Central Asian Countries Initiative for Land Management (CACILM)

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Uzbekistan: Land Improvement Project

Project Document

Asian Development Bank

ABBREVIATIONS

ADB	–	Asian Development Bank
BMP	–	best management practice
BSAP	–	Biodiversity Strategy and Action Plan
CA	–	conservation agriculture
CACILM	–	Central Asian Countries Initiative for Land Management
CCD	–	(UN) Convention to Combat Desertification
CGIAR	–	Consultative Group on International Agricultural Research
CHM	–	clearing house mechanism
CSP	–	Country Strategy and Program
EA	–	executing agency
FAO	–	Food and Agriculture Organization
GAP	–	Gender Action Plan
GDP	–	gross domestic product
GEF	–	Global Environment Facility
GOU	–	Government of Uzbekistan
I&D	–	irrigation and drainage
ICARDA	–	International Center for Agriculture Research in Dry Areas
ICRISAT	–	International Crops Research Institute for the Semi Arid Tropics
IEE	–	initial environmental examination
ILRI	–	International Livestock Research Institute
IMF	–	International Monetary Fund
LIP	–	Land Improvement Project
M&E	–	monitoring and evaluation
MAWR	–	Ministry of Agriculture and Water Resources
MOF	–	Ministry of Finance
NCSA	–	National Capacity Self-assessment
NGO	–	nongovernment organization
NPF	–	national programming framework
OCR	–	ordinary capital resources
O&M	–	operation and maintenance
OP	–	Operational Program (of GEF)
PEMU	–	Performance and Environmental Monitoring Unit
PIU	–	project implementation unit
PMO	–	project management office
PRA	–	Participatory Rapid Assessment
PSC	–	project steering committee
PSGA	–	poverty social and gender assessment
SCNP	–	State Committee for Nature Protection
SDC	–	Swiss Development Corporation
SIDA	–	Swiss International Development Agency
SIEE	–	summary initial environmental examination
SLM	–	sustainable land management
TIIM	–	Tashkent Institute of Irrigation and Melioration
UNCCD	–	United Nations Convention to Combat Desertification
UNDP	–	United Nations Development Program
USAID	–	United States Agency for International Development
WB	–	World Bank
WUA	–	water users' association

WEIGHTS AND MEASURES

ha	–	hectare
km	–	kilometer
mm p.a.	–	millimeters per annum
t/ha	–	tons per hectare

GLOSSARY

dehkan	–	independent farmer in the post-collectivized agriculture
khokim	–	province or district governor
oblast	–	province, administratively
shirkat	–	collective farm

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ANNEXES

TABLES

I. LAND IMPROVEMENT PROJECT - SUMMARY

A. Rationale

1. Dimensions of Land Degradation in Uzbekistan

1. Uzbekistan lies at the heart of Central Asia between the Amu Darya and Syr Darya Rivers (see map – Annex G). Almost 80% of the country's area is comprised of deserts and semi-deserts. With its 27 million people it is the most populous of the post-soviet Central Asian countries though economically overshadowed by resurgent Kazakhstan. Of Uzbekistan's land area of 44.4 million hectares (ha), arable land occupies only 5.8 million ha (~13%), of which the greatest part (74%; 4.3 million ha) is irrigated land. Some 16.4 million hectares are pasturelands, mostly semi-desert pastures of low productivity. Agricultural areas and population are concentrated in the basins of the Amu Darya and Syr Darya that supply about 70% of all irrigation water. Irrigated agriculture uses an estimated 90% of that water. Agriculture is the backbone of the Uzbekistan economy, accounting for about a third of GDP, up to 40% of employment, and 60% of exports. In rural areas, irrigated agriculture and the processing of related agricultural produce are the principal sources of employment and income. Among other things, the republic is the sixth largest producer of cotton in the world, and cotton alone makes up approximately 25% of export earnings.

2. Land degradation is a serious problem in Uzbekistan. Like most of Central Asia, a dynamic interplay of anthropogenic factors with climatic variability is driving land degradation processes in Uzbekistan. The ecological and economic resources of drylands, notably soil quality, freshwater supplies, vegetation, and crops, are easily degraded. The traditional practices have become less practical due to changing economic and political circumstances, and population growth. It is now generally acknowledged that land and water management practices, which among other things have failed to consider climate change and climatic variation, are among the primary causes of land degradation. Throughout Central Asia, the major risk of climate change and its variability is the combination of thermal (i.e. higher temperatures) and water (i.e. less water available in the summer) stresses. Central Asian countries are already quite vulnerable to extreme climatic events such as droughts and floods. The frequency and magnitude of these events may well increase. Agricultural productivity in Central Asia is likely to suffer losses because of higher temperatures, more severe drought, worsening flood conditions, and increased soil erosion.

3. For Uzbekistan, an initial assessment[1] of vulnerability and adaptation to climate change identified the areas of agriculture, water resources, Aral Sea, and forest ecosystems as particularly vulnerable. Climate change adaptation strategies have to first and foremost address the vulnerability and adaptation in the two major sectors: water resources and agriculture, including both crop and pasture lands. Of course these sectors are interlinked because of the high dependence of agriculture sector on the scarce water resources in Uzbekistan. Strategies also need to address the vulnerability and adaptation measures for the mountain ecosystems, including the forest ecosystems. This has to be combined with an assessment of likely effects of climate change on the glaciers in Pskem River, Kashdadarya, and Surkhandarya basins in

[1] Uzbekistan, 1999. Initial Communication of the Republic of Uzbekistan under the UNFCCC.

Uzbekistan. In Uzbekistan, the ongoing "Aral Sea Crisis", while clearly a man-made crisis, is expected to intensify based on climate change scenarios.[2]

4. Of all the Central Asian countries, Uzbekistan is perhaps the most vulnerable to setbacks in irrigation water supplies given the aridity of its climate (100-200 mm p.a. precipitation on average), high percentage of arable lands now irrigated, the size of the rural population (more than 14 million) and a high population density (averaging 49.6 person per km^2 but reaching 646 persons per km^2 in Andijan *Oblast*).

5. The high dependency on irrigation and inefficient use of that water, combined with natural desertification processes, create in Uzbekistan some of the most severely degraded lands in the world. Land degradation is widespread and intense in the provinces of Bukhara, Navoi, and Kashkadarya, as well as in the Fergana Valley and Karakalpakstan. Apart from its impact on agricultural production and incomes, it is a serious hazard to food security, health, and environmental values. Water and wind erosion are common but it is the secondary salinization of varying intensity affecting 47% of all irrigated lands that is considered the most harmful to agriculture production, ecosystem functioning, and biodiversity. It has been estimated that in a total of over 4 million hectares, about 20,000 hectares of irrigated land are being abandoned each year. Annual loss of crop production in Uzbekistan due to land salinization and other forms of degradation runs into tens of millions of US dollars. About 10% of all (once) irrigated lands in the Bukhara, Navoi, and Kashkadarya regions have now been abandoned. Severe anthropogenic degradation of vegetation and biodiversity has accompanied these processes. Degradation concerns extend to the condition of pastures and fodder capacity, which has been steadily decreasing due to overgrazing and the use of shrubs for fuel.

6. Irrigated agriculture, as practiced today, is thus both a lifeline and a major source of land degradation and contamination in the Amu Darya and Syr Darya River basins. Inappropriate irrigation practices contribute to waterlogging and salinity. The quality of water of Amu Darya and Syr Darya and their tributaries such as the Zeravshan, declines along their lengths as more saline effluent is disposed in them and the river flow declines. Second, despite a major reduction in the use of agro-chemicals during the financially troubled 1990s, enough accumulated residues and additions make their way into the rivers and water table. More than 60% of the total volume of contaminants in the principal catchments is believed to come from diffuse (non-point) sources, principally agriculture and animal husbandry enterprises.

7. In the last 50 years, the population of Uzbekistan has increased 3.7 fold but the area of cropland increased only 1.4 fold, and has recently begun to decline and its condition worsened in parts of the country as explained above. Production growth, for many years supported by increasing use of irrigation water and agrochemicals, has stalled and a decline in productivity set in. In the last 10 years, average cotton yields have decreased 22% from 2.8 t/ha to 2.2 t/ha. Yields of irrigated wheat have increased but not sufficiently to compensate for the former declines. Agriculture remains insufficiently diversified and the historical reliance on the cotton/wheat crop rotation has exacerbated the environmental decline in and around cropped areas with different combinations of secondary salinization, waterlogging, organic matter decline, erosion from irrigation, wind erosion, and aerosol transport of dust and salt from dry depression areas. The problem has regional and global repercussions of which the Aral Sea crisis was the most dramatic illustration. The continued viability of dry ecosystems of Central

[2] Consequences of Climate Change: Vulnerability and Adaptation. Uzbekistan, 1999. Initial Communication of the Republic of Uzbekistan under the UNFCCC.

Asia is important for the world and the development and adoption of replicable mechanisms of arresting and reversing the agricultural and environmental decline is of fundamental importance.

8. The outcomes described above may have immediate physical and budget-related causes but behind them lies an incentive environment that discourages investments in the maintenance and increase of land productivity and does not penalize environmental externalities. Productivity growth up to the late 1980s was achieved through agricultural specialization and indiscriminate use of irrigation water at the cost of sustainability and healthy environment both locally and regionally, and it was conditional on the maintenance of command economy. That model proved untenable in the end. For the last 15 years, Uzbekistan has been trying, with understandable hesitation at first, to replace the old way of managing land resources by alternatives that are in keeping with the changing political realities and aspirations of the rural population, and replace the undesirable trade-off between higher production and adverse environmental outcomes by a land use that is simultaneously more productive and sustainable. Key to that transition are further changes in the regulatory, institutional and social environment that create incentives for farmers to want to invest in long-term productivity of the land they (rather than somebody else) manage and for the institutions of the State and land managers themselves to pay more systematic attention to the environmental repercussions of land use in Uzbekistan and beyond its boundaries.

2. Institutional Responses

a. National Actions

9. Land degradation weighs heavily in the decisions of the Government. The responses to stagnating or declining land productivity fall into three broad categories. The first sees land degradation in the context of a transition to a post-Soviet economy. The second category targets the physical reality of threats to agricultural productivity, especially the condition of irrigation and drainage (I&D) infrastructure. The third are measures that link land use more closely to environmental concerns and their management.

10. The Government has taken a gradual approach to economic reforms so far. Among the main directions so far have been energy and food self-sufficiency and import substituting industrialization. Elements of state production planning, foreign exchange and trade controls, directed credits and large public investments remain. The gradual approach to transition made it possible to avoid the economic near-collapse that affected other former Soviet republics during the 1990s but its price was stymied by productivity, investment and employment growth. In response, the Government initiated a further round of macroeconomic and sector reforms in 2001. By now, privatization has begun slowly to make its way also into agro-industry, traditionally state-run, and de-collectivization of agriculture has advanced albeit less rapidly and genuinely than many would wish. Farm production, provision of inputs and credit, and marketing of outputs continue to be heavily influenced by the local governments. On the plus side, a commodity exchange was established in 2004, providing an alternative marketing outlet for cotton and wheat. The Government has also started replacing subsidized state credit with commercial bank lending, but the process is hampered by the farmers' lack of collateral, as their land leasehold rights are ambiguous. In sum, economic reform is proceeding haltingly and with some setbacks, but the need for further change is recognized at most levels of Government. Legislative activities affecting land use (e.g. a new Law of Land, a new Water and Water Use Law and its revisions, Law on Agricultural Cooperative Societies) and policy development have been important but incomplete elements of the reform process.

11. Land degradation, livelihoods and irrigation being closely linked in Uzbekistan, rehabilitation of key water management facilities is viewed as a top national priority [3]. Maintenance of the basic irrigation infrastructure is considered essential if other steps that may be taken to increase agricultural productivity and improve farm incomes are to bear fruit. In 2001, with the assistance of the World Bank, the Government prepared a strategy for the I&D subsector. A two phased approach was proposed: the first phase (consolidation and emergency) comprised a public investment program to rehabilitate priority components of the main and interfarm I&D systems. This is to be followed by a second phase covering the rehabilitation and upgrading of all I&D infrastructure in Uzbekistan that is to include improvements to the on-farm infrastructure funded by water users associations (WUAs) and individual farmers. Alongside, the Government has been moving towards a decentralized system of water resource management, structured around basin irrigation system authorities based on hydrological rather than administrative boundaries. A commitment has also been made to introducing water user charges aimed at ensuring the sustainability of O&M of the I&D systems at main and on-farm levels. Water delivery fees are being tested and bulk water charges are to be implemented in 2006. By contrast, no distinct strategy exists for now for the management of non-irrigated farmlands, marginal lands and pasturelands.

12. The third element of the national response, i.e. closer linkage established between land use and environmental management has benefited from the influence and support of the donor community. Several strategic documents developed with donor support view land degradation through the prism of environmental management and reflect perspectives of government agencies other than the Ministry of Agriculture and Water Resources (MAWR). At an economy-wide level, they include the *National Environmental Action Plan* (1998), translated by the Government into a *State Program for Environmental Protection and Rational Use of Natural Resources for 1999-2005*), disaggregated into territorial and sectoral programs. They also include the *National Strategy and Action Plan for Sustainable Development* (2000) and the *Uzbekistan Environmental Performance Review* (2001) [4]. All of these documents show awareness of the environmental externalities that characterize land and water management in Uzbekistan but (given the documents' overarching nature), do not offer a framework for coordinated countervailing action. Environmental considerations have in part, made their way into land-related legislation (e.g. the Land Law mentioned above, but also the Law on Protection of Plant Life 1997, and others).

13. A much more focused attention is given to land degradation in the documents prepared under the most relevant among international environmental conventions, namely in the *National Strategy and Action Plan for Conservation of Biodiversity* (1999) and especially the *National Action Plan to Combat Desertification* (NAPCD, 1999). The former outlines, among other things, a plan for strengthening the protected area system, and tentatively links production agriculture with ecosystem conservation. It also deals with the subject of environmental education in the country. The NAPCD contains a comprehensive technical analysis of desertification and land degradation without, however, exploring the socio-economic, community-development, fiscal and other dimensions of the problem.

[3] UNECE 2001 concludes that the State has always viewed inefficient irrigation and land degradation as the most important environmental problem, followed by pollution by agro-chemicals and salinization.

[4] The list is not meant to be exhaustive. There are other documents such as the *National Action Plan for Environmental Health* (1999).

b. CACILM and the National Programming Framework

14. The initial NAPCD effort has been substantially enhanced under the Central Asian Countries Initiative for Land Management (CACILM), a partnership among Central Asian countries and funding agencies, which supports the development and implementation of national programming frameworks (NPF) for comprehensive and integrated approaches to combating land degradation and improving rural livelihoods. In its turn, CACILM Partnership has developed CACILM Multicountry Partnership Framework (CMPF) as a vehicle for mobilizing funds for the implementation of NPFs. The Uzbekistan National Working Group established under CACILM finalized Uzbekistan's NPF in 2005. Based on a cross-sectoral analysis of the underlying problems, the NPF formulates a ten-year (2006-2016) program of investments in sustainable land management (SLM) and activities to arrest land degradation. **The present (LIP) project is included in Uzbekistan NPF and is part of the CACILM Multicountry Partnership Framework (CMPF). It has been approved by the CACILM Task Force for funding from the CACILM GEF-3 replenishment.**

15. The broad priorities identified in the Uzbekistan's NPF include: (i) strengthening the capacity to deal with land degradation at local, provincial and national levels; (ii) increasing the public awareness of land degradation problems; (iii) improvement of rural infrastructure and functioning of markets; (iv) integration of policies of sustainable land tenure into national and local strategies and planning systems; (v) improvement of the systems of land inventory, monitoring and evaluation; (vi) restoration of agro-ecosystems and promotion of improved land use practices; (vii) forest conservation and rehabilitation; (viii) pasturelands conservation and management; (ix) targeted research; (x) integrated resources management and improvement of water quality; and (xi) mitigation of consequences of the drying up of the Aral Sea.

16. NPF identifies impacts of land degradation on livelihoods and health, especially among the vulnerable segments of the population. Major impacts are: (i) decrease in agricultural productivity and loss of farmland as a result of salinization; (ii) decreased productivity of animal husbandry and fisheries resulting from degradation of ecosystems and biodiversity loss; (iii) deterioration of the quality of foodstuff as a result of soil and water pollution; and (iv) increase in the prevalence of respiratory and some other diseases especially among women of child-bearing age. Land degradation and vulnerability are locked in a vicious circle of cause and effect. NPF also identifies wider (regional and global) impacts of land degradation about which more is said later on.

17. Priority geographic areas include the highly degraded areas of the country concentrated along the Amudarya River (Bukhara, Navoi, Kashkadarya), the delta area (Khorezm, Karakalpakstan), as well as the Syrdarya River basin (Syrdarya, Djizak and the Ferghana Valley); and the broad Aral Sea region.

18. Uzbekistan's vision for the end of the ten-year CACILM program includes: (a) strong institutional and human resource capacity among all land management stakeholders to actively engage and participate in coordinated approaches to improving sustainable land management; (b) a strong policy, regulatory, and economic incentive framework designed to facilitate and integrate sustainable land management practices into the economic mainstream; (c) improved ecological viability of degraded ecosystems whether agricultural land, pasturelands, forests or critical areas such as the Aral Sea, with resultant local and global benefits; (d) improved economic productivity of land, managed with SLM approaches, and improved livelihoods of population groups directly dependent on the land, (agricultural land, pasturelands, forests, or the

Aral Sea region); and (e) a robust and reliable monitoring and evaluation system for SLM, including improved capacity to undertake targeted research for further SLM activities.

19. The Program's overall goal is to be pursued through technical assistance and investment projects grouped into seven program areas, namely: (1) capacity building, including (a) strengthening the enabling environment and (b) integration into land-use planning and management; (2) sustainable agriculture, both in (a) rain-fed areas and (b) irrigated areas; (3) sustainable forest and woodland management; (4) sustainable pastureland management; (5) targeted research; (6) integrated resource management; and (7) mitigation of the negative consequences of the Aral Sea crisis (see Annex I for an image of current degree of shrinking of the Aral Sea).

c. Other Donor Responses

20. The activities identified in the NPF are not all new. They build on the physical achievements and experience of earlier and ongoing donor-assisted projects in support of improved land management in Uzbekistan. The novelty of NPF lies in placing all new activities targeting land degradation into an agreed and coordinated framework.

21. ADB is a major supporter of agricultural sector development and is financing three on-going projects to address low farm productivity, low farm incomes, and poor sector growth. The Ak Altin Agriculture Development Project is strengthening rural institutions to support private farming (e.g. rural business advisory centers and WUAs), and rehabilitating the irrigation infrastructure. The Grain Productivity Improvement Project supports capacity building of institutions in wheat breeding and research, adoption of new varieties, private sector development in input supply, improved farming practices, and environmentally safe pest control. The Amu Zang Irrigation Rehabilitation Project finances the rehabilitation of a pumping cascade, irrigation infrastructure, improved irrigation management, and the development of private farms. These projects also support the implementation of policy reforms in the sector by pilot testing and replicating reduced procurement quotas for cotton and wheat.

22. The Agriculture Sector Review and Planning TA assisted the Government in assessing the explicit and implicit taxes imposed on the cotton sector, and identifying key strategic directions for sustainable agricultural development. TA 4218-UZB [5] focuses on developing an integrated cadastre system for land management and land registration. The International Center for Agricultural Research in the Dry Areas (ICARDA) has been implementing ADB-funded regional projects to improve on-farm management through collaborative research and pilot testing of alternative land management practices. ADB has also financed the TA for Combating Desertification in Asia[6] that provided an assessment of the desertification and land degradation issues in Central Asia. ADB also financed the preparation of the Central Asian Central Asian Countries Initiative for Land Management (CACILM), referred to above. On the environmental management side, through TA 2859, ADB has been strengthening institutions engaged in environmental protection.

23. The World Bank's (WB) assistance combines the pilot-testing approach to policy reforms with measures that address physical investment and institutional constraints. The policy reforms aim at lowering procurement quotas and trying out alternative marketing arrangements for

[5] ADB. 2004. *Developing an Integrated Cadastre System for Land Resources Management and Property Right Registration*. Manila

[6] ADB. 2000. *Regional Technical Assistance for Combating Desertification in Asia*. Manila.

cotton. The Cotton Sub-sector Improvement Project[7] pilot tested reforms in the cotton sub-sector, the Rural Enterprise Support Project[8] aims to improve farm productivity, and the Drainage, Irrigation and Wetland Improvement Project[9] supports improved water management at basin and on-farm levels and reduced drainage flows into Amu Darya River. The WB has carried out recent sector work[10] that complements ADB's agriculture sector study. The WB study estimated major taxes and subsidies in the cotton subsector arguing that cotton production is over-taxed, creating disincentives for farmers to increase production; and that the perverse incentives could be removed at no cost to the budget. Like ADB, the World Bank has been supporting capacity building in environment-related institutions. The EU supports on-farm irrigation management, pilot testing of land registration, farmers' training and education. USAID is providing assistance in water management and capacity building of water agencies, and assistance to farmers through business training, and extension. The Swiss Agency for Development and Cooperation (SDC) is assisting in capacity building of water institutions. FAO is supporting salt-tolerant crop production on saline areas, and minimum tillage. In 2005, the People's Republic of China provided a $5.1 million soft loan for procurement of O&M equipment in Bukhara, Navoi, and Kashkadarya. The German Government has been supporting holistic and community-driven approaches to land rehabilitation and cofinanced physical rehabilitation in the Aral Sea Area.

24. Annex J summarizes the principal donor funded activities relating to land and water management to date. Donors and their national partners have gained a better understanding of the interdependence of physical investments, and policy and other preconditions of SLM. Increasing body of experience is beginning to emerge on what "works" and what does not in land management in the midst of continuing reform. The NPF cements an integrated and coordinated approach to the problem.

25. The donors have also underwritten most of the work done on desertification in a transboundary context. The funding of various activities under the Aral Sea Program has been the most important so far. Land degradation as a transboundary environmental concern is addressed also in subregional strategic documents, in particular the Regional Environmental Action Plan (REAP) the implementation of which was funded through a UNEP MSP, and within the UNCCD framework, in the Subregional Action Plan (SAP, 2003). The priority areas of subregional cooperation in SAP are monitoring and evaluation of processes of desertification; creation of an early warning system and mitigation of consequences of droughts, improvement of water use in agriculture; battle against erosion, salinization and water-logging; agro-forestry, management of forest resources and riparian zones; preservation of pastures; preserving biodiversity and wildlife management; development of ecotourism; and increasing the economic capacity of local communities.

d. GEF

26. The Global Environmental Facility (GEF) is a prospective cofinancing partner in CACILM activities in Uzbekistan and other Central Asian countries under the Operational Program #15. GEF's contacts with Uzbekistan go back to the late 1990s and Uzbekistan's earlier ratification of key international environmental conventions. GEF has supported preparation of NAPCD, the country's reports to UNFCC, and the National Capacity Self Assessment for Global

[7] World Bank. 1995. *Cotton Sub-sector Improvement Project*. Washington DC.
[8] World Bank. 2001. *Rural Enterprise Support Project*. Washington DC.
[9] World Bank. 2003. *Drainage, Irrigation and Wetland Improvement Project*. Washington DC.
[10] World Bank. 2005. *Cotton Taxation in Uzbekistan: Opportunities for Reform*. Washington DC.

Environmental Management. GEF has contributed to the Aral Sea Basin Water and Environmental Management Project, to the establishment of the Nuratau-Kyzylkum Biosphere Reserve, and the preparation of Kugitang Mountain Biodiversity Conservation Project, and Conservation of the Tugai Gallery Forest in the Amy Darya Delta of Karakalpakstan Project as well as to the multicountry (1) Central Asia Transboundary Biodiversity Project, and (2) In Situ On Farm Conservation and Use of Agricultural Biodiversity.

B. Objective

27. The objective of the Land Improvement Project (LIP), supported by ADB and the Uzbekistan Government, is to arrest and reverse land degradation and improve the livelihood of farmer households through the adoption of sustainable land management practices on a significant scale and in a manner that makes it possible for Project benefits to accrue beyond the immediate Project area.

C. Approach

28. The approach to Project design is based on the lessons of ADB and other development partners in irrigated agriculture rehabilitation and agricultural development in general in Uzbekistan and elsewhere. Both the baseline design and especially the GEF Alternative also build on improved understanding of the environmental repercussions of land use in the physical and institutional environments of Central Asian countries, best summarized in those countries' NPFs, prepared under CACILM. The principal considerations applied to the Project's design are grouped into five broad categories that balance out the inevitable attention given in the Project to rehabilitation of physical infrastructure.

1. Creating Enabling Conditions for Sustainable Land Management

29. The need to tackle land degradation by improving the land and water management infrastructure, which has deteriorated seriously in Uzbekistan since its independence in 1991, and do it in a cost-effective manner, is disputed by few. Few disagreements exist also over the need to fill other perceived brakes on agricultural production and gaps of capacity be it a weak extension support or rural credit.

30. However it is the importance of creating a policy environment that supports changes in land users' behavior, rather than merely rehabilitating facilities under "business as usual", that emerges as one of the key lessons of land rehabilitation projects and renewable resource management in general. In the context of Uzbekistan, this requires that the traditional policy distortions that demand that specific crops be grown with little attention to how future productivity of the land is to be safeguarded be lessened or removed outright. It also demands land tenure arrangements that provide incentives for land managers to want to improve the productivity of land. In line with that, the ongoing agriculture sector reform initiative in Uzbekistan – spearheaded by ADB and WB – seeks to reduce the mandatory state procurement targets for cotton and wheat, thereby promising to improve the profitability of farming and create one of the pre-conditions for investment in land maintenance and improvement. Ample proof exists worldwide (e.g. People's Republic of China, Viet Nam) of the incentive power of improved tenure, better terms of trade for agricultural production, and phasing out of state procurement targets.

