepare a social profile and baseline data for all the project-affected areas in the country; this will assist in the benefit monitoring aspects of the Project.

7. For flood victims throughout the country whose houses, crops, and livestock have been damaged or lost, the Government's total cash compensation budget is TJR90 million. Budget allocation for the construction of 565 new houses is TJR170 million.

## **TERMS OF REFERENCE FOR THE TECHNICAL ASSISTANCE FOR FLOOD DISASTER MANAGEMENT**

### **A. Introduction**

1. The proposed Bank-financed Emergency Flood Rehabilitation Project and the ongoing World Bank-financed Emergency Flood Assistance Project (EFAP), both address the rehabilitation of recent floods in Tajikistan. An international consultant disaster management expert will be engaged for approximately 5 person-months of intermittent services over about one year, commencing in December 1999 to assist the Government in building its capacity for disaster management, and flood disaster in particular. The consultant will be assisted by a Government recruited/appointed counterpart officer.

### **B. Terms of Reference**

#### **1. Overall Disaster Management**

2. The main tasks of the Consultant will be as follows:

- (i) In close cooperation with the Government entities concerned, particularly the United Nations Office for Humanitarian Affairs, nongovernment organizations (NGOs), Ministry of Emergency Situation and Civil Defense (MESCD), and Center for the Liquidation of the Consequences of Natural Disaster (CLCND), examine the Government's overall disaster management structure and organizational arrangements, and recommend any short-and medium-term changes that may be required to ensure swift and effectively coordinated response to flood disaster management (preparedness, response, relief, and rehabilitation). The key concerns will be the efficient coordination of emergency relief, provision of accurate and consistent data, ensuring a smooth interface between relief and rehabilitation measures, and advising on disaster preparedness and mitigation. Accordingly, the functional and administrative frameworks should both be reviewed to ensure complementarity, and to avoid bottlenecks in taking appropriate action and providing information.
- (ii) Examine, in detail, the interface of activities involving MESCD and CLCND, and recommend any short-and medium-term measures to improve the disaster management framework, exchange and accord on disaster-related data, and optimal use of and efficient communications with specialist entities, such as for flood warnings, rescue, and planning for the permanent rehabilitation of flood-damaged infrastructure.
- (iii) Examine the particular roles of the community in managing disaster to ensure that community-based efforts are well prepared and effective in emergency relief; the safety of life, planning, or rehabilitation; and appropriate maintenance of public infrastructure and flood protection works in particular.

#### **2. Disaster Rehabilitation Project Implementation**

3. The consultant will have the following responsibilities:

- (i) In discussion with the director and staff of CLCND, examine the framework for design approval and the implementation of public infrastructure rehabilitation, consistent with sustainability and cost effectiveness. These aspects will include the location and planning aspects of rehabilitation in light of the river valley-based system of roads and communities, possible relocation of vulnerable communities, and the role of NGOs and community-based measures for self-help and participation in rehabilitation works.
- (ii) As a concrete example of opportunities for design improvements, review the rehabilitation designs of infrastructure for the Project.
- (iii) Examine the implementation arrangements for the Project and the EFAP, and make any recommendations for construction supervision improvements.
- (iv) Prepare, in coordination with the domestic consultant social analysts under the Project, a baseline of project benefit monitoring data and help train a government team of data collectors. The baseline and monitoring data and methodologies will be consistent with the Bank's project performance management system, and include estimation of the pre- and postproject net present values.

### **3. Training Aspects**

#### **4. The consultant will**

- (i) recommend/facilitate/conduct as appropriate, any training, seminar, or fellowship programs for the Government or community-based organizations, which could be provided under the TA, the Project resources, or in subsequent projects aimed at disaster preparedness, relief, and rehabilitation, and the interrelationship between these elements of disaster management;
- (ii) provide on-the-job training for the project implementation unit (PIU) on Bank guidelines and procedures, including tendering process and evaluation, loan withdrawal applications, project accounts, and report preparation; and
- (iii) provide advisory assistance to any of the domestic consulting team of the PIU as appropriate, including environmental and project benefit monitoring.

### **C. Reports**

5. Provide a brief inception report outlining the proposed program of activities within three weeks of commencing the consulting services. Thereafter, provide a brief report at the end of each field visit, and a final report within one month of the end of the services. The final report will summarize the activities conducted, contain flow charts and summary duties for efficient flood disaster management, the project benefit monitoring format and baseline data, and outline recommendations for any future technical assistance and training. The Government will be provided with six copies and the Bank four copies of each report.

**COST ESTIMATES AND FINANCING PLAN FOR  
TECHNICAL ASSISTANCE FOR  
FLOOD DISASTER MANAGEMENT**

(\$'000)

<b>Item</b>	<b>Foreign Exchange</b>	<b>Local Currency</b>	<b>Total Cost</b>
<b>A. Bank Financing</b>			
1. Natural Disaster Rehabilitation Consultant			
a. Remuneration	100	0	100
b. Hotel and per diem	25	0	25
c. International travel	14	0	14
d. Reports, translation services, and seminar costs	35	0	35
e. Domestic air travel	0	1	1
2. Contingencies	30	0	30
<b>Subtotal (A)</b>	<b>204</b>	<b>1</b>	<b>205</b>
<b>B. Government Financing</b>			
1. Services			
a. Office space, facilities, and surface transport	0	23	23
b. Counterpart officers	0	2	2
2. Contingencies	0	5	5
<b>Subtotal (B)</b>	<b>0</b>	<b>30</b>	<b>30</b>
<b>Total</b>	<b>204</b>	<b>31</b>	<b>235</b>