31. There are other pre-conditions: Institutions that are responsible for land management must be strengthened and necessary capacity developed to implement solutions tailored to

worsening land degradation in particular locations. The inconsistencies between old land-related legal provisions and new ones need to be lessened. Mandates for land management need to be reconciled and simplified rather than necessarily "solved" by new legislation. The type, speed, and depth of restructuring of the formerly collectivized agriculture have become a major determinant of land use and a potential force for (or an obstacle to) renewed investment in land productivity. The land reform, too, needs to be carried out with attention to streamlining the sometimes hastily drafted new legislation and increasing the efficiency of land administration. SLM needs to become part of the policy, budgeting and monitoring processes and acquire a higher profile in national and local institutions.

32. Lessons from policy based lending projects indicate that: (i) a national reform agenda needs donors' support; (ii) reform instruments must be appropriate and selective against the expected results; and (iii) progress and outcomes of reforms must be monitored and evaluated by simple and focused indicators under clear responsibility with adequate resources. The WB's regional experience also suggests that (i) proper sequencing is important for successful reform (e.g. withdrawal of subsidies vs. enhancement of incentives); (ii) there is a need for development of public and private institutions and involvement of all stakeholders affected by the reform process; (iii) the reform agenda must proceed at a pace at which it receives the support of elected representatives and civil society; (iv) delaying investments until all the right policies are "in place" can reduce the ability to help the poor and can increase the cost of investments; and (v) modest investments combined with focused policy reforms are most likely to be successful; and (vi) project design should be simple, and geographically focused. WB experience also shows that grant-based technical assistance is often a catalyst of successful project implementation.

2. Promoting Integrated Land Use Planning and Management

33. Current administrations in Central Asia have little experience in designing and implementing land-use initiatives based on SLM and voluntary participation of largely independent (no matter how weak they still are) land managers. All tiers of government need training and exposure to international practices of integrated land-use development in which attention to the empirical and technical foundations of proposed interventions is supplemented by an understanding of the social context, appreciation of the role of financial and nonfinancial incentives, assessment of the interventions' environmental impacts, capacity to work with multiple partners, and experience of project monitoring and evaluation. The capacity of the agencies and stakeholders concerned with land and water management in Central Asia including Uzbekistan, needs strengthening and may require area-based pilot projects aimed at testing participatory mechanisms, local-level planning, coordination, and implementation. By approaching land use in an integrated and crosscutting way, new opportunities often emerge to improve land productivity, enhance environmental outcomes, or ideally, both.

34. Land management in Central Asia has been handicapped by the fragmentation of responsibilities for the monitoring and management of data relating to land management. In a number of cases, duplication of monitoring responsibilities and superficial efforts coexist with temporary abandonment or absence of other relevant data. Data collection routines have changed little despite major changes in the field realities, and insufficient use has been made of the information generated by development projects implemented in recent years. Thus, the reform of SLM data management, both at the macroeconomic and local or project levels emerges as one of the priorities.

3. Exploiting the Potential for Positive Environmental Impacts

35. Most key ecosystems in Central Asia and in Uzbekistan specifically, have continued to deteriorate and fragment with adverse local and global environmental consequences and livelihood repercussions. To counter this trend, environmental know-how and perspectives need to be mainstreamed into principal production-oriented institutions (such as MAWR) and integrated in the design of investment projects. Attention to ecosystem integrity requires a cross sectoral approach, involvement of local communities, in some cases an ability to link formal ecosystem protection (usually via the Protected Area System) with land use activities outside it, and novel ways of financing protection activities.

4. Encouraging Stakeholder Participation

36. The top-down engineering solutions to land management problems characteristic of the command economy era have become increasingly inappropriate in the post-collectivized environment. Instead, rural households need to be more closely involved in shaping the pattern of interventions intended to improve their livelihoods if those interventions are to have the necessary level of support. With differences in the physical dimensions of degradation in different sub-areas and often specific needs of local communities, this argues for the use of custom solutions to land improvement that meet the needs of the affected population in a flexible and responsive way.

37. Successful land management has become more demanding in the new circumstances as land use is influenced not mainly by command, but a mixture of command and incentive instruments. The increased complexity demands more extensive and varied forms of public participation and attention to community organization, creation of public/private partnerships, participatory research and monitoring, etc.

5. Learning and Dissemination

38. Recent experience of efforts to counter land degradation in Central Asia suggests that there is a great need for disseminating good land management practices. In some cases, such practices linked traditional knowledge (temporarily “forgotten” during the collectivized agriculture period) with latest international agronomic, technical and organizational advances in sustainable land management. Pilot testing and dissemination of good practices feature as a priority in Uzbekistan’s NPF.

39. The preparation of NPFs under CACILM has also identified the dearth of SLM research that meets the needs of land managers under the new structure of land ownership or custodianship, and is more management-oriented and informed by international experience. Countries need to continue and expand contacts with the best among international bodies specializing in sustainable agriculture (e.g. the most relevant among the CGIAR bodies such as ICARDA, CIMMYT, ICRISAT or ILRC, or some of the international academic initiatives).

D. Outcomes

40. The project area (see map – Annex H) covers 162,300 ha in nine districts: Kamashi, Guzar, and Kazan in Kashkadarya *oblast*; Kyzultepa, Khatirichi, and Navbkhor in Navoi *oblast*; and Jandor, Bukhara, Romitan in Bukhara *oblast*. The districts were selected through systematic screening and stakeholder consultation, based on the following criteria: (i) availability of irrigation water; (ii) high risk of land degradation without interventions; (iii) high potential for

restoring land capability; (iv) low investment and operation and maintenance costs; (v) large number of poor households; and (vi) existing of rural support organizations. Two of the major determinants of areas with high risk of land degradation without project interventions were the soil salinity and waterlogging. Appendix O provides information on soil salinity and waterlogging in the project area.

41. The Project's expected outcomes are a lasting improvement of land productivity, and restoration of normal ecological functioning of these lands resulting in local and wider environmental benefits. For the Project to achieve its objective via the above principal outcomes, several things must happen. First, individual land managers must increase investment in land productivity based on lessening of various barriers now standing in the way. Second, the State must invest in rehabilitating parts of the physical infrastructure for which it continues to bear responsibility. Third, improved agricultural practices must become accessible and adopted on a wide enough scale. Fourth, the combination of policy adjustments and increased investment must be sustainable and strongly positive for the environment.

42. These requirements translate into five expected Project outputs, namely: (i) enhanced incentives for farmers through policy reforms at project and sector level, (ii) improvements in land-, water- and agricultural management practices, (iii) rehabilitation of land management infrastructure and improved operation and maintenance of I&D systems; (iv) strengthened land and water management institutions; and (v) effective project management and monitoring systems.

E. Activities and Project Components

43. The baseline activities to be undertaken in pursuit of each of the five outputs and the Project's overall logic are described in the logical framework (Annex B). These activities, supported by an ADB loan project[11] (Annex M) and Government of Uzbekistan comprise the following components:

1. Improving the Incentive Environment

44. The component will help achieve phased implementation of the agreed policy reforms. It will help the Government to build the capacity necessary to adopt the reform measures, and draw up necessary regulations and programs. It will review the impact of agreed policy reforms upon crop production, farm productivity and incomes, and Government revenues. It will also establish a system for the monitoring and evaluation of policy reforms that involves participatory consultation with key stakeholders, including civil society and elected representatives.

2. Improving Land and Agricultural Management

45. The component will introduce improved land reclamation practices and on-farm water management technologies. The Project will establish and operate three demonstration farms to develop and promote improved land reclamation and innovative on-farm technologies (e.g. leveling, sub-soiling, etc.); and demonstrate enhanced agronomic practices (e.g. integrated pest management) for efficient and equitable water management. The enhancement of agronomic practices will include crop rotations, and minimum tillage to reduce inputs and improve soil fertility. Local scientific institutions with relevant experience will be involved to ensure the

[11] ADB Land Improvement Project Draft Report and Recommendation of the President documentation details the linkages with the GEF funded activities, recognizing that they will enhance project replicability and generate additional global environmental benefits.

ownership, replication and sustainability of these operations. The scientific institutions capacity to implement this component will be supplemented by the loan management consultants.

3. Capacity Building of Land and Water Management Institutions

46. This component targets land and water management institutions and builds their capacity for integrated land use planning and management, strengthens the information management systems to support decision making, disseminates the SLM know-how and promotes replication of best management practices (BMPs). At the Basin Irrigation System Authority level, this component will train staff, introduce improved water basin management systems and O&M procedures, adopt an integrated water resources management approach, and enhance service provision to WUAs. At the WUA level, the component will introduce improved management, operation and maintenance practices, and adopt innovative irrigation techniques as well as develop WUA technical and financial capacity for self sustainability. At the MAWR (Departmental) level, there will be training of MAWR staff in the methodologies and extension of new agricultural technologies practices.

4. Rehabilitation of Land Management Infrastructure

47. This component will rehabilitate the main (inter-farm) irrigation and drainage systems and associated structures including 330 km in Navoi, 530 km in Bukhara, and 260 km in Kashkadarya, covering an area of 109,295 ha for improved efficiency and timely delivery of water to WUAs, and the rehabilitation of on-farm irrigation and drainage infrastructure for improved management and equitable delivery to individual farmers including 6,900 ha in Navoi, 10,200 ha in Bukhara and 16,800 ha in Kashkadarya. Outlet structures will be rehabilitated to achieve efficient and equitable water management, measurement, and regulation.

5. Project Management

48. This component will establish project management and implementation site offices at the national and three *oblast* levels for the supervision of all project activities with the support of international and local consultants. The component also includes the establishment of a performance monitoring unit including environmental monitoring for the M&E of the activities, outputs, outcome and impact of the project. This will comprise establishment of project offices and performance monitoring and evaluation units, surveys and investigations, and water and soil quality monitoring. A project management office (PMO) will be established at the MAWR to manage project activities and three project implementation units (PIU) in Navoi, Bukhara and Kashkadarya to implement the project in their areas, and for maintaining liaison with local authorities, and beneficiary organizations. The PMO and PIUs will be supported by project management consultants.

F. Key Indicators, Assumptions, and Risks

49. Specific and quantified targets have been set for the Project together with the values of performance indicators. Among others, the indicators include: areas affected by waterlogging and salinity, cotton and wheat yields, ratio of wheat and cotton procurement- to international prices, percentage of registered land use contracts, number of farms adopting improved on-farm water management and agronomic practices (including conservation agriculture practices), area under alternative crops, number of functioning WUAs, irrigation efficiency, and several others. Detailed indicators to be monitored and their target values are contained in the monitoring and evaluation plan in Annex E.

50. The Project is formulated on the assumption that there is a broad based commitment and political will for further policy reforms. It also assumes that farmers are fully aware of the agricultural and water sector reforms in their areas. Participating farmers are assumed to have land use rights and their choice of crops (initially those outside agreed percentage of state deliveries) to be fully respected by local authorities. The mandates of institutions responsible for sustainable land management are assumed to be sufficiently clear (even if capable of further streamlining). It is assumed that a reliable supply of irrigation water in the project areas will be maintained while rehabilitation activities take place. Further assumptions are made under the GEF-Alternative design, namely that there are no physical obstacles to extending conservation agriculture to at least 10,000 ha.

51. The risks to the Project's success are seen mainly in terms of setbacks to macroeconomic and agricultural sector policy reforms, in slow emergence of more competitive input and produce markets, a slower-than-expected development of the private sector that would reduce the benefits to farmers of project level policy reforms (and possibly threaten adequate maintenance of rehabilitated I&D areas), and insufficient or inappropriate capacity of local authorities resulting in interference in the activities of *dehkan* farmers. The detailed design of the Project mitigates the project-level risks while policy dialogue and donor coordination is seen as the best safeguard against macroeconomic risks.

G. Expected Global Benefits from GEF Support

1. Without GEF Scenario: The Baseline

52. The baseline scenario is one where the Government working on its own and/or with donor support is gradually removing the obstacles to stagnating agricultural production and is having some success in restoring the ecological functioning of irrigated lands. Under that scenario, advances are made on a number of fronts (against a large number of underlying problems) but the advances stop short of realizing the decisive environmental improvement that, in the context of Central Asia, demands the adoption of improved farm practices on a sufficiently wide scale in order to realize environmental benefits also at landscape, ecosystem and global levels. Crucial to achieving are certain incremental activities listed below in sub-section 3.

53. The anticipated baseline outcomes are (1) increased investment in land productivity by empowered farmers, made possible by a removal of various remaining institutional, information, and policy barriers. Such investments are clustered around improved soil and water management practices, steps to reduce the severity and spatial extent of salinity and waterlogging, and crop diversification. They are accompanied by improved extension services (see Annex B for performance targets) and conditional on the rehabilitation of parts of the irrigation infrastructure by the State. As a result, average crop yields increase and the downward spiral of land degradation and land abandonment is arrested; (2) restoration of normal ecological functioning of rehabilitated lands resulting in local environmental benefits (better drinking water quality, better public health, more pleasant local environment to live in, less siltation, eutrophication, etc.) and some wider environmental benefits (e.g. lowering of the salt and contaminant runoff into rivers, or reduction in wind-borne transport of salt). The improved ecological functioning of irrigated lands is closely linked to the role assigned in the Project to improved land, water and agricultural management, and introduction of conservation agriculture practices and technologies such as reduced or zero tillage, use of permanent organic

soil cover, crop diversification, and use of integrated pest management and allelopathic[12] plants. etc. Local on-farm benefits of improved water and agricultural management are clustered around increased farm profitability. Those of conservation agriculture include: reduced time and fuel requirements from reduced till; improved soil organic matter levels and soil fertility; improved water use efficiency[13]; better utilization of applied fertilizers; reduced incidence and severity of crop diseases (from the use of rotation crops); potential for reduced weedicide and pesticide usage; and improved and more stable yields of crops.

2. Potential Global Benefits

54. Under the GEF Alternative, the design has been modified to accommodate additional activities undertaken to realize not only local benefits and "free-flowing" global environmental benefits (i.e. those that require no modification of the baseline) but additional global (sub-regional and beyond) environmental benefits.

55. The incremental global environmental benefits potentially available are of several kinds, partly interrelated: (1) improved ecological functioning of the dryland ecosystem(s) beyond the immediate project area, made possible by intensifying or supplementing certain project activities; (2) contribution to improved conditions of the interconnected transboundary hydrological system of Central Asia, through reduced discharges of saline and other effluent into receiving water bodies and lowering of irrigation water consumption; (3) revival of Central Asia's agricultural and cultural heritage (including conservation of agrobiodiversity) as indigenous know-how is combined with international advances in dry area agriculture; (4) revitalization and improvement of landscapes in globally important tourist destinations such as Bokhara and segments of the Silk Road; and (5) reduction of GHG emissions and additional carbon sequestration through a more appropriate management of biomass and deliberate attention to capturing the underlying potential in this domain[14].

3. GEF Alternative

56. The GEF-financed component will focus on the creation of additional local capacity to deliver the global benefits listed above, and on introducing novel land rehabilitation activities that promise to have wide-ranging environmental benefits. Specifically, the GEF grant will: (i) contribute to creating a regulatory regime that enhances incentives for a land management in which national and global environmental considerations have a place; (ii) field test and introduce methods of re-using return irrigation water for productivity and environmental gains; (iii) build the capacity of the agriculture sector of Uzbekistan for environmental analysis and management; and (iv) provide for a structured monitoring and evaluation of the Project's global environmental impacts and other impacts to increase the replicability of its most positive elements.

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[12] Allelopathy is a chemical process used by a plant to keep other plants out of its space. Different species enact allelopthy in different ways (e.g. releasing growth- or photosythesis-inhibiting compounds through roots or leaves, etc.). Brazilian crop scientists at Instituo Agronomico do Parana lead the world in developing such plants for introduction into conservation agriculture.

[13] Introduction of "green biodrains" will have a role to play. A "green biodrain" is an area where water running off-site (here from irrigated cotton and wheat fields) is collected for secondary production or landscape maintenance activities, such as planting of shrubs and trees, establishment of "greened" lakes, parks and riparian zones, and fish farms.

[14] The introduction of no-till and the improvements in the retention of crop residues will contribute to increased fixation of carbon (carbon sequestration) through decreased organic matter loss and increased soil cover. Moreover, decreased use of petrol- and diesel-powered farm machinery with CA, have been shown to achieve major reductions in fossil fuel use with positive environmental effects of reduced CO_2, heat and particulate emissions.

57. The GEF-financed activities will be grafted onto four out of five baseline activities as follows:

Added to baseline project component (Implementation of Policy Reforms [15]), will be

Sub-component A: Strengthening of the incentive structure for environmental benefits of SLM

58. The GEF Alternative will deepen the reform measures that encourage SLM and through it, the realization of (also) national and global environmental benefits. The activities will (1) develop measures providing incentives for a sustainable use of marginal waters and marginal lands, (2) review the potential for creating special operating and incentive regimes for sub-areas where land rehabilitation offers high environmental benefits; (3) develop proposals for legislative and regulatory support for the conservation of agro-biodiversity, and for protection of ecosystems and landscapes; (4) investigate the potential of "payment for environmental services" (PES) as a policy mechanism encouraging the adoption of conservation agriculture in Uzbekistan and Central Asia [16].

Added to baseline project component (Improved Land, Water and Agricultural Management Practices), will be

Sub-component B: Management of marginal water for livelihood and environmental benefits

39. The Alternative will test new technical and management approaches to managing marginal water (return irrigation water contaminated by salts and other pollutants) in an area of great economic, cultural and environmental values along the Great Silk Road in the Zeravshan and Kashkadarya River basins. The component will (1) introduce and test salinity mitigation management through the application of drainage and flood runoff regulations, and introduce drainage water reuse schemes and other environmental feasible interventions; the component will also (2) introduce and test salinity mitigation management using elements of conservation agriculture; (3) conserve and improve wetlands and desert ecosystems around irrigated oases and selected desert depressions as a prototype for SLM in these and similar areas; (4) demonstrate the scope for synergy among biodiversity conservation, carbon sequestration, and land productivity enhancement; and (5) disseminate the results and lessons of the pilot activities.

60. Incorporated in baseline project component (Strengthening of Water and Land Management Institutions) will be

Sub-component C: Capacity building for environmental analysis and management in the agricultural sector

61. The Alternative will (1) strengthen and mainstream the environmental analysis and risk assessment of land rehabilitation projects and conservation agriculture into MAWR and related institutions; and (2) develop the methodology of valuing ecosystem conservation in Uzbekistan for local and regional dissemination.

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[15] This component is to be implemented as ADB Technical Assístance.

[16] In some countries where CA (and no-till in particular) has been adopted, lower yields in the first one or two years were recorded. The disincentive effect of the initially lower profitability could be overcome through a financial transfer from the downstream beneficiaries of water-saving conservation agriculture to the CA "pioneers".

Sub-component D: Learning and dissemination for improved environmental outcomes

62. Component 3 of the baseline project (Capacity Building of Land and Water Management Institutions) targets land and water management institutions and builds their capacity in several ways described earlier on. The Alternative: (1) scales these activities up to a level where they can effectively support the delivery of national and global environmental benefits and make it possible for the relevant institutions to play an active part in the global exchange of experience. The Alternative also adds to other capacity building activities. It: (2) enlarges the pool of stakeholders involved in training and dissemination of the globally most relevant lessons of conservation agriculture, (3) provides support for community based planning and rural awareness program with (also) agro-cultural heritage and gender perspectives, and (4) promotes public/private study tours to learn from the experience of CA.

63. Grafted onto baseline project component (Project Management) will be

Sub-component E: Monitoring and evaluation of Project environmental impacts

64. The Alternative will provide for a more comprehensive project management in which a common set of indicators will be used to monitor and evaluate such variables as the nature and status of land degradation, carbon sequestration, biodiversity, on- and off-site environmental impacts, biodrain siltation, salinization, pollution and eutrophication; and socio-economic factors. The Alternative will (1) develop a system for monitoring of the Project's environmental impacts; (2) develop a proposal for a unified salinity management database in Uzbekistan; and (3) mainstream the most suitable international practices of participatory monitoring of environmental impacts.

65. The workplan to complete these activities is presented in Annex D.

4. Expected Global Benefits from GEF Alternative

66. The main categories of global benefits associated with the Project's GEF Alternative are as follows:

(i) Under Sub-component A, they include the social and global environmental benefits of future investments in SLM in Uzbekistan and in the region that more reliably target such environmental benefits while delivering local livelihood improvements. Under Sub-component B, they include (1) reduced salt and pollutant run-off in parts of the project area resulting in improvement of surface and groundwater quality in key transboundary river basins, and (2) enhanced landscapes and ecosystems in areas of global cultural importance.

(ii) Under Sub-component C, the alternative results in improved ability of Uzbekistan's institutions to accelerate local adoption of "globally-friendly" SLM activities, and a higher level of investments in land use activities generating global benefits resulting from confidence about the favorable balance of their impacts supported by environmental analysis and risk assessment.

67. The main global benefit of Sub-component D is greater ability of Uzbekistan's land and water management institutions to share experiences in introducing SLM activities that have significant positive global environmental impacts and improved ability to communicate with national and international stakeholders and galvanized opinion in favor of protecting the global environmental commons. Improved knowledge by the global community of the incidence of land

degradation in arid ecosystems of Central Asia and the effectiveness of countervailing measures is seen as the principal global benefit of Sub-component E.

68. The logic of incremental benefits identification is summarized in Annex A summarizing the derivation of the GEF Alternative's incremental cost.

II. COUNTRY OWNERSHIP

A. Country Eligibility

49. Uzbekistan is GEF eligible. It ratified UNCCD in 1997, adopted National Plan to Combat Desertification in 1999. It has designated focal points for national UNCCD implementation and for GEF activities.

B. Country Drivenness

70. Uzbekistan prepared the CCD National Action Plan to prioritize interventions to address land degradation in 1999 and has since then reviewed and expanded it in the form of the National Programming Framework (NPF). NPF strengthened the problem analysis, was prepared in a cross-sectoral and participatory manner and has received Government official endorsement. The NPF is one of the attachments (together with the present document) to the CACILM Multicountry Partnership Framework (CMPF) submission to GEF referred to in the Project Summary on the cover page.

71. During the conceptualization of the Project inclusive of GEF cofinancing ("GEF Alternative"), meetings were held with potential stakeholders as well as personnel involved in related projects, past and present. All were invited to present concepts and practices for consideration within the GEF Alternative. Meetings were held with senior staff of the MAWR, the Hydrometeorological Research Institute, the CACILM Working Group, the EcoGIS Centre of the Tashkent Institute of Irrigation and Melioration (TIIM), staff of several NGOs operating in the area of land and environment (e.g. ECOSAN and Ecoservice) and staff and consultants of the World Bank and UNDP, as well as the UNCCD and GEF focal points. The endorsement letters of the GEF Operational Focal Point and UNCCD Focal Point are provided in Annex N.

III. GEF PROGRAM AND POLICY CONFORMITY

A. Conformity with GEF Operational Program and Strategic Priorities

72. The Land Improvement Project is consistent with the objectives of the Operational Program 15 (OP#15) Sustainable Land Management (SLM) under the focal area of Land Degradation. The project contributes to restoring ecological (as well as economic) productivity of irrigated drylands and helps restore these lands' resilience to adverse events. It tackles head on the issue of poor water and irrigation management and seeks to improve the capacity for sustainable water use and land planning. Its aim is to create conditions necessary to diversify land use and move away from monocropping.

73. The Project is directed primarily towards the GEF 4 strategic objectives: (i) foster system-wide change through removal of policy institutional, technical capacity and financial barriers at the country level; (ii) demonstration and upscaling successful SLM practices for the control and prevention of desertification and deforestation; and (iii) generating and disseminating knowledge to address current and emerging issues in SLM.

74. Under CACILM, Uzbekistan has developed the National Programming Framework (NPF) for Sustainable Land Management that contains a sequenced series of projects. This project will be one of first projects implemented under the NPF. The project will be introducing regulatory and institutional reforms and testing innovative and best practices in SLM. Successful reforms and best practices will be incorporated into other projects in the NPF. The Project will deepen the reform measures that encourage SLM and through it, the realization of (also) national and global environmental benefits.

75. The Capacity Building of Land and Water Management Institutions component of the baseline project targets land and water management. The GEF Alternative scales these activities up to a level where they can effectively support the delivery of national and global environmental benefits and make it possible for the relevant institutions to play an active part in the global exchange of experience. The GEF Alternative also adds to other capacity building activities. It: (i) enlarges the pool of stakeholders involved in training and dissemination of the globally most relevant lessons of conservation agriculture, and (ii) provides support for community based planning and rural awareness program with (also) agro-cultural heritage and gender perspectives.

76. The Project will test new technical and management approaches to managing marginal water (return irrigation water contaminated by salts and other pollutants) in an area of great economic, cultural and environmental values along the Great Silk Road in the Zeravshan and Kashkadarya River basins. The Project will (i) strengthen and mainstream the environmental analysis and risk assessment of land rehabilitation projects and conservation agriculture into MAWR and related institutions; and (ii) develop the methodology of valuing ecosystem conservation in Uzbekistan for local and regional dissemination.

77. The Project will provide for a more comprehensive project management in which a common set of indicators will be used to monitor and evaluate such variables as the nature and status of land degradation, carbon sequestration, biodiversity, on- and off-site environmental impacts, biodrain siltation, salinization, pollution and eutrophication; and socio-economic factors.

78. The information generated and lessons learned from the implementation of the various activities will be incorporated into the CACILM Knowledge Management System and will be disseminated regionally and globally.

79. The Project builds upon the national capacity self-assessments (NCSAs) and is integrated into the National Programming Framework (NPF) developed under CACILM. Like the other four NPFs developed under CACILM Partnership, Uzbekistan's NPF addresses barriers to SLM through interventions that are coordinated with other GEF and donor activities in that country.

B. Sustainability

80. Sustainability of the improvements expected of the Project rests, first and foremost, on the prospects of improved financial profitability of land use in project areas. This, aided by a regulatory environment that encourages re-investment of a part of the profit in maintaining land productivity by the farm managers themselves, is seen as the most effective driver of sustainability. The Project will target both of these preconditions.

81. Sustainability will be also enhanced by a link made in the Project between physical improvements and institutional development. In particular, the Project's assistance to WUAs will

make them –and the supply of irrigation water in their areas—truly sustainable. The Project provides for expanded participation by the local communities in all stages of investment activities, as a departure from the tradition of imposed design that experience has shown often to be the cause of early abandonment of rehabilitation activities. By paying attention to social aspects of land management and issues such as the role of women in improved land use, the Project promises to enhance the activities' social acceptance and hence also their sustainability. The Project strengthens the capacity of local governments' to support sustainable land management activities and trains government and non-government staff in disseminating the best lessons of SLM thereby increasing their sustainability.

82. To ensure that attention to the global aspects of land use does not die when the Project formally ends, the Project's GEF-financed activities will expand "virtuous" activities to a level where their critical mass and associated body of experience create sufficient confidence in the (long-term) notion that global environmental benefits need not come at the expense of local financial benefits. Such virtuous activities will include the creation of a significant cadre of CA-trained technicians, support for public/private partnerships to introduce profitable land uses with strong positive environmental side effects, etc. Improved monitoring of environmental variables including those relevant globally will permanently improve the ability of local institutions and stakeholders to make informed decisions involving environmental trade-offs.

83. Financial sustainability will be aided by a clearer separation of State-financed and land user-financed operations, especially in the case of irrigation water provision. Sustainable financing of the off-farm element of irrigation infrastructure is a matter of long-term budget commitment of the State, based on a long-term strategy of irrigation infrastructure rehabilitation and modernization. Such strategy now exists. Sustainable financing of on-farm irrigation is conditional on the success of WUAs, the cost-recovery policies put in place, and the financial profitability of improved land management practices (including conservation agriculture). The estimates of expected financial profitability of on-farm interventions show them to be sufficiently high to allow for improved farmer income even when O&M of on-farm irrigation supplies is fully priced. The expected development of public-private agribusiness partnerships (accompanied by various forms of contract farming) may be a transitory stage along the road to privatization of some agro-processing facilities after which the financial sustainability of both the industry and the producers will depend on their ability to adjust to the functioning of markets, combined though this is likely to be with various forms of government agriculture support policies, not unlike in most countries of the world.

C. Replicability

84. The potential for replication is high under the Project for several inter-related reasons. The Project addresses problems that are common to other Central Asia countries, all of them having irrigated and adjoining lands affected by degradation, with serious economic, social, and ecological consequences. And in all Central Asian countries, though at different speeds, land use is undergoing far-reaching institutional reform. What is viable in Uzbekistan may therefore be applicable elsewhere in Central Asia, and vice versa. The Project makes provisions for a dissemination of the lessons of best SLM practices throughout Uzbekistan. The Alternative expands these activities further to support dissemination of the lessons of conservation agriculture and integrated ecosystem management, and dissemination beyond Uzbekistan's

borders. Here, the Project draws on the encouraging replication and up-scaling experience with conservation agriculture in, e.g., Brazil, Argentina and Paraguay. [17]

D. Stakeholder Involvement

85. The project involves a large number of stakeholders ranging from the target beneficiaries, the farmer households, to the agencies of the Government and non-government entities. The initial phase of stakeholder participation took place during the Project formulation and the parties involved were listed in para. 71. The Project itself formalizes that participation and makes it an integral part of Project activities, especially the on-farm activities and monitoring and evaluation. Participatory Rural Appraisal (PRA) will precede all on-farm interventions including the formalization of state enterprise-farmers contracting arrangements. Annex F contains the public participation plan.

E. Monitoring and Evaluation

1. Overall Structure

86. The Project will be monitored and evaluated in two ways. First, as a loan project, it will be subject to the standard M&E procedures of the principal lender (ADB), most of its elements carried out jointly with the GOU. Second, as part of the National Program developed under CACILM, the Project's M&E provisions will be integrated with the M&E provisions of the CACILM national and multicountry activities.

2. ADB Monitoring and Evaluation

87. The Project will be monitored in accordance with ADB's standard monitoring procedures. These include financial and work progress monitoring, monitoring of compliance with environmental and social safeguards, and monitoring of performance. The Government and ADB will review implementation of the Project at least once a year. After 3 years of implementation, the Government and ADB will jointly carry out a midterm review of the Project, to identify any problems or constraints encountered and assess the need for modification of project scope, implementation, and financing arrangements. Project objectives will be measured against the performance criteria listed in Annex B. The parameters for assessing the implementation milestones will include (i) implementation status, (ii) design and construction standards, (iii) physical progress and disbursements related to the implementation schedule, (iv) status of compliance with loan covenants, (v) achievement of the Project's development objectives, (vi) progress of policy reforms, and (vii) the need for any changes in the project scope to achieve project impact. On completion, the Project will be evaluated according to a schedule and terms of reference to be agreed upon by the Government and ADB.

88. An initial environmental examination for the Project has been completed as has a social and gender analysis. In both cases, the balance of anticipated impacts was found to be overwhelmingly positive with suitable mitigation steps incorporated into the Project design in relevant cases.

[17] The reader is referred to FAO.2003 for more details as well as the discussion of links between soil conservation activities of the kind envisaged in the Project and the UN Convention on Biological Diversity. (FAO.2003. *Biological Management of Soil Ecosystems for Sustainable Agriculture*, World Soil Resources Report No. 101, Rome)

3. Compatibility with M&E Systems under CACILM

89. LIP is part of NPF, a national program of coordinated investment activities to counter land degradation. NPF's management structure [18] requires that each Project within NPF be monitored under four main areas (work progress, financial performance, safeguard compliance, and SLM performance) and the results centralized to become a tool of monitoring and evaluation of the effectiveness of the entire National Program. The ADB monitoring and evaluation procedure described above will generate the necessary results for LIP. Under the GEF Alternative design, the SLM monitoring will be expanded to include a broader range of environmental variables to be monitored and evaluated, especially those relating to global environmental impacts. This expansion of the SLM monitoring activities under the Project will be coordinated with the creation of a unified Sustainable Land Management Information System (SLMIS) in each of the CACILM member countries.

90. Under the CACILM Multicountry Partnership Framework, the performance of NPFs and their project components is furthermore monitored at a country-partnership (regional) level to generate a picture of the effectiveness of the CACILM program at that level. Secondly, at the same multicountry level, a mechanism has been created to facilitate the monitoring and evaluation of all GEF-cofinanced components of the National Programs. Besides communicating with GEF on all matters relating to GEF-cofinanced components, CACILM Secretariat will ensure that the formats of LIP M&E are fully compatible with those of GEF.

IV. FINANCIAL MODALITY AND COST EFFECTIVENESS

A. Financing Plan and Co-Financing Sources

91. The total cost of the Project under GEF Alternative is estimated at $80.2 million. Of this amount, $60.0 million will be financed by ADB as a loan, consisting of $32.6 million from the Ordinary Capital Resources (OCR) and $27.6 million equivalent from Special Funds. $15.6 million equivalent will be financed by the Government of Uzbekistan, and $0.4 million by the Project beneficiaries [19]. GEF cofinancing will amount to $3.0 million.

92. In addition, technical assistance (TA) for Implementation and Monitoring of Policy Reforms in Agriculture Sector will be provided to assist the Government at the central and provincial levels to formulate, prioritize and implement the agreed reforms, strengthen the relevant institutions, prepare legislation to reverse the constraints on agricultural productivity and rural incomes, and monitor the implementation of reforms and their impact on farm incomes, rural poverty, and Government revenues. The TA is estimated at $1,000,000 equivalent, of which $800,000 will be financed by ADB's TA funding program ($200,000) and the Poverty Reduction Cooperation Fund administered by ADB ($600,000) on a grant basis. The Government will finance the remaining $200,000 in kind.

93. The financing plan is summarized in Table 1.

[18] Described in ADB.2006. CACILM Multicountry Partnership Framework, GEF Council Submission

[19] The beneficiaries will contribute $0.4 million towards the cost of the demonstration farms. The entire cost of the on-farm rehabilitation works will be recovered from them through subsidiary loan agreements entered into between MOF and the WUAs, based on experience under the ongoing Ak Altin Project.

Table 1: Cofinancing Sources

Co-financing source	Classification	Type	Amount (US$)	Status*
Government of Uzbekistan	Government	Budget allocation and in kind (co-financing for loan)	15,580,000	Approval Loan Agreement
Government of Uzbekistan	Government	Budget allocation and in kind (co-financing for grant)	200,000	
ADB	Executing Agency	Loan ($35 million from non-concessional sources and $25 million from concessional sources)	60,200,000	
ADB	Executing Agency	Grant	800,000	
Farmer households	Beneficiaries	In-kind	400,000	Willingness to contribute confirmed during formulation
Total			**$77,180,000**	

94. ADB's OCR loan will finance the cost of the main system rehabilitation while the SDR loan will finance the on-farm rehabilitation, and the activities under the other project components. The GEF grant will finance the activities described earlier as follows (Table 2):

Table 2: Estimated cost of activities financed by GEF Grant (US $)

Policy Reform –(Technical Assistance) A. Strengthening of the Incentive Structure for Environmental Benefits of SLM	250,000
Land and Agricultural Improvement B. Management of marginal waterfor livelihood and environmental benefits	1,600,000
Capacity Building of Land and Water Management Institutions C. Capacity building for environmental analysis and management in the agricultural sector D. Learning and dissemination for improved environmental outcomes	 300,000 400,000
Project Management E. Monitoring and evaluation of Project environmental impacts	450,000
Total Costs	**$3,000,000**

95. A more detailed cost estimate is provided in Annex C. The Project will be implemented over six years, starting in October 2006. The GEF financing will commence in 2007 and will be implemented over a four-year period.

B. Incremental Cost Analysis

96. The Program's global benefits are those associated with (1) improved ecological functioning of the dryland ecosystems, (2) agro-biodiversity conservation broadly interpreted, (3) improved quality of transboundary rivers, and (4) reduction of GHG emissions and additional carbon sequestration.

97. The yardstick against which incremental costs are estimated is the project baseline formulation with five principal components designed primarily to lead to agriculture productivity improvement. Although it is not its primary objective, the baseline version of the Project is expected indirectly to result in a range of environmental benefits including some global benefits described earlier (para. 62). The Alternative seeks the global benefits more directly. It modifies the design in several ways: It (1) calls for land rehabilitation activities to be expanded into marginal areas and for pilot testing of the use of return irrigation water; (2) modifies the approach to capacity building by providing for additional environmental capacity to be created within MAWR; (3) modifies the design of the Project's M&E by requiring that M&E be expanded to include local and global environmental impacts; (4) scales up dissemination of good SLM practices beyond the minimum necessary to serve the Project area; and (5) modifies the policy reform package by including areas of policy development, not strictly necessary to achieve the physical targets of the Project area, but facilitating the generation of local and global environmental benefits in similar activities elsewhere in future.

98. The nature of expected incremental activities and incremental cost is summarized in Annex A.

C. Cost Effectiveness

99. Technical approaches to rehabilitating irrigation and drainage infrastructure are well known and the Project has had access to the best of international experience to avoid any design over-specification. The second element of cost effectiveness was an active search during the project formulation for sub-areas offering the lowest investment and O&M cost. Anticipated magnitude of this cost was one of seven criteria of the project area.

100. The third element expected to contribute to cost effectiveness is project size. A total command area of around 110,000 ha, with contiguous sub-areas, and a total cost of the principal rehabilitation component in excess of over $50 million, create a considerable room for economies of scale that the Project will seek to capture through suitable grouping of procurement contract awards during implementation. Here, LIP can benefit from the experience of other ADB projects, especially the Ak Altyn Project. ADB documentation contains estimates of the size of procurement packages showing them to be large enough to expect cost effectiveness. The competitive nature of procurement introduces two other advantages: It shifts the risk of cost overruns onto suppliers and it creates room for responsive local low-cost subcontractors to participate in the project. Away from engineering, the Project's emphasis on giving farmers a greater stake in land productivity and asking them to bear the cost of on-farm O&M creates a target group that has a vested interest in "getting value for money" in all activities relating to rehabilitation on on-farm infrastructure.

V. INSTITUTIONAL COORDINATION AND SUPPORT

A. Participating Institutions and Core Commitments

101. The Project has a full commitment of the principal cofinancing partner, the ADB. The objectives of the proposed Land Improvement Project respond to ADB's Country Operational Strategy for Uzbekistan and the Country Strategy and Program Update. Both emphasize the need for policy and investment interventions in the agriculture and water sectors to increase productivity and incomes, and to generate employment. The Project's environmental content is in line with key elements of ADB's 2002 Environmental Strategy.

102. GOU's commitment is anchored in MAWR's medium-term (2001-2003) action plan for economic reforms in agriculture which focuses on: (i) accelerating the privatization of farms and rural enterprises, (ii) improving financial systems, (iii) building central and local institutional capacity, (iv) improving irrigation and drainage infrastructure, and (v) relaxing Government restrictions on crop procurement and pricing. The direction of the medium-term plan was reaffirmed by a 2003 Presidential Decree on *the Most Important Directions for Deepening Reforms in Agriculture.*

103. GEF's very mandate, especially as articulated under Operational Program 15, provides the basis for GEF's support of the Project. In the case of Uzbekistan and Central Asia, that support was translated into GEF Council's 2005 approval of the funding for the design of Central Asian Countries Initiative for Land Management (CACILM) and subsequent formulation of the Multicountry Partnership Framework (MCPF) under which GEF is to support the implementation of national programming frameworks in each of the countries of Central Asia including Uzbekistan. The Land Improvement Project is one of two projects in Uzbekistan during MCPF's initial phase (2006-2008) for which GEF support under OP15 is being sought.

B. Consultation, Coordination and Collaboration among Participating Institutions

104. The consultation, coordination, and collaboration among participating institutions will take place at two levels. At the first, ADB will be working closely with relevant GOU institutions, headed by the Project's executing agency, as occurs routinely in ADB loan projects (see Section C below for participating institutions). On the second, both ADB and GOU will be part of the structures established to implement NPFs and MCPF under CACILM. These structures include (i) the National Coordination Council with a crosscutting representation of GOU and civil society, and (ii) CACILM Steering Committee with a multicountry government-donor representation, among other things, tasked (through its Secretariat) with ensuring close liaison with GEF.

105. One of the responsibilities of the National Coordination Council is to ensure that all activities targeting land degradation are coordinated technically and in terms of donor support, and all conform to the directions set out in the NPF. This requires also that LIP is placed within the context of similar activities already implemented or under implementation. The most relevant of these activities in Uzbekistan are listed in Annex K.

106. Among the relevant activities are also several GEF-funded projects in Uzbekistan, despite their overwhelming emphasis so far on biodiversity conservation. They include:

107. GEF/UNDP project 1036 "Conservation of Tugai Forest and Strengthening Protected Areas System in the Amu Darya Delta of Karakalpakstan" aiming to strengthen Karakalpakstan's system of protected areas through the enhanced enabling environment and establishment of a

multi-zoned national park demonstrating the collaborative conservation and sustainable use of biodiversity in Amu Darya Delta and providing lessons and best practices replicable throughout the national protected areas system.

108. GEF/UNDP project 2539 "Assessment of Priority National Capacity Development Needs for Implementation of the Biodiversity Strategy and Action Plan (BSAP) and Establishment of CHM Structures" conceived to (i) assess capacity building needs for the implementation of general measures for *in-situ* and *ex-situ* conservation and sustainable use, including national plans, strategies and legislation, (ii) assess of capacity building needs for initial assessment and monitoring programs, including taxonomy, (iii) design approaches to the implementation of incentive measures, and (iv) assess capacity building needs for access to genetic resources and benefit-sharing.

109. GEF/UNDP project 1774 "National Capacity Needs Self-Assessment for Global Environmental Management" to determine the priority capacity development needs of Uzbekistan in order for it to meet its commitments to global environmental management, specifically in the areas of biodiversity, climate change, and combating desertification.

C. Project Implementation Arrangements

110. MAWR will be the Project's executing agency. A high-level project steering committee with a Deputy Prime Minister as Chairman will provide policy guidance. The Deputy Minister of Water Resources of MAWR will be designated as Project Director with overall responsibility for project implementation. Through the steering committee the Project will have regular contact with MAWR's design institutes (*Uzgip*, *Uzsuvloiykha*) and other stakeholders such as TIIM, *Uzhydromet*, State Committee for Nature Protection, and NGOs. A Project Management Office (PMO) will be established within MAWR to manage project activities and to liaise with ADB and the coordinating bodies. Project implementation units (PIUs) will be established in each of the three project provinces to implement the Project in their respective areas. The PMO will be administered and managed by a full-time project manager and each PIU by a project site manager. The project manager will be nominated by the Government, and endorsed by ADB. The project site managers and key staff will be selected on merit by a panel of experts appointed by the Government.

111. ADB will be the GEF executing agency for the GEF component. GEF funded activities will be integrated into the work of the PMO. The implementation of GEF-cofinanced activities will be led by MAWR and its relevant institutions, with involvement of other government as well as non-government bodies. Sub-component A will be implemented by MAWR and its regional divisions and State Committee for Nature Protection (*Goskompriroda*). Implementation of Sub-component B will be headed by the Water Resources Directorate and design institutions of the MAWR (*Uzgip*, *Uzsuvloiykha*, Basin Irrigation System Authorities) with involvement of regional divisions of the *Goskompriroda*. Specialized agencies and institutions of MAWR and *Goskompriroda* will implement Sub-component C. Sub-component D will be implemented by MAWR, Associations of Water Users and Private and Dekhkan Farmers, ICARDA and local NGOs. MAWR, *Uzgydromet, Goskompriroda* and other relevant organizations at the local, regional and national levels will implement Sub-component E. Consulting services will be provided by an international consulting firm in association with a domestic consulting firm to be engaged by MAWR in accordance with ADB's *Guidelines on the Use of Consultants*. Terms of Reference for Consultants are provided in Annex L.

112. The project is part of the Uzbekistan National Programming Framework and will be coordinated by the National Coordination Council through the Uzbekistan National Secretariat. As the project is part of the CACILM Multicountry Partnership Framework (CMPF), it comes under the CACILM Steering Committee and will be coordinated through the CACILM Multicountry Secretariat. PMO will liaise with the National Coordination Council and through it, with CACILM Secretariat.

113. WUA and farmer beneficiaries will play an important part in the project by becoming involved in planning and operation schemes. Consultative planning, coordinated by PIUs, will be the key tool in ensuring the full participation of rural stakeholders with the Association of Private and Dekhan Farmers and *shirkat* membership fully involved.

Uzbekistan: LAND IMPROVEMENT PROJECT

ANNEXES

Annex A: Incremental Cost Analysis

Baseline	**GEF Alternative** ***(elements of design generating global benefits in italics)***	Domestic benefits of enhanced ('GEF") alternative	Global benefits of GEF alternative	**Incremental cost** of GEF alternative
Main features of Project baseline and the alternative design				
1. Measures Improving policy and incentives environment for SLM	1.1 Measures improving policy and incentives environment for SLM investment	Improved policy environment for SLM investment, facilitating the generation of national productivity and indirect environmental benefits		
	1.2 Additional measures to enhance ability to formulate and support investments that generate global benefits, i.e. • *(1) development of incentive regimes for a sustainable use of marginal (saline) waters and marginal lands in Uzbekistan with region-wide applicability* • *(2) review of the potential for creating special operating and fiscal rules for sub-areas where land rehabilitation offers high environmental benefits;* • *(3) development of proposals for legislative and regulatory support for the conservation of agro-biodiversity, and for protection of ecosystems and landscapes;* • *(4) Assessment of the potential of "payment for environmental services" (PES) as a policy mechanism encouraging the adoption of conservation agriculture in Uzbekistan and Central Asia* • *(5) Training in formulation of land management policies that are informed by global environmental concerns* .		*Social and global environmental benefits of future investment in SLM in Uzbekistan and in the region that more reliably target such environmental benefits while delivering local livelihood improvements*	*Cost of the additional measures to enhance ability to formulate and support investments that generate global benefits (column 2)* $250,000

Baseline	**GEF Alternative** ***(elements of design generating global benefits in italics)***	Domestic benefits of enhanced ('GEF") alternative	Global benefits of GEF alternative	**Incremental cost** of GEF alternative
Main features of Project baseline and the alternative design				
2. Improvement of land, water and agricultural management practices	2.1 Improvement of land, water and agricultural management practices that improve agricultural productivity and quality of soils *2.2 Field testing of methods and techniques of managing return (saline) irrigation water in areas of great economic, cultural and environmental values:* *(1) Introduction and testing of salinity mitigation management through application of the drainage and flood runoff regulations, drainage water reuse schemes and other environmental interventions in the Zeravshan and Kashkadarya River basins,* *(2) Testing of salinity mitigation management using elements of conservation agriculture;* *2.3 Conservation and improvement of wetlands and desert ecosystems around irrigated oases and selected desert depressions as a prototype for SLM in these and similar areas;* *(3) Demonstrating the scope for synergy among biodiversity conservation, carbon sequestration, and land productivity enhancement in dryland ecosystems of Central Asia* *(4) Dissemination of the results and lessons of the pilot activities.*	Lasting improvement in agricultural productivity in Project areas including in marginal areas dependent on re-use water	*(1) Reduced salt and pollutant run-off in parts of the Project area resulting in improvement of surface and groundwater quality in key transboundary river basins* *(2) Enhanced landscapes and ecosystems in areas of global cultural importance*	*Cost of* • *Field testing of methods and techniques of managing return (saline) irrigation water in areas of great economic, cultural and environmental values:* • *Conservation and improvement of wetlands and desert ecosystems around irrigated oases and selected desert depressions* • *Demonstrating the scope for synergy among biodiversity conservation, carbon sequestration, and land productivity enhancement in dryland ecosystems of Central Asia* • *Dissemination of the results and lessons of the pilot activities* $1,600,000
3. Strengthening of land and water management institutions	3.1 Strengthening of land and water management institutions	(1) Enhanced ability of the land and water management institutions to design and support SLM investments that deliver livelihood improvements and environmental gains		

Baseline	**GEF Alternative** ***(elements of design generating global benefits in italics)***	Domestic benefits of enhanced ('GEF") alternative	Global benefits of GEF alternative	**Incremental cost** of GEF alternative
Main features of Project baseline and the alternative design				
		(2) Greater ability to assist the spread of SLM methods in Uzbekistan's agriculture		
	3.2 Developing and mainstreaming environmental analysis and risk assessment of land rehabilitation projects and conservation agriculture into MAWR and related institutions; *(1) Applying the methods of valuing ecosystem conservation in Uzbekistan for local and regional dissemination* *3.3.Scaling up the dissemination of management practices strongly supportive of national and global environmental benefits* *(1) Enlarging the pool of stakeholders involved in training and dissemination of the best in conservation agriculture,* *(2) Support for community based planning and rural awareness program with attention to agro-cultural heritage and gender,* *(3) Public/private study tours to learn from experience of CA*		*Grater investments in land use activities generating global benefits resulting from confidence about the favorable balance of their impacts supported by environmental analysis and risk assessment* *Greater ability of Uzbekistan's land and water management institutions to share experience in introducing SLM activities that have significant positive global environmental impacts* *Greater ability of Uzbekistan's institutions to accelerate local adoption of "globally-friendly" SLM activities*	*Cost of* *- Developing and mainstreaming environmental analysis and risk assessment of land rehabilitation projects and conservation agriculture into MAWR and related institutions* *- Scaling up the dissemination of management practices strongly supportive of national and global environmental benefits* $ 750,000
4. Rehabilitation of land and water infrastructure	4.1 Rehabilitation of land and water infrastructure	Increased farm productivity made possible by sustainable I&D system rehabilitation with indirect environmental benefits of such rehabilitation	*Reduced contamination by salt and pollutants of shared surface and ground waters* *Reduced air transport of salt* *Enhanced landscapes of global importance*	
5. Operational and strengthened project management and monitoring systems	5.1 Operational and strengthened project management and monitoring systems *5.1.Inclusion of a common set of indicators in the Project's*	Improved knowledge of environmental impacts and resulting ability better to calibrate SLM investments	*Improved knowledge by the global*	*Cost of Inclusion of a common set of*

Baseline	**GEF Alternative** ***(elements of design generating global benefits in italics)***	Domestic benefits of enhanced ('GEF") alternative	Global benefits of GEF alternative	**Incremental cost** of GEF alternative
Main features of Project baseline and the alternative design				
	M&E system to monitor environmental variables of local and global relevance *5.2 Design of a unified salinity monitoring database in Uzbekistan; and* *5.3 Mainstreaming the most suitable practices of participatory monitoring of environmental impacts*		*community of the incidence of land degradation in arid ecosystems of Central Asia, the effectiveness of countervailing measures* *Improved ability to communicate with national and international stakeholders and galvanize opinion in favor of protecting the global environmental commons*	*indicators in the Project's M&E system to monitor environmental variables of local and global relevance* *Designing a unified salinity monitoring database in Uzbekistan; and* *Mainstreaming the most suitable practices of participatory monitoring of environmental impacts of global interest* $ 400,000
			Total incremental cost:	**$ 3,000,000**

Annex B: Logical Framework Matrix

Design Summary	Performance Targets/Indicators	Sources/Reporting Mechanisms	Assumptions and Risks
Impact Land degradation is arrested and sustainable land management practices adopted on a larger scale.	Comprehensive Project approach for combating land degradation (including policy change, strengthened institutions, and integrated land management) adopted beyond the project area within five years after project completion.	Government plans and resolutions. CACILM annual reports.	**Assumptions** The Government recognizes the success of project initiatives in enhancing land quality and productivity that improve farmers' incomes and government revenues. Enabling regulatory framework that enhances incentives for improved land management are in place (supported through GEF financing under CACILM). **Risk** The gradual implementation of macro-economic policy reforms is slow to support agricultural sector reforms.
Outcome Agricultural land quality and productivity in the project area are improved	Areas of land with soil salinity and/or water logging decrease from 52,650 ha in 2005 to 21,250 ha in 2011. Cotton yields per ha increase from 2.0t in 2005 to 3.0t within 5 years of project completion. Wheat yields per ha increase from 2.0t in 2005 to 3.5t within 5 years of project completion.	Provincial and district statistics on crop areas, yields and production. Performance monitoring and evaluation by PMO (socioeconomic, agricultural and environmental surveys). Annual soil and water quality monitoring by the State Hydro Geological Monitoring Expedition.	**Assumption** Reliable supply of irrigation water in the project areas is maintained. **Risk** Private sector does not develop at a sufficient pace to support farmers to fully realize benefits from project level policy reforms.

Design Summary	Performance Targets/Indicators	Sources/Reporting Mechanisms	Assumptions and Risks
Restoration of normal ecological functioning of rehabilitated lands resulting in local and wider environmental benefits	Carbon storage per hectare increases (targets to be identified) Agro-biodiversity increases (indicators and targets to be identified)	Project environmental monitoring program	
Outputs 1. <u>Implemented policy reforms:</u> Enhanced production incentives including freedom to choose cropping patterns, deregulated marketing of produce, and improved land tenure.	Cotton and wheat quota reduction to 25% implemented in project area by 2008. Procurement prices for cotton and wheat adjusted annually to international prices. Crop production and marketing of above quota agriculture produce decided independently by the farmers in the project area. Land use contracts of private farms in the project area improved and registered to ensure protection of farmer's land use rights.	Government resolution to implement agreed reforms in project districts. Surveys and results of consultations with farmers (monitored by TA).	**Assumptions** Broad based commitment and political will for policy reforms. Farmers are fully aware of the agricultural and water sector reforms in the project areas. Farmers land use rights and free choice of crops are fully respected by local authorities. Conservation agriculture practices replicated to 10,000 ha through GEF cofinancing. Mandates of institutions responsible for sustainable land management are clear. **Risks** Local government institutions' capacity remains inadequate. Local government
2. <u>Improved management practices:</u> adoption of integrated land reclamation, water and land management practices.	Improved on-farm water management and agronomic practices adopted by 1,130 farmers on 33,890 ha by 2011. Area of alternative crops increased from 14,350 ha in 2005 to 15,030 ha by 2011. Conservation agriculture practices introduced on 1,000 ha of salt affected land by 2011	Agricultural and environmental survey data and findings by PMO. Annual soil and water quality monitoring by the State Hydro-melioration Expedition.	

Design Summary	Performance Targets/Indicators	Sources/Reporting Mechanisms	Assumptions and Risks
3. Increased institutional capacity: strengthened Government and non-government water management institutions.	MAWR management, and O&M capacity upgraded and the rehabilitated main systems operated and maintained to design parameters. 3 BISA providing effective and timely irrigation water supplies (as per signed contracts) to WUAs by 2011. 15 WUAs effectively functioning in the project area and responsible for the on-farm O&M by 2011.	Performance monitoring and evaluation by PMO (socioeconomic, agricultural and environmental survey data and findings).	officials continue to interfere in activities of private farmers. Competitive input and produce marketing systems are established at slow pace. Rehabilitated irrigation and drainage schemes not maintained adequately due to lack of financial resources and/or technical skills.
4. Rehabilitated land and water infrastructure: drainage network and irrigation control structures.	Irrigation efficiency increased from 37 % in 2005 to 57 % by 2011. Area with medium salinity reduced from 31,700 ha in 2005 to 9,900 ha by 2011. Area with poor drainage reduced from 109,300 ha in 2005 to 52,100 ha in 2011.	Project performance monitoring and evaluation system Annual soil and water quality monitoring by the State Hydro-melioration Expedition.	
5. Operational and effective project management and monitoring systems.	Timely and comprehensive reporting of PMO that reflects accurately project implementation. Timely implementation of project policy, institutional and physical interventions. Consultation campaigns at national/district levels designed and carried out. Monitoring, by international organizations, and elected representatives the policy agenda implementation.	Project and TA monitoring and evaluation system records.	

Activities with Milestones	Inputs ($million)
1. Enhanced incentives for farmers to invest in land improvement 1.1 Prepare program for phased implementation of the agreed policy reforms. 1.2. Assist the Government to undertake institutional reform and capacity building to enable local authorities to implementation the agreed policy reforms and ensure a common interpretation of reforms in the project area; 1.3 Support the Government in drawing up relevant regulations and programs in	Total Project $80.18 ADB Loan 1. ADB (OCR) $32.6 2. ADB (ADF) $27.6 3. National

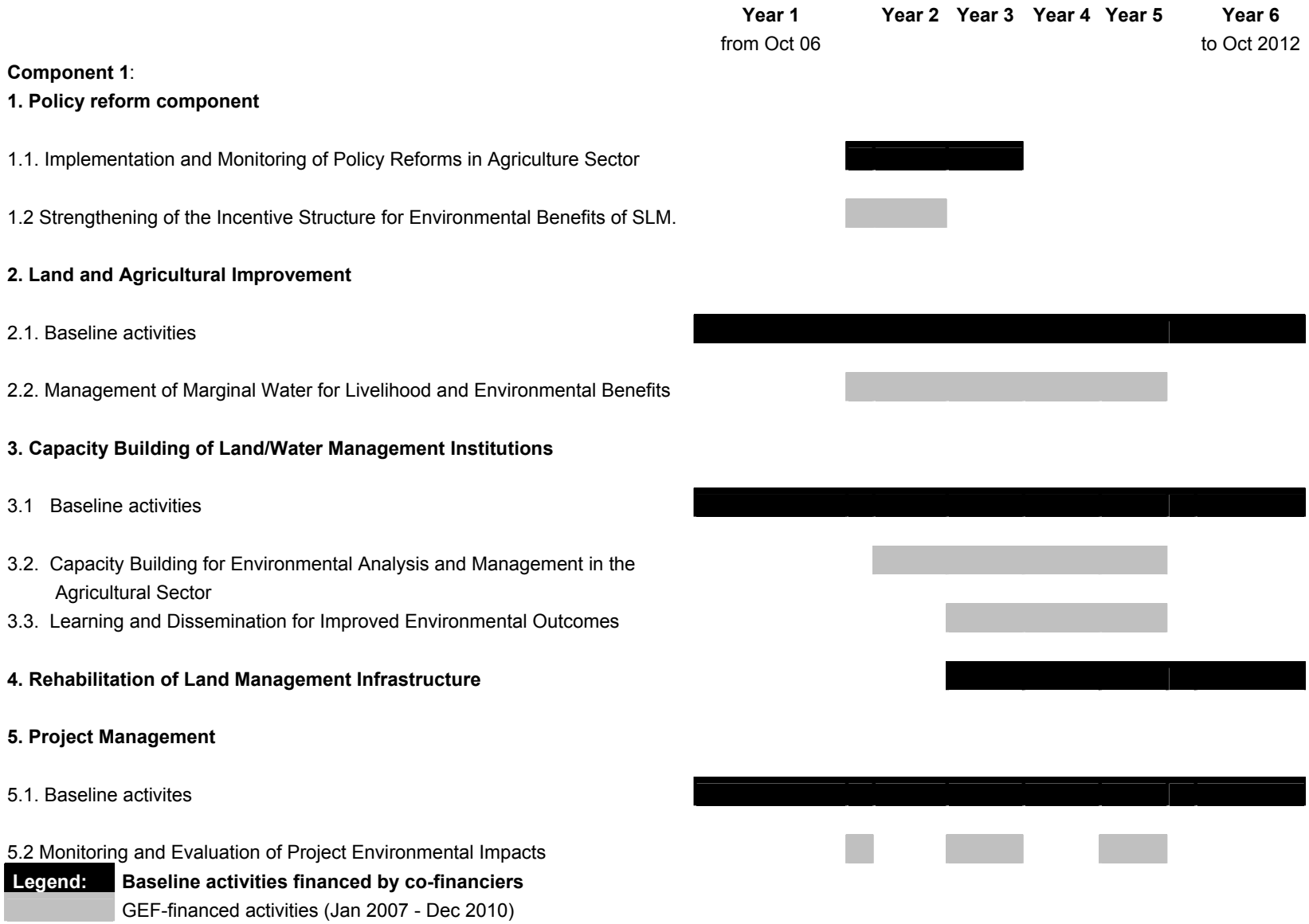
Activities with Milestones	Inputs ($million)
order that the proposed policy reforms can be effectively implemented; 1.4 Review the impact of agreed policy reforms upon crop production, farm productivity and incomes, and Government revenues. *1.5 Establish a system for the monitoring and evaluation of policy reforms that involves participatory consultation with key stakeholders, including civil society and elected representatives, and that can be applied during/after completion of the TA. Milestones: Reforms start in 2007 and monitored throughout project implementation.* ***2. Adoption of improved land, water and agricultural management practices*** 2.1 Establish and operate demonstration farms and training to promote: (a) improved on-farm land improvement technologies (e.g. land leveling, sub-soiling); (b) innovative on-farm irrigation technologies for efficient water management; (c) better practices (e.g. improved varieties, and integrated pest management); (d) alternative cropping systems, crop rotations and crop diversification; and (e) improved farm business management skills. *Milestones: Demonstration farms established during first two years.* 2.2 Demonstrate and replicate conservation management techniques of salt affected lands (GEF funded). *Milestones: Start in 2008 and operational through out the project.* ***3. Strengthened water management institutions*** 3.1 Carry out capacity building of Basin Organizations through staff training, introduction of improved management and O&M procedures, adoption of an integrated water resources management, and enhancement of service provision. 3.2 Carry out capacity building of WUAs through the introduction of improved O&M practices, and adoption of innovative irrigation techniques, as well as the development of the technical and financial capacity of WUAs; 3.3 Carry out Capacity building of MAWR Departments through the training of staff in the improved new land/water management technologies and agronomic practices. *Milestones: Training and capacity building program implemented between mid 2007 and 2011. WUAs developed and members trained between mid-2007 and 2011.* ***4. Rehabilitated Land and Water Infrastructure*** 4.1 Rehabilitate main I&D systems and key structures for the improved systems' efficiency and timely delivery of water. 4.2 Rehabilitate on–farm I&D infrastructure including irrigation and drainage canals for improved management and equitable delivery to farmers. *Milestones: Survey and design undertaken between 2nd quarter 2007 and mid-2009. Contractors appointed between 4th quarter 2008 and mid-2009. Rehabilitation works commence in 2008 and completed by 2011.* **4.3 Introduce improved O&M management practices for farmers, WUAs and MAWR.** 4.4 Adopt efficient and equitable water management practices. *Milestones: Training and demonstration of improved water management commences at 3rd quarter of 2009 and completed by 2011.*	Government 15.58 4. Beneficiaries $0.4 5. GEF $3.0 6. ADB Technical Assistance $0.8 7. National Government $0.2

Activities with Milestones	Inputs ($million)
5. Operational and strengthened project management and monitoring systems	
5.1 Establish project management office (PMO) in MAWR and three project implementation units (PIUs).	
5.2 Procure consultancy services to provide support to PMO/PIU.	
5.3 Establish project performance monitoring systems (including social and environmental monitoring).	
Milestones: PMO and PIU established and consultants recruited end 2006. Project performance monitoring and evaluation commences in mid-2007.	

Annex C: Estimated Costs

LIP components	Co-finance	GEF	Sub-total cost
1. Policy reform component			
1.1. Implementation and Monitoring of Policy Reforms in Agriculture Sector	1,000,000		
1.2 Strengthening of the Incentive Structure for Environmental Benefits of SLM.		250,000	
Sub-total			1,250,000
2. Land and Agricultural Improvement			
2.1. Baseline	1,690,000		
2.2. Management of marginal water for livelihood and environmental benefits		1,600,000	
Sub-total			3,290,000
3. Capacity Building of Land/Water Management Institutions			
3.1 Baseline	580,000		
3.2. Capacity building for environmental analysis and management in the agricultural sector		300,000	
3.3 Learning and dissemination for improved environmental outcomes		400,000	
Sub-total			1,280,000
4. Rehabilitation of Land Management Infrastructure	54,340,000		54,340,000
5. Project Management			
5.1. Baseline	5,850,000		
5.2 Monitoring and evaluation of Project environmental impacts		450,000	
Sub-total			6,300,000
Sub-total	63,460,000	3,000,000	66,460,000
Contingencies	8,970,000		8,970,000
Financial Charges	4,130,000		4,130,000
Commitment Charges	620,000	0.0	620,000
Total	**77,180,000**	**3,000,000**	**80,180,000**

Annex D: Work Plan



Annex E: Monitoring and Evaluation Plan

Objectives	Key performance indicator target at Project's end	Baseline	Critical benchmarks and target dates	Sampling frequency
Project objective: Restoration, maintenance and enhancement of the productive functions of land leading to improved economic and social well-being and preservation of environmental functions of these and other lands.				
Outcome 1: Improved agricultural land quality and productivity in the project area	Cotton yields per ha increase from 2.0t in 2005 to 3.0t within 5 years of project completion.	Situation in 2005.	The 2007-2009 average cotton yield in Project area to increase at least to 2.4 tons/ha	Annual assessment under Project M&E system.
	Wheat yields per ha increase from 2.0t in 2005 to 3.5t within 5 years of project completion.	Situation in 2005.	Average wheat yields to increase to at least to 2.4 tons/ha by the end of 2009 and 2.8 ha by the end of 2011.	As above
Outcome 2: Restoration of normal ecological functioning of rehabilitated lands resulting in local and wider environmental benefits	Areas of land with soil salinity and/or water logging to decrease from 52,650 ha in 2005 to 21,250 ha in 2011.	Situation in 2005	Decrease from 52,650 to no less than 45,000 by mid-point in project implementation (end of 2009)	Annual assessment under project M&E system.
	Average depth of water table in project command area of 109,000 ha to increase by at least 15%	Weighted average of the period 2000-2005	No increase in water table anywhere in project area by the end of 2009.	Periodic monitoring introduced under the project
	Average organic content of soil to increase by 10 per cent in project command area	Latest available figures from project sub-locations	No decrease in the average organic content of soil in project command area by the end of the project	Periodic environmental monitoring introduced under the project. Subsequent monitoring under SLMIS
	Area under fodder and salt tolerant crops to increase by 30	The initial year of the project	Area under fodder and salt tolerant crops to increase by 10	Periodic survey under the project's environmental

Objectives	Key performance indicator target at Project's end	Baseline	Critical benchmarks and target dates	Sampling frequency
	per cent by the project's end. Average mineralization of irrigation water in downstream project areas to be reduced by 10% within 5 years of project completion Carbon storage per hectare increases (targets to be identified) Agro-biodiversity increases (indicators and targets to be identified)	 Averages of 2003-2005 Baseline established in first year of project inception Baseline established in first year of project inception	per cent by the end of 2009. No increase in the mineralization of irrigation water in downstream project areas to be observed by the project's end.	monitoring component. Periodic monitoring introduced under the project
Output 1: 1. <u>Implemented policy reforms:</u> Enhanced production incentives including freedom to choose cropping patterns, deregulated marketing of produce, and improved land tenure.	Cotton and wheat quota reduced to 25% of total output in project area of 162,000 ha by 2008. The ratio of procurement prices of cotton and wheat to international price equivalents to increase throughout the project implementation period. Improved and registered land use contracts of private farms in the project area to reach 75 per	Situation in 2005 As above Situation in 2005	 Improved and registered land use contracts of private farms in the project area to reach 40 per	Annual project monitoring Annual project monitoring As above

Objectives	Key performance indicator target at Project's end	Baseline	Critical benchmarks and target dates	Sampling frequency
	cent of the total contracts or 50 per cent of the total Project area by the end of the Project.		cent of the total contracts or 25 per cent of the total Project area by the end of 2009.	
Output 2: Improved management practices: adoption of integrated land reclamation, water and land management practices.	Improved on-farm water management and agronomic practices adopted on 33,890 ha by 2011.	Situation in 2005	Improved on-farm water management and agronomic practices adopted on at least 10,000 ha by the end of 2009.	Regular monitoring under Project M&E system
	Area of alternative crops increased by at least 10 per cent by the project's end.	As above	Area of alternative crops increased by at least 5 per cent by the end of 2009.	As above
	Conservation agriculture practices introduced on 10,000 ha of salt affected land by 2011	As above	Conservation agriculture practices introduced on at least 3,000 ha of salt affected land by the end of 2009.	As above
	Use of recycled irrigation water introduced on 10,000 ha of arable land by the end of the project	As above	Use of recycled irrigation water introduced on 3,000 ha of arable land by the end of 2009.	As above
Output 3: Increased institutional capacity: strengthened Government and non-government water management institutions.	100 per cent of upgraded and the rehabilitated main systems operated and maintained to design parameters throughout Project life and thereafter.	Baseline defined by the length of the main system rehabilitated in any given year.		Regular monitoring under Project M&E. MAWR monitoring thereafter.

Objectives	Key performance indicator target at Project's end	Baseline	Critical benchmarks and target dates	Sampling frequency
	3 BISA providing effective and timely irrigation water supplies (as per signed contracts) to WUAs by 2011.	Situation in 2005	No less than 60 per cent of areas undergoing on-farm rehabilitation to have effectively functioning WUAs responsible for the on-farm O&M by the end of 2009.	Regular monitoring under Project M&E
	100 per cent of areas undergoing on-farm rehabilitation to have effectively functioning WUAs responsible for the on-farm O&M by 2011.	Situation in 2005		Regular monitoring under Project M&E
Output 4: <u>Rehabilitated land and water infrastructure:</u> drainage network and irrigation control structures	Irrigation efficiency in the project area increased from 37 % in 2005 to 57 % by 2011.	Situation in 2005	Irrigation efficiency in the project area increased to 45 % by the end of 2009.	Regular monitoring under Project M&E
	Area with medium salinity reduced from 31,700 ha in 2005 to 9,900 ha by 2011.	Situation in 2005	Area with medium salinity reduced to 25,000 ha by the end of 2009.	As above
	Area with poor drainage reduced from 109,300 ha in 2005 to 52,100 ha in 2011.	Situation in 2005	Area with poor drainage reduced to 80,000 ha by the end of 2009.	As above
Output 5: <u>Operational and effective project management and monitoring systems</u>	Timely and comprehensive reporting of PMO that reflects accurately project implementation.			Prescribed progress and other reports under project and loan agreements

Objectives	Key performance indicator target at Project's end	Baseline	Critical benchmarks and target dates	Sampling frequency
	Timely implementation of project policy, institutional and physical interventions.			Periodic monitoring by international organizations, and elected representatives of the policy agenda implementation

Annex F: Public Participation Plan

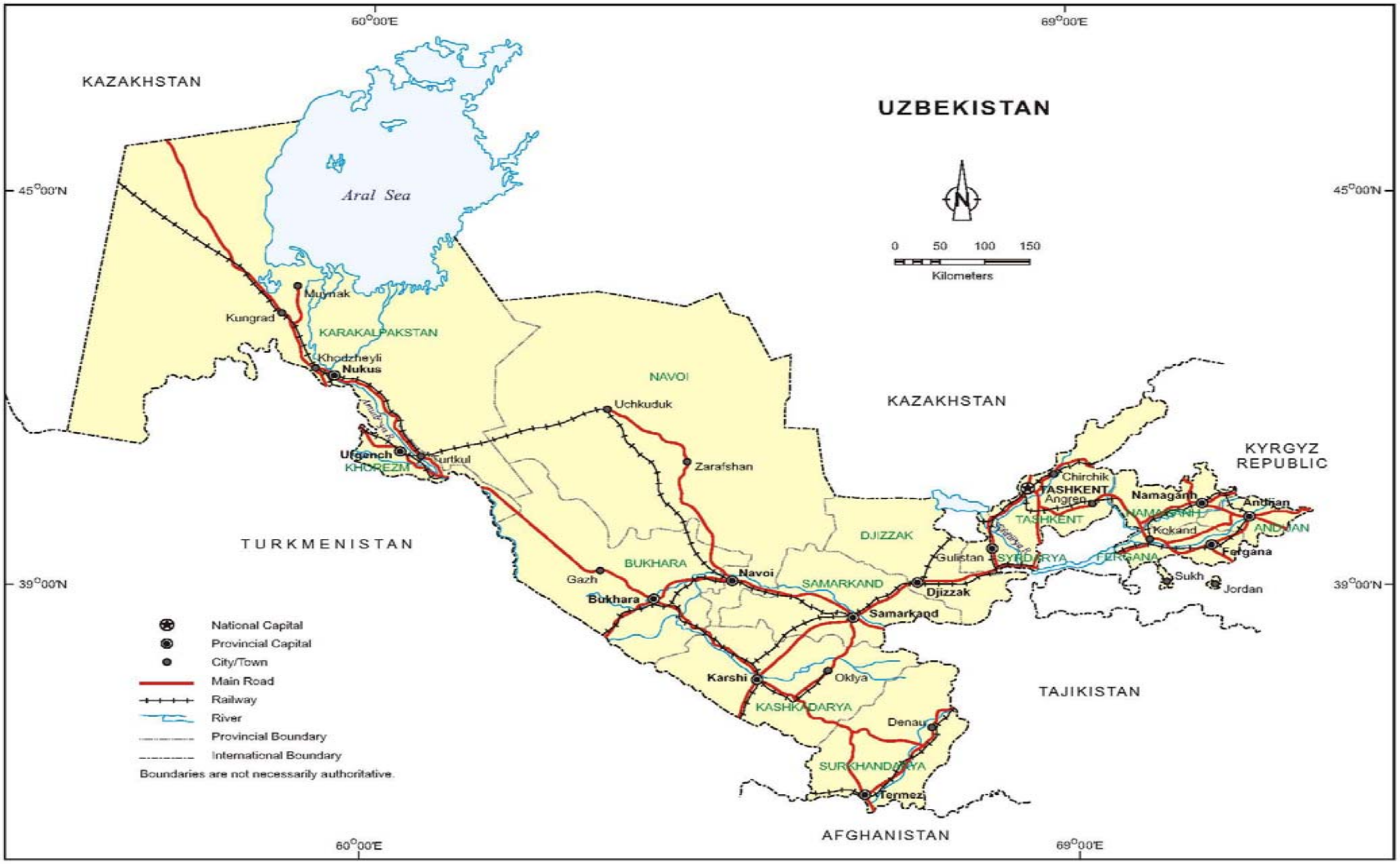
Project components	Stakeholders	Capabilities/ current role	Interest in LIP	Possible conflicts/mitigation strategy
Implementation of policy reforms	**Primary stakeholders**			
	Cooperative farmers	Daily experience of land management	To see LIP facilitate further reforms of agriculture that improves livelihoods	Possible resistance of some to the prospect of disappearance of the inefficient but secure *shirkat* environment
	Private farmers	Daily experience of land management, appetite for risk and new ways of doing things	To see the initial reforms of the sector deliver expected livelihood benefits	.
	Central Government		To increase food security, protect foreign exchange earning, reduce demands on the budget from farm and O&M subsidies, reduce poverty	Reluctance among some to see the role of state in production control diminished and the source of easy tax revenue (via state procurement prices) lost.
	MAWR and its specialized institutes	Mandated responsibilities in own technical areas but a limited experience of integrated land use planning and management	To help create an environment conducive to investment in increasing and maintaining land productivity	
	ADB	Body of experience with program-based and policy-based lending	A chance to improve policy environment hand in hand with Improvement of livelihoods and environment	
	GEF	Experience of supporting a re-alignment of institutions and policies in search of global environmental benefits environmental dimensions	To contribute to creation of a policy setting that encourages a local outcome more favorable to global environment outcomes	
	Secondary stakeholders			
	State Committee on Nature Protection (*Goskompriroda*)	Protection and management of the environment. Limited role in the	To help create conditions for a more environmentally-	

Project components	Stakeholders	Capabilities/ current role	Interest in LIP	Possible conflicts/mitigation strategy
		management of agricultural land	sensitive use of irrigated lands in Uzbekistan	
	Local governments	Until now, a major influence on agriculture production decisions and on local land use in general	Defend and increase local tax revenue, protect influence	Policy reform may be seen to undermine local government's influence. Policy dialogue by the donors and central governments needed
	NGOs, civil society	Contacts with local population and some experience with facilitation of change	To see a policy environment that creates more opportunities for NGOs to contribute to livelihood and environmental improvements	
	Other development partners	Experience of development projects similar to LIP	See LIP as a tool of further improvement of enabling environment.	
Improvement of land, water and agricultural management practices, ***Rehabilitation of land and water infrastructure***	**Primary stakeholders**			
	Cooperative farmers, *dehkan* farmers	Daily experience of land management	To improve livelihoods, provide for own families, pass on inheritance	Rural households may find the proposed interventions ineffective or unresponsive. Solutions to be found in participatory design.
	MAWR	Project-executing responsibilities supported by uneven management and other skills.	To help deliver productivity and other benefits, be seen to be effective	
	ADB	Wide-ranging experience of financing and helping implement irrigation rehabilitation in Asia	To contribute to improved livelihoods, positive environmental outcomes	
	GEF	Experience in supporting field interventions that deliver global environmental benefits	To see LIP contribute to outcomes favorable to global environment	
	Secondary stakeholders			
	Local government	Direct influence over production,	To see if the Project can improve	LIP seen as introducing major

Project components	Stakeholders	Capabilities/ current role	Interest in LIP	Possible conflicts/mitigation strategy
		implementation of the state procurement system	rural livelihoods while preserving local governments' influence	changes to the traditional way of "doing business". Offering a different but constructive role for LGs in supporting agriculture is needed
	State agro-processing enterprises	Traditional outlet for much of the local agricultural output	To increase the availability of agricultural produce	The Project liberalization of marketing may be seen as a threat
	Private traders	Growing experience of the markets	Greater marketing surplus	
	NGOs, civil society	Some experience in selected aspects of land management.	To get more opportunities to participate in and shaping rural development	Risk of "one-issue" bias in the work of NGOs. Consultation, attention to TOR and monitoring required.
	Water user associations	Early but insufficient experience of on-farm water- and financial management	Improve and safeguard water delivery to farms	The imprint of old ways of managing water too strong. Patient but principled insistence on WUAs' duties needed
	Goskompriroda	Protection of the environment	To see field interventions that contribute to land rehabilitation and mitigation of negative effects	
Strengthening of land and water management agencies	**Primary stakeholders**			
	MAWR and its specialized institutes	Sectoral duties with a heavy production-oriented focus	To seize capacity-building opportunities offered by LIP	
	ADB	Experience of capacity building of agriculture-related institutions	To equip MAWR to deal with post-collectivized conditions and environmental demands.	
	GEF	Support of institutions to facilitate delivery of global environmental benefits	To make Uzbekistan's institutions better able to deal with global environmental aspects of land management	

Project components	Stakeholders	Capabilities/ current role	Interest in LIP	Possible conflicts/mitigation strategy
	Secondary stakeholders			
	Development partners active in land management and environmental protection	Experience of rural development and environmental protection initiatives, experience of project and program administration	To benefit from stronger national institutions in implementing own projects	
Rehabilitation of land and water infrastructure	**Primary stakeholders**			
	Cooperative and private farmers in command areas	Daily experience of land and water management	To see improved and more secure supplies of irrigation water and reduced threat of salinity	
	WUAs	Initial but insufficient experience of on-farm water- and financial management	To see secure supplies of irrigation water and drainage infrastructure	
	MAWR	Principal responsibilities for, and substantial experience in, the provision of irrigation and drainage	To create preconditions for improved and sustained farm productivity	
	ADB	Experience if irrigation rehabilitation throughout Asia	As above	
	Secondary stakeholders			
	National Government	It has traditionally given a prominent place to irrigation infrastructure	To see the I&D conditions improve with all the positive repercussions of such an improvement	
	Local governments	They have traditionally complemented central government's support for I&D infrastructure by enforcing state-imposed patterns of agricultural production	As above	

Project components	Stakeholders	Capabilities/ current role	Interest in LIP	Possible conflicts/mitigation strategy
Effective Project management and monitoring	**Primary stakeholders**			
	MAWR	Experience of implementing and monitoring state-financed and donor c-financed projects in the sector.	To ensure effective implementation of the Project	
	ADB	Asia-wide experience of implementing rural development and irrigation rehabilitation projects with expanding M&E content	To satisfy a range of M&E requirements. To develop national ability to communicate results of M&E	
	GEF	Experience of co-financing projects at the agriculture-environment divide and monitoring their environmental impacts	To ensure that the Project's environmental impacts are assessed and lessons made available to GEF and civil society	
	Secondary stakeholders			
	Civil society	Until now, limited participants in the national debate abut the patterns of agricultural development and land use management	To be informed about the Project's impacts and gain confidence in the results' reliability and objectivity	
	Development partners	Experience in monitoring and evaluation of own project including some experience of participatory M&E	To learn from the experience of LIP	



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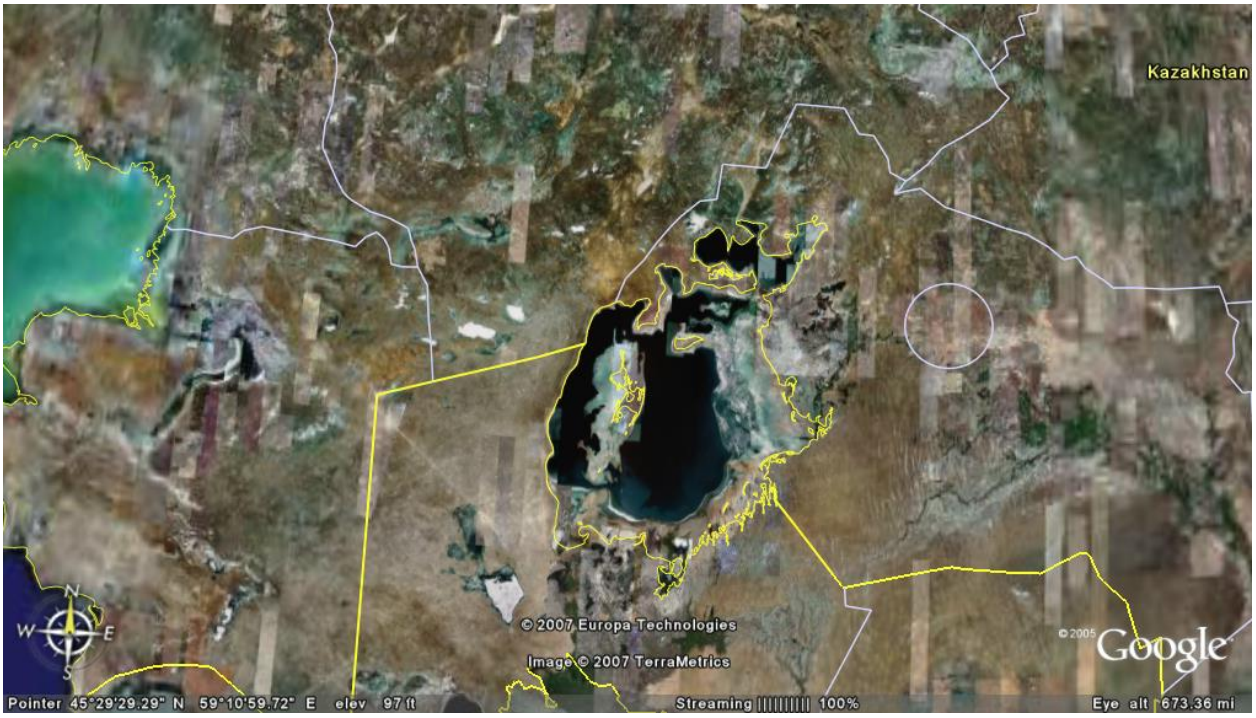
Annex I: Recent Image of the Aral Sea



Annex J: Recent and Ongoing Projects Targeting Land Degradation and Related Concerns in Uzbekistan

Code	Project Title	Funding Agency	Project Duration	Project Cost	Implementing Agency/ Local Counterpart
	Environment				
	1.1. General				
UZB	1.1.1 Environment Program *Atrof-Muhit*	UNDP	2001-2004	0.64	State Committee for Nature Protection
UZB	1.1.2 Environmental Indicators to Monitor the State of the Environment	UNDP	2004-2005	0.10	State Committee for Nature Protection
UZB	1.1.3 Good Governance Program	OSCE	2005	0.33	OSCE Tashkent Center
	Sub-total Env General			**1.07**	
	1.2. Air				
UZB	1.2.1. Country Study of Climate Change (Phase I and II)	GEF		0.42	UNDP
UZB	1.2.2. Program for Phasing out Ozone Depleting Substances	GEF		3.41	UNDP
	Sub-Total Air			**3.84**	
	1.3. Biodiversity				
UZB	1.3.1. Nuratau-Kyzylkum Biosphere Reserve	GEF; UNDP; NABU	2001-2005	0.90	BioControl within State Committee for Nature Protection
UZB	1.3.2. Central Asia Transboundary Biodiversity Project (KA-KY-UZ)	GEF	1999-2004	13.65	GEF; Governments of Kazakhstan, Kyrgyzstan, Uzbekistan
UZB	1.3.3. National Biodiversity Strategies, Action Plan and the First Report to CBD	GEF		0.18	UNDP
UZB	1.3.4. West Tien Shan Biodiversity Conservation Project (Phase-II)	EU TACIS	2004-2006	n.a.	ARCADIS, Mott MacDonald, MNT Consulting
UZB	1.3.5. Assessment of Priority National Capacity Development Needs for Implementation of the BSAP and Establishment of CHM Structures	GEF	2004-2006	0.232	State Biological Control; State Committee for Nature Protection
UZB	1.3.6. National Capacity Self-Assessment for Global Environmental Management	GEF	2003-2005	0.24	Main Administration of Hydrometeorology
UZB	1.3.7. In Situ/On Farm Conservation and Use of Agricultural Biodiversity (Horticultural Crops and Wild Fruit Species) in Central Asia (KA-KY-TA-TU-UZ)	GEF	2005-2010	12.24	UNEP; Ministries and/or agencies of environmental protection of CA States
UZB	1.3.8. Development of the Econet for Long-term Conservation of Biodiversity in the Central Asia Ecoregions (KA-KY-TA-TU-UZ)	GEF	2003-2005	0.75	UNEP; Ministries and/or agencies of environmental protection of CA States
	Sub-Total Biodiversity			**28.19**	
	1.4. Desertification / Land				
UZB	Land Improvement Project (TA phase)	ADB	2004-2005	0.55	Ministry of Agriculture and Water Resources

Code	Project Title	Funding Agency	Project Duration	Project Cost	Implementing Agency/ Local Counterpart
UZB	Rendering Assistance to the Agricultural Private Sector of Uzbekistan and Forest Amelioration of the Dried bottom of the Aral Sea	GTZ	1995-2006	0.00	State Committee for Nature Protection of Karakalpakstan
UZB	Integrated Management for Sustainable Use of Salt Affected and Gypsiferous Soils and Field Farmer School Component	FAO	2002-2005	0.36	Ministries of Agriculture and Water Resources, Uzgipromeliovodkhoz Institute
UZB	Sustainable Agriculture Practice in the Drought-affected Regions of Karakalpakstan	FAO	2003-2005	0.37	Ministries of Agriculture and Water Resources, SANIIRI / ICARDA
UZB	Enhanced productivity of cotton-wheat system through the adoption of conservation agriculture practice	FAO	2004-2005	0.36	Ministries of Agriculture and Water Resources, TIIM University
REG	Stabilization of desiccated Aral Sea Areas in Central Asia - Option for continuation from 2006 on for financial cooperation and co-financing (continuation of Aral Sea Project in Uzbekistan)	BMZ	2005 - open	3.800	Ministries of Agriculture in Uzbekistan and Administration of the Kyzylorda Region in Kazachstan, evtl. in context with CACILM
REG	Regional Project "Support to the Implementation of the UN Convention to Combat Desertification (UNCCD) in Asia"	BMZ	2001-2007	5.200	GTZ Coordination Offices in Countries
REG	Sustainable locust management in Central Asia (Kazakhstan and Uzbekistan)	BMZ	2003-2007	2.000	Ministries of Agriculture in Kazakhstan and Uzbekistan
UZB	Promotion of ecologically sustainable agriculture and from 2001 onwards: Recultivation of dry beds in the Aral Sea and promotion of private agriculture and agro-business - continued with a regional project in Kazakhstan and Uzbekistan	BMZ	1995-2004 (Completed)	8.80	Ministry of Agriculture in Uzbekistan
UZB	Central Asian Countries Initiative for Land Management (CACILM) (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan)	GEF; Bilateral; Governments	2006 - 2009		ADB
UZB	Economic and Ecological Restructuring of Land- and Water Use in the Region Khorezm (Usbekistan): A Pilot Project in Development Research: Second phase from 2002-2006 approved	German Government (BMBF)	2001-2011 all programm phases	1.300	Ministry of Agriculture and Water Resources (MAWR); UNESCO; ZEF; DLR
	Sub-Total Land			**22.74**	
	1.6. Energy				
UZB	1.6.1. Clean Energy for Rural Communities in Karakalpakstan	UNDP; Energy TTF	2003-2005	0.20	State Committee for Nature Protection of Karakalpakstan
UZB	1.6.2. Transfer of Technology for Local Production of Solar Panels for Water Heating	DANIDA; Nordic Trust Fund	2003-2005	0.35	Tashkent Municipality
	Sub-Total Energy			**0.55**	

Code	Project Title	Funding Agency	Project Duration	Project Cost	Implementing Agency/ Local Counterpart
	1.7. Agriculture				
UZB	1.7.1. Rural Enterprise Support Project	WB	2001-2006	36.14	Ministry of Agriculture and Water Resources
UZB	1.7.2. Ak Altyn Agricultural Development Project	ADB	2001-2004	36.00	Ministry of Agriculture and Water Resources
UZB	1.7.3. Karakalpakstan Rural Development Project	JICA	2005-2008	0.00	Karakalpakstan Council of Ministers
REG	Training of professional and managerial staff in the agricultural sector in Central Asian Countries	BMZ	2006-2014	2.200	University of Applied Sciences at Weihenstephan-Triesdorf, Germany in cooperation with Agricultural Universities in 5 Central Asian Countries
REG	Regional Network to Promote Wheat Growing and Seed Production in Central Asia	BMZ	2002-2005 (completed)	1.600	Agricultural Ministries and agircultural depatments, Governmental seed research institutions and seed mulitpliers in cooperation with CYMMIT; Ministries of Agriculture in KAZ, UZB and TAJ
UZB	Economic develpment in selected regions of Uzbekistan (Sustainable Land Use Component in Karakalpakstan)	BMZ	2005 - 2011	1.200	Ministerial Cabinet in Uzbekistan, Ministry of Agriculture and regional government of Karakalpakstan
	Sub-Total Agriculture			**77.14**	
	2. WATER				
UZB	2.1. Bukhara and Samarkand Water Supply and Sanitation Project	WB; SECO	2002-2007	40.90	Bukhara and Samarkand Vodokanals
UZB	2.2. Rural Water Supply and Sanitation	WB	1997-2005	75.00	Goskomprognostat
UZB	2.3. Drainage, Irrigation and Wetlands Improvement Project (Phase-I)	WB	2003-2010	60.00	Ministry of Agriculture and Water Resources; Mott MacDonald&Temelsu
UZB	2.4. Amu-Zang Irrigation Rehabilitation Project	ADB	2004-2009	73.00	Ministry of Agriculture and Water Resources
UZB	2.5. Western Uzbekistan Rural Water Supply Project	ADB	2002-2005	38.00	Ministry of Economics
UZB	2.6. Urban Water Supply	ADB	2001-2007	36.00	Uzbek Communal Services Agency
UZB	2.7. Rural Water Supply	SDC	2004-2006	1.70	International Secretariat for Water
UZB	2.8. Aral Sea Area Drought Relief	ADB	2002	0.15	Ministry of Economy
UZB	2.9. Affordable Services and Water Conservation for the Urban Poor	ADB	2004-2006	1.50	Ministry of Economy
UZB	2.10 Drinking water supply in Chorezm. Improving healthcare in various districts by developing the drinking water supply	Germany/Kreditanstalt	1995-2005	13.800	Ministerial cabinet, operating company AIK Obi Hajet
UZB	2.11. Central Asia Regional Water Information base (CAREWIB) (KA-KY-TA-TU-UZ)	SDC	2003-2006	0.29	SIC ICWC; GRID-Arendal; UNECE-SPECA
UZB	2.12. Regional Center for Hydrology (KA-KY-TA-TU-UZ)	SDC	2002-2003	1.50	Swiss Federal Office for Water and Geology

Code	Project Title	Funding Agency	Project Duration	Project Cost	Implementing Agency/ Local Counterpart
UZB	2.13. Ferghana Valley Canal Automation Project (KY-TA-UZ)	SDC	2002-2005	1.30	Basin Water Organization "Syrdarya"
UZB	2.14. Integrated Water Resources Management (TA-KY-UZ)	SDC	2001-2005	2.30	SIC ICWC; IWMI
UZB	2.15. Water Resources Management Training Project in Central Asia (KA-KY-TA-TU-UZ)	CIDA	2000-2005	1.50	SIC ICWC; McGill University; Mount Royal College (Canada)
UZB	2.16. Central Asia Natural Resources Management Project (KZ-TA-KY-UZ)	USAID	2000-2005	35.00	PA Consortium
UZB	2.17. Water User Association Support Program (KY-TA-UZ)	USAID	2004-2007	25.00	Winrock International, US AED; New Mexico State University
UZB	2.18. Integrated Water Resources Management in Lowlands and Deltas of the Aral Sea Basin (KA-TU-UZ)	US State Department	2004-2005	0.12	SIC ICWC
UZB	2.19. Regional-Focused Training Course "Promotion of Water Users' Associations"	JICA	2004-2008	0.00	Tsukuba International Center, Japan
UZB	2.20. Economic and Ecological Restructuring of Land and Water Use in Khorezm Region	German Government (BMBF)	2002-2006	1.30	Ministry of Agriculture and Water Resources (MAWR); UNESCO; ZEF; DLR
UZB	2.21. Development of International MSc Program on Environment and Water Resources Management in Central Asia (EWASIA)	EU TEMPUS	2003-2006	0.50	Wageningen University;Tashkent Institute of Irrigation and Amelioration
UZB	2.22. Central Asia Water Resources Management and Agricultural Production (WARMAP) Project (KZ-KY-TA-TU-UZ)	EU TACIS	1995-1997	4.75	
UZB	2.23. Water and Environmental Management in the Aral Sea Basin (KA-KY-TA-TU-UZ)	GEF; the Netherlands, EU TACIS	1998-2003	22.80	GEF Project Agency for Implementation of GEF and ASB Projects
UZB	2.24. United Nations Special Program For the Economies of Central Asia (SPECA)	UNECE, UNESCAP		0.00	Governments of Central Asian States
UZB	2.25. Improving Irrigation Water Use Efficiency and Water Quality in Uzbekistan	STCU	2003-2006	0.30	National Cotton Growing Research Institute; Veterinary Research Institute
UZB	2.26. Cooperative International Study of Contamination of the Transboundary Rivers in Central Asia	STCU	2003-2006	0.15	Institute of Nuclear Physics
	Sub-Total Water			**436.86**	

Annex K: Recently Completed or Ongoing Projects of Greatest Relevance to LIP

"Sustainable management practices in the drought-affected region of Karakalpakstan" (FAO/TCP/UZB/2903). This FAO-financed project aims to demonstrate alternative, profitable and more sustainable forms of agricultural production methods such as appropriate water and soil conservation practices and CA for small independent farmers in Karakalpakstan, where water is a very scarce, valuable and a diminishing resource. The project will also support the international community's efforts to find solutions for this poor and struggling region, where the livelihoods of a largely rural population have been destroyed by the repeated droughts.

"Integrated Management for Sustainable Use of Salt Affected and Gypsiferous Soils in Uzbekistan" (FAO/TCP/UZB/2901). This FAO-financed project aimed to assist the GOU to introduce and demonstrate low cost, low risk management techniques for the rehabilitation and improvement of salt affected and gypsiferous irrigated lands in support of food security in Uzbekistan. Pilot farms (3) were established to demonstrate integrated management techniques for the mitigation of waterlogged and gypsiferous soils. The program ran for 2 years with rotation of 4 crops. Positive soil and agronomic responses were gained from deep ploughing and field leveling, leading to deeper groundwater levels (of the surface aquifers), reduced soluble salts in the plant root zone and increased crop yields of 23 to 40%.

A "National Action Plan for Environment Protection and Ecological Provisions for Uzbekistan's Sustainable Development" (NAPEESD) was developed with World Bank funding (1999). In association with the National Environmental Action Plan (NEAP), these documents acknowledged the insufficient resources and inadequate institutional support to implement the action plan. It was recognised that the goals of the NEAP could only be achieved if sound macroeconomic stability and sector policies were put in place. These two components are at the heart of the Uzbekistan environmental and the biodiversity conservation strategy but to date they remain goals rather than accomplishments. NEAP highlighted the key environmental problems in Uzbekistan: (i) salinisation and degradation of arable land, (ii) the scarcity and pollution of water resources, (iii) an insufficient supply of safe drinking water, (iv) biodiversity loss and breakdown of ecological processes, (v) desertification and general LD, (vi) the contamination of food products, and (vii) air pollution in the largest cities and industrial centers.

Several regional programs have been developed with the participation of relevant ministries and departments, representatives of non-governmental agencies, universities and local communities. Key projects include:

Aral Sea Basin Program (ASBP), 1994 (World Bank UNEP, UNDP, et al)

Trans-national Project on Conservation of Biological Diversity in Western Tien-Shan, 1998

Sub-Regional Action Plan to Combat Desertification in the Aral Sea Basin (SRAPCD), 2000 (GTZ, UNCCD)

Support to the Implementation of the Central Asia Regional Environmental Action Plan, (UNEP).

"Land Degradation Assessment in Drylands (LADA)". The objective of this global GEF supported activity, executed by the FAO, is to develop tools and methods to assess and

quantify the nature, extent, severity and impact of LD in drylands at a range of spatial and temporal scales. The objective will be achieved through supporting a series of case studies from a number of participating countries. In Uzbekistan, a LADA study conducted a review, analysis and evaluation of existing and available information, maps, publications, previous relevant studies and researches related to soil degradation with a focus on salt affected soils. This general review considered existing maps, data, information and soil survey works and results related to salt-affected soils in dryland ecosystems of Uzbekistan, recognising salinity as one of the major LD processes in the country. The analysis considered synthesis and evaluation of studies conducted in different agro-ecological and farming systems, technical publications, government reports, methodologies for assessment and monitoring of salt-affected soils in dryland ecosystems, and field work conducted on all aspects related to salt-affected soils. Based on this information, maps of salt affected soils were produced at three scales, the major types and degree of soil salinisation were identified, and the main components and natural and anthropogenic causes of formation of salt-affected soils discussed. Estimates were made of the rate of salinisation and associated losses of cotton yield from salinisation over the previous ten years.

The **Tashkent Institute of Irrigation and Melioration** (TIIM), under the MAWR, has conducted past and current field trials in the general area of CA, and has supported these works with increased institutional capacity through teaching and extension programs, and upgraded laboratory and field analytical techniques and equipment to assess impacts of the new technologies. Funding and cooperative works have been from several sources, including ICARDA, CIIMYT, IWMI. Moreover, TIIM has worked in cooperation with Iowa State University, Washington State University, Texas A&M University, ZEF-Bonn University, and Wageningen University and in the promotion of resource conservation technologies in agriculture. From 1996, TIIM has conducted research into the implementation and impacts of CA on 8 ha of its Research Farm (on the outskirts of Tashkent) to evaluate soil physical, chemical and biological parameters and yield changes that occur under zero tillage. In 2001, additional fields (>10 ha) were added to the CA study, located on several farms representing various areas of Tashkent region. New, zero-till seed planters from Pakistan were used for direct planting and permanent bed cropping systems. Local farmers were contracted for field works and harvesting with different incentives policies. In 2002, with support from Bonn University (ZEF-UNESCO) a project was implemented: “Economic and Ecological Restructuring of Land and Water Use in the Region of Khorezm”. New experimental plots (9 ha) were established to conduct CA on sandy and heavy loamy fields with salinity problems at Urgench State University Research Farm. The project will run to 2012. From 2004, a 2-year duration FAO project “Enhanced productivity of cotton-wheat systems through the adoption of conservation agriculture practices” is being implemented through the EcoGIS Center of TIIM. The project covers 300 hectares as demonstration areas throughout the Tashkent region, and will be extended to other neighboring farmers through organized field days and seminars by TIIM.

The **Case (CNH) Model Farm Project (Tashkent Oblast)** is a commercially based project, testing more innovative farm management practices for irrigated cotton and wheat production in Uzbekistan, principally focused on no-till or reduced tillage as the central farm practice. The trial commenced in 2001 as a joint venture agricultural farm with UzSnellMash Holdings and BMKB Agromash.. Additionally, the farm site has been used to train local specialists and farmers in the use of such technologies and practices. Farm redevelopment has included: revised irrigation layout, measurement structures, newly constructed head ditches (including the use of siphons), control gates, laser land levelling, sub-soiling, and agricultural husbandry based on crop

requirements and crop rotation. All crop residues are incorporated into the soil (when and wherever possible); reduced and/or minimum tillage is practised; crops are grown on established beds; planting dates are based on the soil temperature (cotton 14^0C); timely fertilisation is conducted; crop water scheduling is practised; and a range of double crops are grown, including Mung Bean (Mosh), Soya Beans, Silage Maize, Grain Sorghum, Potatoes, Carrots, Cabbage and Bok Choi (Korean Cabbage). Evidence of the effects of the cropping system became evident in 2004; (i) large increases in yield (an extra 1.42 tons/ha of cotton and an additional 2.24 tons/ha of wheat); (ii) irrigation efficiency has improved – growing more crops with increased yields and using less water. For 2004, the average water usage for cotton was 4, 442 m^3/ha, some 30 to 40% less than average Uzbek farm usage) and very evident improvements in soil structure and tilth of the farm soils. One important indicator of improved soil health is that earthworms have reappeared in the fields.

"Drainage, Irrigation and Wetlands Improvement Project (DIWIP-I)". This World Bank-financed project is part of the Aral Sea Basin Program approved by the heads of five Central Asian States (1994). In Uzbekistan, in particular in the Amu Darya basin, the soils are saline and drainage systems are inadequate. Current practice attempts to flush excess soil salts using large quantities of water. However, this practice solely removes surface salts and raises (already) shallow groundwater levels. With improvements in drainage, the project would be the first meaningful intervention in the Aral Sea Basin to break the vicious cycle of large water applications, waterlogging and secondary soil salinization. The project aims to address the problem by substantially improving drainage conditions and significantly improving water use efficiency in the irrigation sector. Key elements of the project strategy include: (a) improving the irrigation and drainage practices in the project area; (b) the safe disposal of drainage effluent through a drainage channel leading to the Aral Sea (c) improving the irrigation and drainage infrastructure in the South Karakalpakstan area; and (d) establishing Water Users Associations (WUAs), and promoting sustainable irrigated agriculture through participatory irrigation management, establishing a farmers' information services desk to provide farmers with a variety of information, together with crop and on-farm irrigation demonstrations and farmers' training aiming at improving current cultivation, cropping and irrigation practices. The project is seen as a first phase of a long-term program for improving irrigation and drainage on the right bank of the Amu Darya in Uzbekistan.

The projects most relevant to LIP are tabulated on the following page.

Project	Funding Source	Amount ($ Million)	Year	Location
Cotton Sub-sector improvement	WB	66.0	1995-2005	National
Rural Enterprise Support Project (Appraisal)	WB	36.0	2001-2006	5 districts
Drainage, Irrigation and Wetlands Improvement	WB	60.0	2003-2010	Three Districts in South Karakalpakstan
Ak Altin Agriculture Development	ADB	36.0	2000-2006	Ak Altin
The Grain Productivity Improvement	ADB	26.0	2004-2009	Tashkent, Samarkand, Jizzak
Amu Zhang Irrigation Rehabilitation	ADB	73.0	2004-2009	Sukhandarya
Irrigated Agriculture and Food Industry Development	EU	1.6	1997-2001	National
Regional Agricultural Development	EU	2.4	1997-2001	
Supply of O&M Equipment to the MAWR	PRC	5.1	2005-2006	Navoi, Bukhara and Kashkadarya and other oblasts
Integrated Water Management	SDC/IWMI	4.8	2001--2008	Kyrgyzstan Tajikistan, Uzbekistan
Regional Special Initiative Water Program	USAID	10.0	2002-2005	
Natural Resources Management	USAID	25.0	2000-2005	Kyrgyzstan, Tajikistan, Uzbekistan (Various Provinces)
Water User Associations Support	USAID	25.0	2004-2009	Kyrgyzstan, Tajikistan, Uzbekistan
Total		**370.9**		

Annex L: Terms of Reference for Consulting Services

I. CONSULTANTS FOR BASELINE PROJECT

A. INTRODUCTION

1. The project will require 131 person-months (pm) of international and 857 pm of domestic consulting services to assist the Ministry of Agriculture and Water Resources (MAWR), the executing agency (EA) in project management, monitoring and evaluation, institutional support and training, infrastructure rehabilitation and land improvement measures. The list of consultants to be engaged is provided in Table A4 -1.

Table A4-1. Consultants' Inputs

Expertise	Person-Months	
	International	Domestic
Team Leader and Irrigation Engineer	24	0
Deputy Team Leader and Irrigation and Drainage Engineer	0	24
M & E Specialists (Environment)	6	18
M & E Specialists (Social)	2	18
Institutional and Legal Specialists	4	16
Surveyor and Geotechnical Specialists	0	60
Irrigation and Drainage Design Engineers	12	284
Training Specialists	2	12
WUA and Institutional Development Specialists	3	36
O&M Engineers	6	24
Irrigation Agronomist	0	36
Procurement Specialists	11	17
Chief Resident Engineer	48	48
Resident Engineers (3)	0	144
Agricultural Economists (M&E)	4	24
Agronomist	0	24
Demonstration Farm Managers	9	72
Total	**131**	**857**

M&E – monitoring and evaluation; O&M – operation and maintenance; WUA – water users' association
Source: ADB estimates.

2. The services will be provided by an international consulting firm in association with a domestic consulting firm to be engaged by MAWR in accordance with ADB's *Guidelines on the Use of Consultants*. The consultants will work very closely with the staff of MAWR and provide them with hands-on training in their work. The consultants will interact frequently with the project beneficiaries, particularly on the interventions proposed for on-farm improvements. The consultants may be required to perform other tasks than those described here, determined as necessary by the project management office (PMO) to comply with the prevailing requirements

of the Asian Development Bank and the Government. Specific terms of reference for the various fields of specialization are given below.

3. The consultants will be based in both Tashkent and at the PIU offices established in each of the project oblasts, Navoi, Bukhara and Kashkadarya and will provide advice and assistance to the Project Management Office (PMO) and to the three Project Implementation Unit offices (PIU) that will be established in the project area. They will co-ordinate with all parties involved in the project, including consultants engaged on the technical assistance associated with the project, EA staff, ADB, contractors, design institutes, local administrations and project beneficiaries. During implementation of infrastructure rehabilitation works the majority of the consultant's staff will be based in the field.

4. The Government of Uzbekistan will provide the consultants with office accommodation in Tashkent and in the project *oblasts*. It will also assist with co-ordination with other government agencies and with obtaining data.

B. LAND AND AGRICULTURAL IMPROVEMENT

5. For the core Model Farm areas (300 ha total – 2 x 150 ha or 3 x 100 ha), the consultants will arrange for detailed field surveys and investigations. These will include topographical surveys and mapping, soil and hydro-geological surveys, plus detailed information of existing infrastructure. Areas requiring remedial levelling and special reclamation treatment will be identified and necessary interventions designed. Interventions shall include improvements in irrigation and drainage infrastructure as appropriate.

6. The consultants will identify the equipment and services needed for upgrading the demonstration areas into model farms and shall assist with their procurement. This work will include, but not limited to, advertising, the prequalification of contractors, preparing invitations to bid, preparing bidding documents, undertaking bid evaluations, pre-delivery inspections and reporting.

7. The consultants will supervise implementation of the land improvement works. The consultants will instigate farmer participatory development, assess farmer and WUA capabilities for construction of small civil works, and ensure farmer acceptance and agreement of the works and general cooperation in the development and operation of the Model Farms.

8. The consultants will assist with operation of the model farms. This assistance will include, but will not be limited to, determining cropping patterns, design of field layouts, land preparation measures, seed selection, irrigation schedules, fertilizer, pesticide and herbicide applications, and harvesting.

C. CAPACITY BUILDING OF LAND AND WATER MANAGEMENT INSTITUTIONS

9. At an early stage of the project, the consultants will carry out a training needs assessment for WUA representatives, Model Farm farmers and representative farmers from other parts of the project area, local agency staff (MAWR) at *rayon* and *oblast* levels, and staff of the BISA, with respect to WUA development, land improvement measures and agriculture development. On the basis of this analysis, the consultants will prepare training proposals for study activities, study tours and local hands-on training for each trainee group. Use will be made as appropriate of existing training materials developed on related projects in the region. The consultants will conduct training courses following a schedule that is in line with other project activities and commissioning of project works.

10. The consultants will provide support to the project area Basin Irrigation System Authorities specifically in respect of measures related to WUA formation, registration and development.

11. At an early stage of the project the consultants will prepare a time-bound plan for support to WUA covering the entire project area. The plan will be prepared in association with the training specialists, following detailed discussions with beneficiary groups, local agencies and international and local groups involved in WUA development in the country. The plan will identify pilot efforts, training requirements for trainers and beneficiaries, and legal assistance requirements. It will also identify constraints and/or impediments to the development of sustainable WUA and make recommendations for appropriate actions.

12. The consultants will provide training to WUA and Women Farmers in accordance with the project training and WUA support plans but with emphasis on use of the ADB WUA Manuals.[20] In addition women farmers will be encouraged to participate as WUA members and WUA Committee members and will receive training, as will other farmers, in the legal aspects of their rights as farmers and women.

13. The consultants will help identify appropriate operation and maintenance (O&M) procedures and costs for inter-farm and on-farm irrigation and drainage infrastructure and shall assist BISA and WUA to prepare appropriate annual budgets. The consultants will also assist with identification of costs of project interventions and develop appropriate repayment mechanisms for beneficiaries in accordance with Government procedures.

14. The support to water resources management agencies (BISA) and local level departments of MAWR responsible for water use planning, will include an assessment of the water management and O&M capabilities of the BISA and WUA. This assessment will determine the level of strengthening and capacity building required for development in water management planning and O&M practices and methodologies for the I&D system (main/inter-farm and on-farm).

15. The consultant will have the following responsibilities:

(i) Review available data and information from BISA and MAWR and other agencies and assess water management practices, O&M, and financing of the system;
(ii) Provide hands-on training to the staff of the BISA at various levels in monitoring, evaluation, and O&M of irrigation and drainage systems;
(iii) Study the existing water management system and practices in the project area, identify problems and analyze underlying causes;
(iv) Assist PMO and PIU to develop plans for establishing and operating an efficient water management system in the project area, including the transfer of management to the WUA, operation and maintenance systems, water allocation, and collection of water charges;
(v) Examine the institutional capacity and resources required for O&M of the systems, and recommend cost-effective initiatives for rehabilitation investments and O&M; and
(vi) For O&M of inter-farm and on-farm systems, recommend the division of responsibility among water users, central, and local government organizations; and financing arrangements and mechanisms to effectively operate and maintain the irrigation and drainage works.

[20] WUA Manuals developed under the ADB TA: 3706-UZB, “Institutional Support for Sustainable Agricultural Development”.

16. The consultants will prepare a detailed plan for training in improved agronomic practices, including integrated pest management (IPM) and rational use of fertilizers. The consultants will train agronomists responsible for extension services who will further train farmers in the project area.

D. REHABILITATION OF LAND MANAGEMENT INFRASTRUCTURE

1. Field Investigations, Design and Civil Works Procurement

17. The consultants will arrange and supervise field surveys and investigations necessary for detailed design of project works to be carried as a priority activity. These shall include topographical surveys and mapping, soil salinity, geotechnical and hydro-geological surveys, and condition surveys of existing irrigation, drainage and power infrastructure.

18. The consultants will arrange and supervise feasibility level studies covering all proposed aspects of the project and assist with preparation of a Technical and Economical Report (TER) required for state expertise.

19. The consultants will arrange and supervise final designs and bidding documents for all aspects of the rehabilitation works, using internationally accepted specifications, conditions of contract and practices.

20. The consultants will assist with the procurement of works, goods and services needed for the main civil work contracts, including but not limited to advertising, the prequalification of contractors, preparing invitations to bid, preparing bidding documents, undertaking bid evaluations and reporting.

2. Construction Supervision

21. The consultants will be responsible for supervision of construction of the works acting as Engineer under the terms of FIDIC conditions of contract. Adequate construction supervision is an important element in assuring the quality of the works and the consequent long term sustainability of the infrastructure.

22. For the LIP, the consultant will act within the works contracts as "Engineer", providing impartiality, resulting in fairer, lower risk delivery of the works. Key benefits are the consultant's technical knowledge and understanding of design requirements, his familiarity with contract procedures, and his knowledge of the level of quality of construction that should be demanded from contractors. This will reduce the risk of poor quality construction that can be common in the region.

23. The consultant as “Engineer”, with assistance provided by the PIU, will be responsible for construction management and supervision of all civil works and will have the following tasks:

(i) Ensure strict adherence to ADB guidelines in procurement of works, services, equipment, and materials; expeditious and timely preparation of bid documents; and evaluation and award of contracts of various claims for payments;
(ii) Supervise and monitor the implementation of the works, including preparation of progress reports and maintenance of records related to the contracts and works, etc.;
(iii) Monitor the fieldworks under implementation, issue early warnings as soon as targets are deemed to be missing, and coordinate with the concerned staff for remedial measures;
(iv) Certify withdrawal applications and keep accounts for the loan; and

(v) Provide overall guidance to the EA staff and contractors in respect of quality control and conformity of the works with contract provisions.

3. Operation and Maintenance

24. During the life of the project, the consultants and the PIU will assist the BISA to develop, prepare and cost a yearly O&M plan and O&M budget necessary for effective and efficient implementation of operation and maintenance tasks to ensure that the I&D system of the project area does not continue to deteriorate and continues to operate to a level of efficiency to allow continuous farm operations. Such O&M activities will be addressed by the loan agreement and be applied in accordance with the agreement.

25. In addition, the consultants will implement a performance based contract of payment for the contractor as part of the civil works contract, so as to ensure full operational and maintained capacity of the rehabilitated infrastructure during the life of the project. This "performance based" contract inclusive of a "needs based maintenance" plan will be tested as a possible adopted methodology for BISA following project completion.

E. PROJECT MANAGEMENT

26. The consultants will advise and assist the PMO in all matters related to implementation of the project. This support will include, but shall not be limited to, guidance on ADB procedures and requirements, efficient project management, programming techniques, preparation of budgets and facilitating the timely release of the required funds. In respect of procurement of works, goods and services, the consultant will advise the PMO to ensure that all steps comply with ADB procedures, and are taken expeditiously and in a transparent manner.

27. Assist in setting up an appropriate system for monitoring performance and accounts for the project, covering (i) project costs, (ii) detailed implementation status, (iii) contract administration and, (iv) financial and performance reporting requirements of the Government and Bank.

28. The consultants will provide further assessment of environmental impacts of project components, evaluate environmental monitoring requirements, and prepare an environmental monitoring programme for the project. Consultants will assist the PMO to establish a Performance and Environmental Monitoring Unit (PEMU) to investigate and monitor that all environmental design measures are implemented and followed in accordance with proper environmental standards and guidelines. Potential adverse impacts arising from construction works shall be identified and appropriate wording incorporated into the contract documents to ensure they are avoided through regular monitoring during construction.

29. The consultants will assist with the preparation of documentation necessary for any specific ecological expertise for project works.

30. Social impact assessment experts will provide the framework and design and will carry out a pre-test of the social impact component. This component will serve as a gauge for assessing the project's social development outcomes in terms of improving the living standards of the poor and vulnerable groups in the project area. The experts will develop a mechanism for the evaluation of findings related to project interventions and related policy reforms. The specific tasks of social impact assessment experts will include:

(i) Identifying the set of social and economic indicators that will serve as the benchmark for assessing the income and non income poverty outcomes as well

as the direct and indirect social effects of the project on gender, rural institutions, and on the different categories of poor and vulnerable groups in the project areas;

(ii) Developing the appropriate analytical methodology for the social impact assessment;

(iii) Undertaking the initial social impact assessment using the M&E system and improving the M&E component on social impact based on the initial run of the M&E system;

(iv) Providing the social and economic indicators for assessing the impact of the policy reforms on poverty;

(v) Involving stakeholders and nongovernmental organizations (NGOs) in the design and implementation of the social impact component of the M&E system as well in the communication and reporting of the findings; and

(vi) Ensuring capacity build-up on social impact assessment by the local staff and other NGOs that may be involved in the M&E process

F. REPORTING

31. The consultants will assist with the preparation of all progress reports required in connection with provision of the above services. This will include assistance with preparation of (i) the Technical and Economic Report (TER), (ii) bidding documents, (iii) bid evaluation reports, and (iv) contract agreements.

32. The consultants will assist the PMO and PIU's to implement an environmental reporting system which will be in addition to and part of the PMO's monthly and annual reporting procedure.

33. The consultants will also prepare (i) an Inception Report, both draft and final, with 10 copies in English and 15 copies in Russian, (ii) a Mid-term Review Report, both draft and final versions, with 10 copies in English and 15 copies in Russian, (iii) a Final Report, both draft and final versions, with 10 copies in English and 15 copies in Russian, and (iv) Quarterly Progress Reports, with five copies in English and 10 copies in Russian.

II. ADB TECHNICAL ASSISTANCE GRANT

IMPLEMENTATION AND MONITORING OF POLICY REFORMS IN AGRICULTURE

A. Objectives and Scope

1. The Government of Uzbekistan, which has prioritized addressing land degradation, asked Asian Development Bank (ADB) to finance the Land improvement Project (LIP). The Project will cover nine districts in Bukhara, Kashkadarya, and Navoi provinces, which experience the most adverse impacts of land degradation. The Project will improve farmers' livelihood through higher yields, enhance land productivity, and increase incomes.

2. The Government also agreed to expand and deepen the reforms outlined in the Presidential Decree of 24 March 2004, and to improve security of land tenure and farmers' access to commercial credit in the project areas. However, during implementation of other ADB-financed projects, some constraints were identified. These included a lack of (i) common understanding and approach to policy reforms at the central and provincial levels, (ii)

collaborative/participatory policy reform review and evaluation measures, (iii) comprehensive monitoring and evaluation mechanism, and (iv) key stakeholder awareness of the impact of reforms on their farming and financial operations. Therefore, technical assistance (TA) is proposed to address these issues.

B. TA Impact, Outcome, Outputs, and Components

3. To expand and deepen the reform process beyond the ongoing ADB-financed projects, the implementation and outcomes of the reforms in the LIP areas must be monitored carefully, evaluated and discussed among all key stakeholders. The TA will (i) facilitate the implementation of the reform package agreed under the Project; (ii) raise the awareness of local government and rural communities regarding the implemented reforms; (iii) monitor their impacts on Government revenues and expenditures, and on rural livelihood and poverty, in a transparent and participatory manner; and (iv) propose measures for improving reform effectiveness.

4. One impact of the TA will be accelerated agriculture sector reforms, as a result of the implementation of the agreed reforms. Another impact will be widespread dissemination and sharing of reform knowledge, which can be replicated in wider geographical context within Uzbekistan and in Central Asia. The TA outcome will be the acceptance of the participatory reform processes. The TA will have three components, each implemented as a separate phase of the TA.

5. **Phase 1: Analysis and Design of Reform Measures, and Dialogue with Key Stakeholders and International Funding Agencies.** The main tasks will include (i) developing methods to measure progress of quota reduction at district and farm levels; (ii) designing measures to improve land use contracts in the project area—and their use as collateral for bank credit—and a time-bound program for registration of these contracts; and (iii) assessing the liberalization of marketing of agricultural products. Following the initial review and analysis, the TA will establish an open and participatory forum to review and assess regularly the progress and impacts of reforms. This forum will involve national, provincial, and district governments; farmers; and civil society. A dialogue with bilateral and multilateral agencies (World Bank, International Monetary Fund (IMF), European Bank of Reconstruction and Development (EBRD), Department for International Development (DFID), etc.) will be initiated to ensure a coordinated approach to agriculture sector reforms and poverty reduction. This will be followed by a joint assessment of (i) costs and benefits associated with each policy reform to key stakeholders, including national, local, and farmer communities; (ii) anticipated impact on the rural poor; and (iii) preparation of a timetable for implementation.

6. **Phase 2: Implementation of Agreed Policy Reform Agenda.** Assistance will be provided to the central, provincial, and district governments to implement the agreed policy reform agenda on a sustainable basis. This will be carried out through stakeholder consultations at all levels, including poorer farmers and particularly female-headed farms. Consultation at the farm and local government levels will receive greater emphasis to ascertain the desired grassroots reform needs. A comparative analysis of the governance and institutions in the project districts will be carried out, and assistance will be provided in capacity building of implementing agencies to ensure a common interpretation of the policy reforms. The TA also will support the Government in improving land registration legislation, as well as in drawing implementation programs to ensure that reforms with immediate impact on poverty can be implemented in an effective and timely manner.

7. **Phase 3: Monitoring the Impact of Reforms and Stakeholder Consultation.** To assess the impact of the project and policy reforms on farm incomes and poverty reduction, the following tasks will be carried out: (i) establishment of a participatory system for monitoring and evaluation of the impact of policy reforms on poverty, which will involve consultation with key stakeholders, civil society, and elected representatives; (ii) initial monitoring of the implementation of policy reforms and their impact on governance, Government revenues, farm profitability, and poverty reduction;[21] and (iii) identification of nongovernment organization (NGOs) or other independent agencies that could take over the monitoring process after TA completion. In particular, the TA will monitor (i) progress in terminating the involvement of local authorities in farm operations, management, and marketing; (ii) registration of land use rights; (iii) impact of reforms on rural incomes; and (iv) proposals for expansion of reform initiatives based on an assessment of the impact of implemented reforms.

8. The TA outputs will include (i) agreed measures to reduce quotas, register land use contracts, and liberalize agricultural markets in the project districts; (ii) implementation plan for reforms; and (iii) monitoring design, implementation plan, and reports. The TA will also design and carry out policy consultation campaigns, national and district workshops, emphasizing legal and financial aspects, as well as gender-related impacts,[22] of the reform process.

C. Implementation Arrangements

9. The Ministry of Economy will be the TA Executing Agency. The TA consultants will work closely with the Ministry of Agriculture and Water Resources (MAWR) and other key stakeholders. Other Government institutions that might participate in TA implementation include National Bank of Uzbekistan, Ministry of Finance, and the Ministry of Justice. The consultants also will interact with the ADB-financed Ak Altin Development Project[23] and Amu Zhang Irrigation Rehabilitation Project[24], as well as relevant ongoing projects of other international agencies (e.g., World Bank), particularly those that have undertaken policy and taxation reviews. Intensive consultations will be conducted with civil society organizations and private sector organizations.

10. The TA will require 14 person-months of international consulting services and 36 person-months of domestic consulting services. The international consultant inputs will include a monitoring and evaluation specialist/team leader (6 person-months), an institutions specialist (3 person-months), a social development specialist (3 person-months), and a credit specialist (2 person-months). The domestic consultant inputs will comprise a monitoring and evaluation specialist/deputy team leader (24 person-months), a legal specialist (3 person-months), a water users' association (WUA) specialist (2 person-months), a credit specialist (3 person-months), a gender specialist (2 person-months), and a public awareness specialist (2 person-months). The recruitment of the TA consultants will be in accordance with ADB's *Guidelines on the Use of Consultants*. Simplified technical proposals and ADB's quality- and cost-based selection system will be used to choose consultants.

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[21] Including collection and analysis of gender-disaggregated data.

[22] A project-specific gender action plan has been developed under LIP to promote the equal participation of male and female stakeholders in the Project.

[23] ADB. 2002. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to Uzbekistan for Ak Altin Agricultural Development Project.* Manila.

[24] ADB. 2004. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to Uzbekistan for Amu Zang Irrigation Rehabilitation Project*. Manila.

D. Reporting

11. The consultants will submit an inception report 1 month after starting work on the TA. The consultants also will submit a final report for phase I, bimonthly progress reports, and a comprehensive draft final report at the end of the 10th month of phase III, followed by a final report at the end of TA implementation. Each report, which will be published in English and Russian, will include a section on the Government's progress toward meeting loan covenants and policy reforms. All public consultation and dissemination materials will be published in English, Russian, and Uzbek.

E. Description of Tasks

1. Phase 1: Analysis and Design of Reform Measures, and Dialogue with Key Stakeholders and International Funding Agencies

12. The consultants will review Government policies that affect land tenure, freedom of farming decisions, and incomes. As envisaged, the review will:

(i) Assess Government policy on cotton and wheat quotas.
(ii) Assess the level of, and terms and conditions for, land tenure security that farmers might enjoy.
(iii) Compare farm gate prices for cotton and wheat with international prices.
(iv) Assess the availability of commercial sources of farm credit, and determine the extent of market liberalization for agricultural products.
(v) Identify and prioritize reforms, and assess their impact, through consultations at national, provincial, and district levels, as well as with farmers.
(vi) Assess the benefits and costs associated with each policy reform.
(vii) Prioritize the agreed reforms, and prepare program for phased implementation.

2. Phase 2: Implementation of Agreed Policy Reform Agenda

13. The consultants will assist the Government in implementing the agreed policy reform agenda on a sustainable basis. To achieve this, the TA will

(i) Help the Government undertake stakeholder consultations on the reform agenda, at all levels, including farmers. Consultation at the farm and local government levels will receive greater emphasis to ascertain the grassroots reform needs. Based on the stakeholders' feedback, necessary changes to the policies and their implementation will be proposed.
(ii) Support the Government in identifying the strengths and weaknesses of the institutions and agencies that will be involved in implementing the policy reforms.
(iii) Assist the Government in undertaking the required capacity building to enable implementing agencies to understand how each policy should be implemented, and to ensure a common interpretation of the policy reforms.
(iv) Support the Government in drawing up relevant regulations and programs to ensure the effective implementation of the proposed policy reforms.
(v) Assist in identifying the resources required to implement each policy initiative.

3. Phase 3: Monitoring the Impacts of Policy Reform

14. The consultants will:

(i) *Establish a system for monitoring and evaluating agreed policy reforms that concentrates on the project districts, and involves participatory consultation with key stakeholders, including civil society and elected representatives. The system must be applicable during and after completion of the TA. Further, the consultants will examine the potential of selected independent agencies for monitoring after TA completion.*

(ii) *Monitor the implementation progress of policy reforms in the project districts, and their impact on farm productivity and profitability, as well as the cost and availability of inputs and private machinery services, output prices, farmers' incentives, etc. In particular, the TA will monitor progress in (a) terminating the involvement of local authorities in farm operations, and the removal of remaining constraints to the free marketing of cotton and wheat; (b) implementing measures to improve conditions for the supply of inputs by the private sector; and (c) improving land tenure contracts to enhance land use security, and to enable land use certificates to be used as collateral for bank credit.*

(iii) *Provide feedback on compliance with other policy reform agreements with bilateral and multilateral agencies.*

(iv) *Carry out policy awareness campaigns, including the organization of training and workshop/meetings, and the development of literacy material to disseminate the policy reform agenda, TA findings, and recommendations. This also will include the organization of several activities under the project-specific Gender Action Plan (GAP) (Appendix 13): (a) gender technical and legal training (activities 2[c]1 and 2[c]2); (b) meetings among rural farmers and service institutions' representatives (activity 2[d]); (c) capacity development training and consultation on GAP implementation with the project management office (PMO), project implementation unit (PIU) and Executing Agency (activity 4[e]).*

(v) *Undertake a baseline poverty assessment and farm income survey in phase 1.*

(vi) *Present the results to ensure that the level of farm incomes and poverty are readily identifiable by gender in the project areas.*

(vii) *Establish the impact that the project and policy reforms have made in reducing poverty, increasing farm incomes, and improving agricultural production.*

(viii) *Prepare proposals for the expansion of reform initiatives based on the assessment of the reforms' impacts.*

III. ADDITIONAL CONSULTING SERVICES FUNDED UNDER GEF GRANT

A. GEF financed Activities

1. The GEF grant will: (i) contribute to creating a regulatory regime that enhances incentives for a land management in which national and global environmental considerations have a place; (ii) field test and introduce methods of re-using return irrigation water for productivity and environmental gains; (iii) build the capacity of the agriculture sector of Uzbekistan for environmental analysis and management; and (iv) provide for a structured monitoring and evaluation of the Project's global environmental impacts and other impacts to increase the replicability of its most positive elements.

2. The GEF-financed activities will be grafted onto four out of five Baseline activities as follows:

3. Added to Baseline Component (Implementation of Policy Reforms), will be

Sub-component A: Strengthening of the incentive structure for environmental benefits of SLM.

4. The GEF Alternative will deepen the reform measures that encourage SLM and through it, the realization of (also) national and global environmental benefits. The activities will (1) develop measures providing incentives for a sustainable use of marginal waters and marginal lands, (2) review the potential for creating special operating and incentive regimes for sub-areas where land rehabilitation offers high environmental benefits; (3) develop proposals for legislative and regulatory support for the conservation of agro-biodiversity, and for protection of ecosystems and landscapes; (4) investigate the potential of "payment for environmental services" (PES) as a policy mechanism encouraging the adoption of conservation agriculture in Uzbekistan and Central Asia[25].

5. Added to Baseline Component (Improved Land, Water and Agricultural Management Practices), will be

Sub-component B: Management of marginal water for livelihood and environmental benefits

6. The Alternative will test new technical and management approaches to managing marginal water (return irrigation water contaminated by salts and other pollutants) in an area of great economic, cultural and environmental values along the Great Silk Road in the Zeravshan and Kashkadarya River basins. The component will (1) introduce and test salinity mitigation management through the application of drainage and flood runoff regulations, and introduce drainage water reuse schemes and other environmental feasible interventions; The component will also (2) introduce and test salinity mitigation management using elements of conservation agriculture; (3) conserve and improve wetlands and desert ecosystems around irrigated oases and selected desert depressions as a prototype for SLM in these and similar areas; (4) demonstrate the scope for synergy among biodiversity conservation, carbon sequestration, and land productivity enhancement. (5) disseminate the results and lessons of the pilot activities.

7. Incorporated in Baseline Component (Strengthening of Water and Land Management Institutions) will be

Sub-component C: Capacity building for environmental analysis and management in the agricultural sector

8. The alternative will (1) strengthen and mainstream the environmental analysis and risk assessment of land rehabilitation projects and conservation agriculture into MAWR and related institutions; (2) develop the methodology of valuing ecosystem conservation in Uzbekistan for local and regional dissemination, and

Sub-component D: Learning and dissemination for improved environmental outcomes

9. Baseline Project Component (Capacity Building of Land and Water Management Institutions) targets land and water management institutions and builds their capacity in several ways described earlier on. The Alternative: (1) scales these activities up to a level where they can effectively support the delivery of national and global environmental benefits and make it possible for the relevant institutions to play an active part in the global exchange of experience.

[25] In some countries where CA (and no-till in particular) has been adopted, lower yields in the first one or two years were recorded. The disincentive effect of the initially lower profitability could be overcome through a financial transfer from the downstream beneficiaries of water-saving conservation agriculture to the CA "pioneers".

The Alternative also adds to other capacity building activities. It: (2) enlarges the pool of stakeholders involved in training and dissemination of the globally most relevant lessons of conservation agriculture, (3) provides support for community based planning and rural awareness program with (also) agro-cultural heritage and gender perspectives, and (4) promotes public/private study tours to learn from the experience of CA.

10. Grafted onto Baseline Component (Project Management and Performance Monitoring) will be

Sub-component E: Monitoring and evaluation of Project environmental impacts

11. The Alternative will provide for a more comprehensive Project management in which a common set of indicators will be used to monitor and evaluate such variables as the nature and status of land degradation, carbon sequestration; biodiversity; on- and off-site environmental impacts, biodrain siltation, salinization, pollution and eutrophication; and socio-economic-factors. The Alternative will (1) develop a system for monitoring of the Project's environmental impacts; (2) develop a proposal for a unified salinity management database in Uzbekistan; and (3) mainstream the most suitable international practices of participatory monitoring of environmental impacts.

B. Consulting Inputs

Natural Resource Economist (International)

1. General Tasks

1. Provide a detailed plan and schedule for implementation of activities related to strengthening the incentive structures for sustainable land management; and

2. Assist the PMU in recruiting local natural resource economists.

2. Specific Tasks

1. The natural resource economist will:

(i) develop and recommend incentive regimes for a sustainable use of marginal (saline) waters and marginal lands in Uzbekistan with region-wide applicability
(ii) review the potential for creating special operating and fiscal rules for sub-areas where land rehabilitation offers high environmental benefits;
(iii) develop of proposals for legislative and regulatory support for the conservation of agro-biodiversity, and for protection of ecosystems and landscapes;
(iv) assess the potential of "payment for environmental services" (PES) as a policy mechanism encouraging the adoption of conservation agriculture in Uzbekistan and Central Asia; and
(v) conduct training in formulation of land management policies.

Natural Resource Economist (Local)

1. Tasks

1. Under the direction of the International the local nature resource economists will:

(i) research and evaluate options for incentive regimes for a sustainable use of marginal (saline) waters and marginal lands

(ii) research and evaluate options for creating special operating and fiscal rules for sub-areas where land rehabilitation offers high environmental benefits;
(iii) research and evaluate options for legislative and regulatory support for the conservation of agro-biodiversity, and for protection of ecosystems and landscapes; and
(iv) assess the potential of "payment for environmental services" (PES) as a policy mechanism encouraging the adoption of conservation agriculture in Uzbekistan and Central Asia.

Sustainable Land Water Management Specialist (International)

1. General

1. Provide a detailed plan and schedule for implementation of activities for the design and field testing methods and techniques for managing return (saline) irrigation water in areas of great economic, cultural and environmental values.

2. Coordinate the implementation of the activities under the component, improving land and agricultural management.

2. Specific Activities

3. The sustainable land and water management specialist will:
(i) Design and test salinity mitigation management measures through application of the drainage and flood runoff regulations, drainage water reuse schemes and other environmental interventions in the Zeravshan and Kashkadarya River basins,
(ii) Test salinity mitigation management using elements of conservation agriculture;
(iii) Design and test measures conservation and improvement of wetlands and desert ecosystems around irrigated oases and selected desert depressions as a prototype for SLM in these and similar areas;
(iv) demonstrate the scope for synergy among biodiversity conservation, carbon sequestration, and land productivity enhancement in dry land ecosystems of Central Asia;
(v) Assist the environmental monitoring specialists with determining appropriate indicators for carbon sequestration and biodiversity biodiversity (agrobiodiversity),and designing appropriate environmental monitoring protocols and sampling programs; and

(vi) Disseminate the results and lessons of the pilot activities.

Sustainable Land and Water Resource Management Specialist (Local)

1. Tasks

1. The local sustainable land and water management specialists will, under the supervision international sustainable land and water management specialist:
(i) Assist with the design and testing salinity mitigation management measures through application of the drainage and flood runoff regulations, drainage water reuse schemes and other environmental interventions in the Zeravshan and Kashkadarya River basins,

(ii) Assist with testing of salinity mitigation management using elements of conservation agriculture;
(iii) Assist with the design and testing of measures conservation and improvement of wetlands and desert ecosystems around irrigated oases and selected desert depressions;
(iv) Assist with the demonstrations of the scope for synergy among biodiversity conservation, carbon sequestration, and land productivity enhancement in dry land ecosystems of Central Asia;
(v) Assist the environmental monitoring specialists with determining appropriate indicators for carbon sequestration and biodiversity (agrobiodiversity), and designing appropriate environmental monitoring protocols and sampling programs; and
(vi) Participate in the dissemination of the results and lessons of the pilot activities.

Environmental Economist (International)

1. Tasks

1. The environmental economist will:
(i) Develop and test environmental analysis and risk assessment methods land rehabilitation projects and conservation agriculture for introduction into MAWR and related institutions;
(ii) Apply the methods of valuing ecosystem conservation in Uzbekistan; and
(iii) Organize results for local and regional dissemination

Environmental Economist (Local)

1. Tasks

1. The local environmental economist, under the direction of the international environmental economist**,**
(i) Assist with the develop and testing of environmental analysis and risk assessment methods land rehabilitation projects and conservation agriculture
(ii) Assist with the apply the methods of valuing ecosystem conservation in Uzbekistan; and
(iii) Participate in dissemination of results.

Knowledge Management (International)

1. General

1. In conjunction with CACILM, provide a detailed plan, schedule, and annual budgets for implementation and knowledge management activities;
2. Assist the PMU in recruiting local knowledge management specialists; and
3. In the first two years, supervise and provide on-the-job training for domestic staff.

2. Specific Tasks

4. The knowledge management specialist will:
(i) Develop a knowledge management plan for scaling up the dissemination of management practices strongly supportive of national and global environmental benefits;

(ii) Organize a pool of stakeholders to be involved in training and dissemination of the best in conservation agriculture;
(iii) Conduct training and knowledge dissemination activities;
(iv) In conjunction with the CACILM knowledge management activities, prepare and disseminate relevant knowledge products;
(v) Support the community based planning and rural awareness program with attention to agro-cultural heritage and gender, and
(vi) Organize, as necessary, study tours to learn from experience of conservation agriculture.

Knowledge Management (Local)

4. The local knowledge management specialist(s), under the direction of the international knowledge management specialist will:

(i) Assist with the organization of a pool of stakeholders for training and dissemination of the best in conservation agriculture;
(ii) Conduct training and dissemination activities within the project area;
(iii) Assist with preparation of relevant knowledge products
(iv) Assist with the support the community based planning and rural awareness program with attention to agro-cultural heritage and gender

Environmental Monitoring Specialist (International)

1. General

1. The environmental monitoring specialist should have broad experience in designing and implementing environmental monitoring programs. Experience with monitoring for global indicators of land degradation, climate change and biodiversity will be needed.

2. Provide a detailed plan, schedule, and annual budgets for implementation and monitoring of sustainable land management indicators.

3. Assist the PMU in: (i) recruiting local environmental monitoring specialist

4. In the first two years, supervise and provide on-the-job training for domestic staff.

2. Specific Tasks

4. The environmental monitoring specialist will:

(i) in consultation with the CACILM, develop methodology and approach for monitoring and reporting on sustainable land management (SLM) indicators;
(ii) review the proposed indicators, baseline values, and targets for all indicators;
(iii) determine appropriate indicators for monitoring carbon sequestration and biodiversity (agrobiodiversity) , including specific measurement indicators;
(iv) in consultation with Land Improvement Project project management team determine appropriate targets of carbon sequestration and biodiversity (agrobiodiversity);
(v) in consultation with CACILM, develop a revised set of indicators, baseline values, and targets;
(vi) build capacity in project staff and/or contractors to conduct monitoring SLM indicators;

(vii) introduce the most suitable practices of participatory monitoring of environmental impacts;
(viii) provide guidance, oversight, and quality control and assurance for monitoring SLM indicators;
(ix) in consultation with the CACILM, design and supervise the SLM information system, with provision for data collection by remote sensing (satellite imagery), and establishment of a spatial (GIS) database;
(x) within the SLM information system , design a unified salinity monitoring data base for Uzbekistan; and
(xi) supervise the conduct socio-economic and environmental surveys.

Environmental Monitoring Specialist (Local)

1. Tasks

1. The local environmental monitoring specialist, under the supervision of the international environmental monitoring specialist will:

(i) introduce the practices of participatory monitoring to project beneficiaries
(ii) gathering monitoring information on SLM indicators;
(iii) conduct socio-economic and environmental surveys; and
(iv) prepare periodic monitoring reports.

Remote Sensing / Geographic Information System Specialist (International)

1. General

1. Design, develop, test, and deploy the sustainable land management information system.

2. In the first two years, supervise and provide on-the-job training for domestic staff.

2. Specific Tasks

3. Under the direction of the international environmental monitoring specialist. the remote sensing and GIS specialist will:

(i) in consultation with CACILM, design and develop a sustainable land management information system
(ii) assist the Project in acquisition of remote sensing imagery for selected geographical areas;
(iii) create the appropriate remote sensing images to support sustainable land management activities;
(iv) design, develop and deploy and spatial database using geographical information system technology (GIS);
(v) create the appropriate GIS data sets to support sustainable land management activities;
(vi) build capacity in project staff and/or contractors to create remote sensing images, GIS layers, and other data types;
(vii) build capacity in project staff for data entry, data analysis, and reporting for the pasture land management information;
(viii) work with relevant government agencies to facilitate data acquisition and dissemination; and
(ix) in the first two years of the project, prepare annual monitoring reports on sustainable land management indicators

Remote Sensing / Geographic Information System Specialist (Local)

1. Tasks

1. The local remote sensing/geographic information system specialist(s), under the direction of the international remote sensing/geographic information system specialist will:

(i) create the appropriate remote sensing images to support sustainable land management activities;
(ii) develop and deploy and spatial database using geographical information system technology (GIS);
(iii) create the appropriate GIS data sets to support sustainable land management activities;
(iv) create remote sensing images, GIS layers, and other data types;
(v) conduct data entry, data analysis, and reporting for the sustainable land management information;
(vi) work with relevant government agencies to facilitate data acquisition and dissemination; and
(vii) prepare annual monitoring reports on sustainable land management indicators

Annex M:

Report and Recommendation of the President

ADB

Report and Recommendation of the President to the Board of Directors

Project Number: 37536
June 2006

Proposed Loans and Technical Assistance Grant Republic of Uzbekistan: Land Improvement Project

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 26 June 2006)

Currency Unit	–	sum (SUM)
SUM1.00	=	$0.000817
$1.00	=	SUM1,223.78

ABBREVIATIONS

ADB	–	Asian Development Bank
BISA	–	Basin Irrigation System Authority
CACILM	–	Central Asian Countries Initiatives for Land Management
CSP	–	country strategy and program
DRC	–	domestic resource cost
EA	–	executing agency
EIRR	–	economic internal rate of return
FAO	–	Food and Agriculture Organization
FMA	–	financial management assessment
GDP	–	gross domestic product
I&D	–	irrigation and drainage
ICB	–	international competitive bidding
IEE	–	initial environmental examination
GAP	–	gender action plan
GDP	–	gross domestic product
GEF	–	Global Environment Facility
ha	–	hectare
IMF	–	International Monetary Fund
IPRSP	–	Interim Poverty Reduction Strategy Paper
LCB	–	local competitive bidding
LIBOR	–	London interbank offered rate
LIP	–	Land Improvement Project
LSA	–	Living Standard Assessment
M&E	–	monitoring and evaluation
MAWR	–	Ministry of Agriculture and Water Resources
MOF	–	Ministry of Finance
NGO	–	nongovernment organization
NPF	–	national programming framework
OCR	–	ordinary capital resources
O&M	–	operation and maintenance
PIU	–	project implementation unit
PMO	–	project management office
PRF	–	Poverty Reduction Cooperation Fund
PRSP	–	Poverty Reduction Strategy Paper
PSGA	–	poverty social and gender assessment
SCNP	–	State Committee for Nature Protection
SDC	–	Swiss Development Corporation
SDR	–	special drawing rights
SILSP	–	Strategy for Improving the Living Standards of People of Uzbekistan
TA	–	technical assistance
VAT	–	value-added tax

WUA	–	water users' association
USAID	–	United States Agency for International Development

GLOSSARY

dekhan farm	–	small inheritable households plot (from 0.15 to 0.35 ha) free in crop selection and marketing
khokim	–	province and district governor
shirkat	–	collective farm

NOTES

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

Vice President	L. Jin, Operations Group 1
Director General	J. Miranda, Central and West Asia Department (CWRD)
Director	K. Matsunami, Agriculture, Environment, and Natural Resources Division, CWRD
Team leader	P. Bozakov, Water Resources Specialist, South Asia Department
Team members	R. Abdukayumov, Portfolio Management Officer, CWRD
	R. Bolt, Senior Sector Economist, East Asia Department (EARD)
	D. Ellingson, Project Economist, EARD
	R. Everitt, Senior Project Specialist, CWRD
	X. Peng, Principal Counsel, Office of the General Counsel
	F. Tornieri, Social Development Specialist, Regional and Sustainable Development Department
	S. C. Teoh, Project Specialist, EARD
	Q. Zhang, Environment Specialist, EARD

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G. Detailed TOR for Consulting Services
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LOAN AND PROJECT SUMMARY

Borrower	Republic of Uzbekistan
Classification	Targeting Classification: General intervention Sector: Agriculture and natural resources Subsector: Irrigation and drainage, Water Resource Management Theme: Sustainable economic growth Subthemes: Promoting economic efficiency and enabling markets; Institutional development
Environment Assessment	Category B. An initial environmental examination was undertaken. The summary is presented in Supplementary Appendix S.
Project Description	Land degradation is a serious economic, social, and environmental problem in Uzbekistan and the rest of Central Asia. It directly affects the livelihoods of the rural population by reducing land productivity, and by causing agricultural production losses estimated at $2 billion a year for the region. The Project will address the rapidly worsening and expanding land degradation in nine districts in Bukhara, Kashkadarya, and Navoi provinces. The project area, covering 162,300 hectares (ha) of irrigated land, suffers from increased soil salinity and shallow groundwater table—the most serious forms of land degradation. Crop yields in these areas reportedly have declined by 30% since 1991. These problems are caused by (i) poor water management, (ii) deteriorating irrigation and drainage (I&D) infrastructure, and (iii) a policy environment that constrains production growth and reduces incentives to invest in land improvement. Worsening land degradation directly affects a rural population of 1.4 million in the project districts. To help the Government halt and reverse land degradation, the Project will (i) develop and disseminate improved land reclamation practices adapted to local conditions; (ii) strengthen institutions to address land degradation issues at central, provincial, and community levels; and (iii) improve land and water management infrastructure to enhance water control and efficiency. Through agreed policy reforms, the Project also will help to increase farmers' incentives to raise land productivity and invest in land, as well as improve rural governance.
Rationale	Agriculture remains the major source of livelihood for rural communities, which are home to 60% of the population, and is critical to attaining inclusive and sustainable growth for the economy. The Government has prioritized improving agricultural productivity, particularly maximizing export revenues and achieving food security. However, rapidly worsening land degradation is threatening the performance of the agriculture sector. The proposed Project would target areas that experience the most severe land degradation in Uzbekistan. The Project design harnesses the experience of the Asian Development Bank (ADB) and lessons gained from relevant land management and agriculture projects in Uzbekistan, the subregion, and elsewhere.

The Project is based on the premise, derived from ADB experience and supported by the Government, that an enabling policy environment that promotes and encourages farmers' incentives is needed to support sustainable land management. This is the principle behind the ongoing agriculture sector reform initiative, spearheaded by ADB and the World Bank, which focuses on (i) reducing the mandatory state procurement quota on cotton and wheat; (ii) improving pricing; (iii) ensuring timely payments to farmers; and (iv) liberalizing marketing of these commodities, thereby ensuring greater freedom and improved profitability of producers. This approach will be extended and deepened in the project districts, enabling farmers to benefit directly from increased crop production and to develop the financial capacity to invest in land improvement. The Project also recognizes that incentives to look after their farmland must go hand in hand with improved and more secure access to land. Additionally, institutions responsible for land management must be strengthened and their capacity developed, including their knowledge and skills to implement custom solutions to the worsening land degradation. Land and water management infrastructure, which has deteriorated seriously since independence in 1991, also must be improved through cost-effective investments**,** taking into account the need for sustained operation and management in the future.

The Project builds on the agriculture sector reform initiatives that ADB has maintained in Uzbekistan since its first project in 2002. It will help Uzbekistan address its land degradation problems in a multipronged manner, covering incentives, institutions, and infrastructure. Through cofinancing with the Global Environment Facility (GEF), the Project also aims to allow long-term planning and implementation of corrective interventions to prevent and control land degradation beyond the project area.

Impact and Outcome

The expected impact of the Project is increased income of farmers in the project area. The project outcome would be improved quality and sustainable productivity of land, leading to higher crop yields and enhanced ecological sustainability in the project areas.

The intended outcome will be produced through investments to rehabilitate land and water infrastructure, as well as the application of improved land and water management practices. These will be carried out in an enabling policy and institutional environment, which hinges on five key reforms: (i) increased freedom on farming decisions (reduced state procurement quota), (ii) fair and improved pricing of state-procured commodities, (iii) timely payments to farmers, (iv) liberalized markets, and (v) secure access to land. The intended aims of these reforms are clarified in the Assurances section, and the specific measures are incorporated in the Project and the associated technical assistance (TA) to help the Government implement the reforms. In addition, the capacity of the institutions responsible for the reforms and the farmers, the ultimate beneficiaries and caretakers of land and water resources, will be developed.

The Project comprises (i) land and agricultural improvements that will promote the dissemination of appropriately designed land reclamation and agronomic practices, as well as modern farm business management; (ii) capacity building for

	land and water management institutions, which will strengthen the ability at the central, provincial, and community levels to introduce integrated land and water resources management, upgrade operation and maintenance (O&M) practices, support water users' associations (WUA), and involve beneficiary farmers in planning and construction supervision of on-farm works; (iii) rehabilitation of land management infrastructure of main and on-farm systems to ensure efficient land and water management, and equitable delivery of irrigation water to individual private farms; and (iv) project management that will establish project offices, as well as units for the monitoring and evaluation of social and environmental performance. A GEF grant ($3.0 million) is proposed to promote innovative land management, enhance the replicability of the Project, and generate additional global environmental benefits. If GEF financing is not confirmed, only the project activities financed by the two ADB loans, as described above, will be implemented.
Project Investment Plan	The Project is estimated to cost $76.18 million, including taxes and duties of $11.59 million.
Financing Plan	ADB will provide a blend of two loans to finance the Project: (i) a loan for $32.6 million from the ordinary capital resources (OCR), and (ii) a loan in various currencies equivalent to SDR 18,515,000 ($27.6 million) from the Special Funds (SF) resources. The OCR loan will have a 25-year term, including a grace period of 5 years, an interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, a commitment charge of 0.75% per year, and such other terms and conditions set forth in the OCR loan agreement. A portion of the OCR loan not exceeding $16.7 million will be used to finance on-farm I&D rehabilitation works, and the costs will be recovered fully from the beneficiary farmers through WUAs. The loan from the SF resources will have a term of 32 years, including a grace period of 8 years, an interest rate of 1.0% per year during the grace period and 1.5% per year thereafter, and other terms and conditions set forth in the SF loan agreement.
Period of Utilization	Until 31 March 2013
Estimated Project Completion Date	30 September 2012
Executing Agency	Ministry of Agriculture and Water Resources (MAWR)
Implementation Arrangements	The Project will be implemented over 6 years, starting in October 2006. A high-level project steering committee, with a deputy prime minister as chairman, will provide policy guidance. The deputy minister of water resources in MAWR will be designated as project director with overall responsibility for project implementation. A project management office (PMO) will be established within MAWR to manage project activities, and to liaise with ADB and the coordinating bodies. Project implementation units (PIU) will be established in each of the three project provinces to implement the Project.

A full-time project manager will administer and manage the PMO, while a project site manager will oversee each PIU. The Government will nominate the project manager, who will be endorsed by ADB. A panel of experts appointed by the Government will select the project site managers and key staff based on merit.

Procurement

The Project will procure machinery, equipment, civil works, services, vehicles, office equipment, and materials. All procurement will be undertaken in accordance with ADB's *Procurement Guidelines*.

Consulting Services

The Project will provide 131 person-months of international consulting services and 857 person-months of domestic consulting services in (i) institutional capacity building; (ii) land and water management methodologies; (iii) design, procurement, and construction supervision; and (iv) project management, monitoring, and evaluation. The consultants will be engaged in accordance with the *Guidelines on the Use of Consultants by Asian Development Bank and its Borrowers,* using the quality- and cost-based selection method.

Project Benefits and Beneficiaries

The main economic benefits of the Project are expected to result from (i) avoidance of production losses due to reduced land degradation and improved management; (ii) increased cotton and wheat yields and production, resulting from policy, institutional, and technical interventions; and (iii) higher and more sustainable farmer incomes from production incentives and productivity enhancements. The economic internal rate of return of the project investments is estimated at 21.5% with a net present value of $26.78 million, indicating positive returns to the economy. An overall annual increase of 31,200 tons of cotton and 13,800 tons of wheat is projected in the project areas. In response to local market demand, a small expansion in fodder crops, vegetables, and fruit also is expected, and will increase slightly the cropping intensity on private farms. In addition, project interventions will halt further land degradation in the area, estimated at 13,000 ha over the next 15 years.

After project implementation, household incomes in the project area will rise by 15% in Kashkadarya, 23% in Navoi, and 30% in Bukhara. In-kind consumption growth will average 10–15% in the project area. At project completion, productivity growth and higher income and consumption of poor households will reduce poverty incidence (i) from 37.3% to 35% in Kashkadarya Province, (ii) from 28.3% to 24.2% in Navoi Province, and (iii) from 27.3% to 22.5% in Bukhara Province. Further, an analysis of the policy reforms associated with the Project, using a policy analysis matrix approach, indicates a positive impact on exports and Government revenues.

Risks and Assumptions

The Project aims to achieve enduring behavior changes—in addressing land degradation and implementing agriculture sector reforms—at all levels, including in national and local governments, and among beneficiaries. To achieve and sustain such changes, the Government's strong commitment and political will are essential. The Government has demonstrated its commitment to implementing agriculture sector reforms slowly, but consistently. Despite some initial delays, the Government has raised production incentives gradually through (i) accelerated farm privatization, (ii) decreased net transfers from agriculture, (iii) reduced state procurement quotas, (iv) higher procurement prices, and (v) gradual liberalization of the cotton trade. It also has developed a new simplified tax code for agriculture. Therefore, the risk that the Government might turn away from its commitment to reforming the agriculture sector and addressing land degradation in a comprehensive manner is considered low.

ADB and World Bank continue to collaborate closely in monitoring and assessing the progress of reforms. Alongside the Project, the associated TA will help the Government and stakeholders to assess the progress, outcomes and impacts of the reforms. This will promote awareness and understanding among stakeholders, thereby building alliances that will support and advocate enduring behavior changes.

Institutions with adequate capacity and legal authorities also must support the intended behavior changes. In particular, the institutions responsible for sustainable land management must be provided with clear mandates and enhanced capacity. The Project recognizes the risk of falling short in delivering the intended results due to institutional weaknesses. Accordingly, it aims to develop institutions based on several ongoing ADB-assisted institutional strengthening activities, notably for water sector institutions, WUAs, and land management institutions. The proposed Project and associated TA will build on the progress from these activities, while the proposed GEF grant will support national level planning and institutional strengthening.

One potential risk involves the inadequate maintenance of the rehabilitated I&D schemes due to the lack of financial resources and/or technical skills. The Project addresses this risk in two ways. First, it will select, through systematic screening and consultation with stakeholders, schemes with low O&M costs. Second, the Project will help develop participatory design, implementation, and O&M of the selected schemes through WUAs, utilizing the extensive experience of the ADB-financed Ak Altin Agricultural Development Project in WUA development and training, in close collaboration with other funding agencies. The reform agenda that will be implemented under the Project also will support institutional strengthening of MAWR and WUAs, and raise farmers' incomes to enable them to invest in sustainable water management and improved O&M.

As for project implementation risks, the proposed Executing Agency has been implementing three ADB projects, and has demonstrated adequate implementation capacity. The scope and nature of physical works under the Project are also generally simple. Thus, the risk of the Project encountering implementation delays and difficulties is considered low.

Technical Assistance

A TA entitled Implementation and Monitoring of Policy Reforms in the Agriculture Sector will be provided to assist the Government at central and provincial levels in (i) formulating, prioritizing, and implementing the agreed reforms; (ii) strengthening the relevant institutions; (iii) preparing legislation to reverse the constraints on agricultural productivity and rural incomes; (iv) monitoring the implementation of reforms and their impact on farm incomes, rural poverty, and Government revenues; and (v) planning the expansion of sector reforms.

The TA is estimated to cost $1,000,000 equivalent, of which $800,000 will be financed by ADB's TA funding program ($200,000) and the Poverty Reduction Cooperation Fund administered by ADB ($600,000) on a grant basis. The Government will finance the remaining $200,000 by providing offices, logistical support, and counterpart staff. The Ministry of Economy will be the TA Executing Agency. The TA will be implemented over 24 months, starting in October 2006. The TA will provide 14 person-months of international consulting services and 36 person-months of domestic consulting services. ADB will engage the consultants through a qualified firm in accordance with the *Guidelines on the Use of Consultants by Asian Development Bank and its Borrowers*.


UZBEKISTAN
LAND IMPROVEMENT PROJECT
KAZAKHSTAN
TURKMENISTAN
KYRGYZ REPUBLIC
TAJIKISTAN
AFGHANISTAN
Aral Sea
60°00'E
69°00'E
45°00'N
39°00'N
N
0 50 100 150
Kilometers
Muynak
Kungrad
KARAKALPAKSTAN
Khodzheyli
Nukus
Amudarya R.
Urgench
KHOREZM
Turtkul
NAVOI
Uchkuduk
Zarafshan
Gazh
BUKHARA
Navbakhor
Khatirchi
Jandor
Bukhara
Kyzyltepa
Bukhara
Navoi
SAMARKAND
DJIZZAK
Djizzak
Samarkand
Gulistan
SYRDARYA
Syrdarya R.
Chirchik
TASHKENT
Angren
TASHKENT
Namangan
NAMANGANH
Andijan
ANDIJAN
Kokand
Fergana
FERGANA
Sukh
Jordan
Kasan
KASHKADARYA
Karshi
Oklya
Kamashi
Guzar
Denau
SURKHANDARYA
Termez
Project Area
National Capital
Provincial Capital
City/Town
Main Road
Railway
River
Provincial Boundary
International Boundary
Boundaries are not necessarily authoritative.
06-0521 HR

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on proposed loans to the Republic of Uzbekistan for the Land Improvement Project. The report also describes the proposed technical assistance (TA) for implementation and monitoring of policy reforms in the agriculture sector. If the Board of Directors of the Asian Development Bank (ADB) approves the proposed loan, I, acting under the authority delegated to me by Board, will approve the TA.[1]

II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES

2. At the request of the Government of Uzbekistan, ADB approved a TA to prepare the Land Improvement Project. The TA was carried out from January to August 2005. This document is based on the consultants' studies, surveys, and reports; the findings of ADB missions; and discussions with government agencies, stakeholders, and beneficiaries.

A. Performance Indicators and Analysis

3. Uzbekistan is a low-income country with gross national income per person of $420 in 2003. The Government estimates that Uzbekistan's gross domestic product (GDP) grew 4.2% in 2002, 4.4% in 2003, and 7.7% in 2004. During 2000–2004, agriculture accounted for about 29% of GDP, 25% of export earnings, and 33% of the national employment. About 15 million people, or 60% of the population of 25.6 million, live in rural areas and depend solely on agriculture for their livelihoods. Cotton, which dominated the country's agriculture sector during the Soviet era, continues to do so, though to a lesser extent. The country is the world's sixth largest producer of cotton, which remains a major source of export and tax revenues. Since independence, the Government has promoted wheat production, and wheat self-sufficiency was achieved in 1997.

4. The agriculture sector continues to be an important source of income for the economy. Government policy consistently has aimed to (i) maximize agriculture exports; (ii) achieve food security and self-sufficiency in wheat; and (iii) redistribute revenues from agriculture to other sectors, such as health, industry, and infrastructure. The transfers from the agriculture sector are made possible by a policy framework that gives the Government control over the production and marketing of cotton and wheat through planning, foreign exchange and trade controls, and directed credits.[2] State procurement contracts (quotas) are set, subsidized credit and inputs are provided to finance cotton and wheat production, and farmers are required to sell 50% of their output to the Government at fixed prices below international prices. Since 2002, the Government has undertaken sector reforms (paras. 10–11) with the support of international development partners, including ADB (paras. 15–17).

5. Irrigation is vital to agriculture in Uzbekistan, which has an arid climate. The expansion of irrigated areas started in the 1950s, when huge schemes were constructed to irrigate semi-desert areas. Many people from densely populated parts of the country were mobilized to support the development of these schemes, as well as agro-processing industries. An excessive amount of water was taken from the Amu Darya and Syr Darya rivers for this large-scale irrigation program, with little attention to efficient use of the water. This contributed to soil salinization, land degradation, and the Aral Sea environmental disaster. Since independence, farm restructuring and the emergence of private farms have presented new challenges to

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[1] The project design and monitoring framework is in Appendix 1.

[2] ADB. 2004. *Technical Assistance to the Republic of Uzbekistan for Agriculture Sector Review Planning Project*. Manila. The TA reviewed the performance of the sector, taxation, transfers, and subsidies. The World Bank's sector work (para. 17) estimated the net transfers from the cotton subsector at 1.4% of GDP in 2004.

irrigated agriculture. These have included the need for institutions, operation and maintenance (O&M) procedures, and water control and distribution structures to provide adequate and efficient water supplies to thousands of small private farms.

6. The farming community is organized into three main producer types: (i) *shirkats* (cooperative farms), (ii) private farms, and (iii) *dekhan* farms.[3] Under the large Soviet state farms, workers received a fixed wage. With the collapse of the former Soviet Union, the Government started transforming these farms into enterprises that could manage their land better. During the 1990s, 1,100 state farms and 940 collective farms[4] were reorganized into smaller cooperative farms (shirkats), where workers hold a share of the farm assets. Shirkats have performed poorly, with many incurring substantial financial losses. In 1997, private farms received independent jurisdictional status. As farm privatization accelerated, 125,000 private farms cultivating 2.9 million hectares (ha) were established in 2004. Under the Government's reform program, farm privatization is scheduled for completion by 2007. The number of dekhan farms also has increased from 2.3 million in 1991 to 4.3 million in 2004. Dekhan farms produce 17% of the country's grains and most of it fruits and vegetables, while providing cash income for the rural population. Land use rights of dekhan farms are clearly established (e.g., long-term lease and free cropping patterns). However, the land use rights of private farms are linked to the fulfillment of state procurement quotas for cotton and wheat, and often do not reflect the land quality and farm infrastructure. Land use contracts are rarely registered, allowing local authorities to evict farmers if they do not fulfill state quotas. These factors limit land use security and investment in land improvement, and are disincentive for farmers and rural business.

7. Overall, the performance of the agriculture sector has fallen short of its potential. Agriculture output dropped 16% from 1990 to 1996, though it has grown modestly since and has rebounded to 1990 levels.[5] The poor productivity in the sector is reflected in low irrigation efficiency, extensive land degradation, and low yields. The average withdrawal of irrigation water per hectare is 14,000 cubic meter (m^3), compared with 9,000–10,000 m^3/ha in countries with similar climate.[6] The heavy water usage has not translated into high yields, as the average yields—2.25 tons (t)/ha for cotton and 4.2 t/ha for wheat—are low. More than 60% of water diverted for irrigation fails to reach the fields, overloading the drainage network with water losses. The Ministry of Agriculture and Water Resources (MAWR) estimates that about 20,000 ha of irrigable land are abandoned each year due to the progressive failure of the drainage systems, rise in soil salinity, and land degradation, as well as declining crop yields.

8. Agriculture sector policies, such as mandatory production targets and state control of the production system, are also among the underlying causes for deteriorating land and water resources. As farmers are forced to adhere to short-term production targets, inadequate attention is paid to farm-level investments for increasing longer-term productivity. Land degradation causes an estimated $31 million in annual crop production losses in Uzbekistan.[7] Moreover, salinization and land degradation have been recognized as key environmental problems. The most adverse impact of land degradation is being experienced in Navoi, Bukhara, and Kashkadarya provinces, and in the Fergana Valley.

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[3] Dekhan farms are small inheritable households plots (0.15–0.35 ha) free in crop selection and marketing.

[4] State farms (*sovkhoz*) are state-operated agricultural estates specialized for large-scale production. Collective farms (*kolkhoz*) are large cooperative agricultural enterprises operated on state-owned land.

[5] World Bank. 2003. *Country Economic Memorandum*. Washington, DC.

[6] World Bank. 2000. *Republic of Uzbekistan Irrigation and Drainage Sector Study*. Washington, DC.

[7] The Central Asia Scientific-Research Institute for Irrigation estimates that cotton yields decline 20–30% on slightly salinized land, 40–60% on moderately salinized land, and up to 80% on severely salinized land.

B. Analysis of Key Problems and Opportunities

9. **Key Constraints.** Sector[8] and farm problems are reflected in (i) low productivity and returns from cotton and wheat production, (ii) limited crop diversification, and (iii) continuing deterioration of land and water. At the same time, mandatory production targets for cotton and wheat, the involvement of local governments in private farming production and financing, and below-market procurement prices are major disincentives for private farmers to increase yields, diversify cropping patterns, and improve farm management. This also highlights the need for local governments to transform from enforcers of the state-dominated procurement system to facilitators of a new market-based agriculture system, in line with the Government's agriculture sector strategy. Thus, technical solutions for land improvement will be ineffective unless critical issues of agriculture policy and local governance are addressed.

10. **Government Strategy.** The Government has taken a gradual approach to the transition to a market economy, relying on state intervention and state planning. Although this approach has succeeded in avoiding the economic collapse that has befallen other former Soviet republics, it has created economic distortions. Recognizing these distortions, the Government has undertaken significant macroeconomic and sector reforms since 2001. At the macroeconomic level, the exchange rate was devalued in 2003. At the microeconomic level, state procurement quotas for cotton and wheat have decreased from 70% to 50% of the total production since 2002. A further reduction of quotas from 50% to 25% is applied to ADB- and World Bank-financed projects. Procurement prices are being increased gradually. The cotton procurement price was increased from $50/t in 2000 to $224/t in 2005,[9] while wheat procurement prices have been aligned with the prices in Central Asia. In March 2003, Presidential Decree No. 3226 established a framework for the development of private farming, and reduction of the Government's control over agriculture, promotion of market principles in input supply and output marketing. Since 2005, farmers have been allowed to sell cotton exceeding the state quota to foreign traders, or to the Government at a 20% premium to the procurement price. The Uzbekistan Commodity Exchange was established in 2004, providing an alternative marketing outlet.

11. A new simplified tax code for agriculture is being developed, and an improved land taxation mechanism is being pilot tested.[10] Combined with the currency devaluation, these measures reduced implicit cotton taxation from 66% in 2000 to 31% in 2004.[11] The centralized ginning system has been restructured, while flour mills, grain warehouses, and fertilizer distribution centers are being privatized. Still, private investment and ownership have been slow to take root. The Government also has started replacing subsidized state credit with commercial bank lending. However, the farmers' lack of collateral, because their land leasehold rights are ambiguous and are rarely accepted by banks for loan guarantees, has hampered this process.

12. Despite these policy improvements, implementation of some reform measures at the local level is slow. State institutions continue to be present throughout the sector's value chain. Moreover, local governments still control farm production, provision of inputs and credit, marketing of outputs, and monitoring of quota targets. Continued subsidies of farm inputs and credit lead to inefficiencies and the diversion of inputs into the black market. However, the policy dialogue with the Government is yielding results. The Government accepts the need to deepen reforms and improve incentives, though close monitoring of policy implementation at the local

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[8] Summary agriculture and water sector analysis is in Appendix 2.

[9] Since 2002, prices are adjusted annually, using formulae established by the Government, ADB, World Bank, and International Monetary Fund. These are outlined in Presidential Decree No. 3114 of 20 August 2002.

[10] In Tashkent, Samarkand, and Surkhandarya provinces, the tax rate declined from 23% in 1999 to 14.6% in 2003.

[11] World Bank. 2005. Cotton *Taxation in Uzbekistan: Opportunities for Reform*. Washington, DC.

level is needed to ensure that incentives to improve land and water management are in place. These issues will be addressed under the agreed reform agenda, and monitored through the grant-financed TA (para. 43).

13. The Government's funding of O&M for irrigation and drainage (I&D) infrastructure has fallen dramatically since independence, accelerating the deterioration of the system.[12] Pumping of water for irrigation consumes about 20% of electricity generated in Uzbekistan and 70% of the Government budget for the sector. As a result, little money is left for I&D rehabilitation and modernization. Due to the lack of incentives to conserve water and improve land management practices, overuse of water—with the consequent water logging and soil salinity—affects more than 47% of Uzbekistan's irrigated area.[13] Overuse of chemicals exacerbates poor soil conditions. Rehabilitation of I&D infrastructure and better water management are needed urgently to arrest the expanding land degradation and conserve water.

14. To address water management constraints, the Government is moving towards a decentralized administration of water resources. Basin irrigation system authorities (BISA), based on hydrological boundaries, have been established to rationalize water allocation. In addition, water users associations (WUA) are being established rapidly, and responsibility for on-farm O&M is being transferred to these groups. A commitment has been made to introduce water user charges to ensure funding of O&M of I&D systems.[14] Water delivery fees are being instituted on a trial basis, and bulk water charges are to be implemented in 2006. However, since BISAs and WUAs do not have adequate expertise and resources to deliver the services needed, further capacity building is required.

15. **External Assistance.**[15] ADB, a major supporter of sector development, is financing three ongoing projects designed to address low farm productivity, low farm incomes, and poor sector growth. The Ak Altin Agricultural Development Project[16] is aimed at strengthening rural institutions to support private farming (e.g., rural business advisory centers and WUAs), and rehabilitating irrigation infrastructure. The Grain Productivity Improvement Project[17] supports capacity building of institutions in wheat breeding and research, adoption of new varieties, private sector development in input supply, improved farming practices, and environmentally safe pest control. The Amu Zang Irrigation Rehabilitation Project[18] finances the rehabilitation of a pumping cascade, irrigation infrastructure, improved irrigation management, and development of private farms. These projects also support the implementation of sector policy reforms by pilot testing and replicating reduced procurement quotas for cotton and wheat.

16. The Agriculture Sector Review and Planning TA[19] helped the Government assess the taxes imposed on the cotton subsector, and identify key strategic directions for sustainable agricultural development. Another TA[20] focused on an integrated cadastre system for land

[12] In 2004, only 3.4% of the country's annual investments were in agriculture.
[13] ADB. 2003. *Uzbekistan: Issues and Approaches to Combat Desertification*. Manila.
[14] A program to introduce market principles in the utilization of irrigation water has been pilot tested since early 2005.
[15] Major external assistance to agriculture and water sectors is in Appendix 3.
[16] ADB. 2002. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Uzbekistan for Ak Altin Agricultural Development Project*. Manila.
[17] ADB. 2004. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Uzbekistan for Grain Productivity Improvement Project*. Manila.
[18] ADB. 2004. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Uzbekistan for Amu Zang Irrigation Rehabilitation Project*. Manila.
[19] ADB. 2004. *Technical Assistance to the Republic of Uzbekistan for Agriculture Sector Review and Planning*. Manila.
[20] ADB. 2004. *Technical Assistance to the Republic of Uzbekistan for Developing an Integrated Cadastre System for Land Resources Management and Property Right Registration*. Manila.

management and land registration. ADB financed the TA for Combating Desertification in Asia,[21] which assessed land degradation issues in Central Asia. ADB also financed the preparation of the Central Asian Countries Initiative for Land Management (CACILM),[22] which supports the development and implementation of national programming frameworks (NPF) for comprehensive and integrated approaches to sustainable land management to combat land degradation. The Uzbekistan National Working Group established under CACILM prepared the NPF, which outlines the Program for Sustainable Land Management, and includes activities financed by this Project and the Global Environment Facility (GEF) (para. 27).

17. The World Bank's assistance combines physical investments, policy reforms, and institutional development. The Cotton Sub-sector Improvement Project[23] pilot tested reforms in the cotton subsector (e.g., lowering procurement quotas and establishing alternative marketing channels); the Rural Enterprise Support Project[24] aims to improve farm productivity; and the Drainage, Irrigation and Wetland Improvement Project[25] supports a reduction of drainage flows into the Amu Darya River. The World Bank carried out recent sector study[26] that complements ADB's sector work. This study argues that cotton production is over-taxed, creating disincentives for farmers. Further, the World Bank study suggested (i) abolishing the compulsory quotas patterns, (ii) eliminating the ginning monopoly; and (iii) liberalizing cotton marketing. The European Union (EU) supports integrated water management, and is pilot testing land registration. United States Agency for International Development (USAID) provides assistance in water management and farmers' business training. Food and Agriculture Organization (FAO) is supporting the introduction of salt-tolerant crops and minimum tillage.

18. **Lessons.** Implementation of the ADB-financed Ak Altin Project has confirmed farmers' positive response to quota reduction. The cotton yield within the project area grew by 29% between 2004 and 2005, exceeding the growth rate of 20% in adjacent areas. Likewise, incomes of farmers within the project area were 15% higher than those in neighboring areas. These results can be attributed to the enhanced incentives available, as the project's infrastructure is not yet rehabilitated. However, farmers still wait up to 6 months for full payment for their cotton,[27] and they are not yet selling their above quota cotton to other buyers. While these initial difficulties point to the need to include the local authorities in the reform process, the positive outcomes in the Ak Altin area already are changing the mindset of the Government.

19. Land degradation control often has emphasized top-down engineering solutions. This approach typically has not involved participation of stakeholders, or attacked the root causes of the problem. The experience of ADB and other development agencies throughout the region indicates that sustainable land management must (i) apply customized techniques that meet the specific needs and capacities of the affected population in a flexible way; (ii) provide adequate price incentives, free of government intervention, to achieve higher farm incomes and ensure sustainable land and water management; and (iii) create an institutional environment—in the form of land and water management, and land tenure arrangements—that reinforce incentives for sustainable land management based on market principles. The most crucial lesson is to ensure the creation of an enabling policy environment that supports enduring changes in the behavior of stakeholders responsible for land degradation. This requirement is strongly tied to

[21] ADB. 2000. *Technical Assistance for Combating Desertification in Asia*. Manila.
[22] CACILM is cofinanced by the GEF, the Global Mechanism of the Convention to Combat Desertification, and ADB. CACILM is included in the GEF pipeline at a funding level of $20 million.
[23] World Bank. 1995. *Cotton Sub-sector Improvement Project*. Washington, DC.
[24] World Bank. 2001. *Rural Enterprise Support Project*. Washington, DC.
[25] World Bank. 2003. *Drainage, Irrigation and Wetland Improvement Project*. Washington DC.
[26] World Bank. 2005. Cotton *Taxation in Uzbekistan: Opportunities for Reform*. Washington DC.
[27] Currently, the ginneries pay after selling the cotton fiber, which under the Ak Altin Project takes up to 6 months.

the persisting Government policy distortions that favor specific crops (cotton and wheat), with little attention to sustained land management that requires broad agriculture sector reforms.

20. The World Bank's experience[28] suggests that (i) proper sequencing is important for successful reform (e.g., withdrawal of subsidies should be synchronized with enhanced incentives); (ii) delaying investments until the policies are right can reduce the ability to help the poor and can increase the costs; (iii) investments in a limited geographic area, combined with focused policy reforms, are most likely to be successful; and (iv) Government decision making might take longer than expected, given the complex institutional relationships. Further, the World Bank experience demonstrates that adequate TA grants are needed to support project implementation. Initial delays in implementing reforms on the ongoing ADB and World Bank projects also suggest that sufficient resources need to be allocated for capacity building of local institutions, monitoring of the implementation of reforms, and raising public awareness.

21. These lessons have been incorporated in the project design: (i) analysis of the impact of the policy initiatives on yields, incomes, and revenues has been prepared and discussed with the Government as part of extensive police dialogue; (ii) a geographically focused project has been designed, coupling priority policy reforms with physical interventions to achieve tangible outcomes; (iii) support to strengthen the capacity of institutions at the provincial and district levels, as well as of private farmers and WUAs, has been incorporated; and (iv) project performance will be closely monitored and supervised based on clear indicators. To adequately fund these activities, TA- and GEF-financed grants (through CACILM) have been provided.

22. **Rationale.** Agriculture remains the main source of livelihood for rural communities, which make up 60% of the population, and is critical to the inclusive and sustainable growth of the Uzbekistan economy. Rapidly worsening land degradation is threatening the performance of the agriculture sector and the livelihoods of a large proportion of the rural population. Given the importance of the sector, the Government aims to increase farm productivity. However, unless the depletion of the production base is reversed and land and water management are improved, this goal will not be achieved. The design of the proposed Project, which focuses on the areas that experience the most severe land degradation in Uzbekistan, fully reflects the experience and lessons gained from ADB's past and ongoing operations. Such lessons suggest that enabling policies that promote and encourage farmers' incentives are needed to support sustainable land management. In Uzbekistan, these policies include (i) increased freedom on farming decisions (i.e., reduced state procurement quota), (ii) fair and improved pricing of state-procured commodities, (iii) timely payments to farmers, (iv) liberalized markets, and (v) secure access to land. Reforms to production, pricing, and marketing have been undertaken since 2002 under ongoing agriculture sector reforms supported by ADB and World Bank. The proposed Project will build on, expand, and deepen these reforms—particularly by incorporating a new initiative for improving access to land—as clarified in the assurances (para. 62). Moreover, the Project will take specific actions to achieve good governance in agricultural production and land management. Other experiences also indicate that institutions responsible for land management must have the ability to design and implement custom solutions to land degradation. The Project incorporates these lessons through a strong policy agenda for improved land tenure (para. 25), as well as institutional strengthening to improve rural governance. Based on these lessons, the Project will bring in the necessary investments to rehabilitate seriously deteriorated land and water management infrastructure cost-effectively taking into account the need for future sustained O&M. The Project also aims to develop long-term planning and interventions to

[28] World Bank. 2002. *Reaching the Rural Poor in the Eastern Europe and Central Asia*. Washington, DC.

control land degradation beyond the project area, and generate additional global environmental benefits through cofinancing by the GEF (para. 27).

23. **ADB's Strategy.** ADB's country strategy (2006–2010) in Uzbekistan[29] recognizes that the key constraints to agricultural productivity include the state procurement system, and heavy intervention in inputs supply and marketing. It also recognizes the need to strengthen property rights, market, land, and water management institutions; and to maintain the physical state of land and water infrastructure. By focusing on rural development, ADB can help Uzbekistan enhance rural governance, employment and income opportunities, and environmental sustainability, thereby contributing to a reduction in rural poverty. The country strategy and program's four strategic priorities are (i) accelerating environmentally sustainable rural development through improved land and water management, agricultural productivity, and land administration reform; (ii) supporting the private sector; (iii) promoting regional cooperation; and (iv) building human capital. Within each of these areas, a core set of governance and institutional outcomes are to be pursued. The Project is closely aligned with this strategy, as it focuses on key land, water management, and environmental issues; as well as reforms to raise production incentives and improve rural governance.

III. THE PROPOSED PROJECT

A. Impact and Outcome

24. The project area covers 162,300 ha in nine districts: Kamashi, Guzar, and Kasan in Kashkadarya; Kyzyltepa, Khatirchi, and Navbakhor in Navoi; and Jandor, Bukhara, and Romitan in Bukhara. The districts were selected through systematic screening and stakeholder consultation, based on the following criteria: (i) availability of irrigation water; (ii) high risk of land degradation without interventions; (iii) high potential for restoring land capability; (iv) low investment and O&M costs; (v) large number of poor households; and (vi) existence of relevant rural organizations. The expected impact of the Project is increased income of farmers in the project area. The project outcome would be improved quality and sustainable productivity of land, leading to higher crop yields and enhanced ecological sustainability in the project areas.

B. Outputs

25. To ensure this outcome, the loan and accompanying TA grant are designed to produce policy, technical, and institutional changes. The outputs are (i) an enabling policy environment that supports incentives for sustainable land management (para. 22), (ii) improved land and water management practices, (iii) strengthened capacity of water management institutions, (iv) rehabilitated land and water infrastructure, and (v) operational and effective project management and monitoring systems. While the TA focuses on the implementation and monitoring of policy reforms, the Project will carry out the following:

(i) Reform initiatives will be implemented in the project district, introducing (a) increased freedom on farm decisions: state procurement quota for cotton and wheat in the project districts will be reduced to 25% of the long-term average production, and greater freedom on cropping patterns will be allowed; (b) price reform: the procurement prices for raw cotton and wheat will reflect changes in international prices, inflation, and market-based exchange rates, and farmers will be entitled to sell production exceeding their quota at their discretion; (c) payment reform: farmers will receive final payment for raw cotton after crop delivery; (d)

[29] ADB. 2006. *Country Strategy and Program 2006–2010*. Manila

market liberalization: farmers will be allowed to sell above-quota cotton and other non-quota produce freely; and (e) land access reform: the land use lease contracts between the Government and the farmers will be improved to ensure protection from cancellations without legal process, and will be eligible for use as collateral to access loans from commercial banks.

(ii) Land and agricultural improvements will introduce improved land reclamation practices and on-farm water management. The Project will establish three demonstration farms to promote innovative on-farm technologies (e.g., leveling, subsoiling, etc.), and to demonstrate enhanced agronomic practices (e.g., crop rotations and minimum tillage to reduce inputs and increase soil fertility, and integrated pest management). Local scientific institutions with relevant experience will be involved to ensure the ownership, replication, and sustainability of these operations.[30] The loan consultants will supplement the capacity of the scientific institutions. These improvement practices, initially implemented through the scientific institutions, will be scaled-up with the increased involvement of the private sector, and financed through the GEF grant.

(iii) Capacity of land and water management institutions, particularly BISAs, MAWR, and WUAs, will be strengthened through (a) development of efficient O&M procedures and market-based irrigation delivery fees, (b) adoption of an integrated water management, and (c) financial and management training.

(iv) Land management infrastructure will be rehabilitated, including rehabilitation of on-farm canals and drains for improved land and water management, and equitable delivery of irrigation water to individual private farms, including 15,175 ha in Navoi, 21,460 ha in Bukhara, and 24,150 ha in Kashkadarya. The cost of on-farm improvements will be recovered from the beneficiaries. In addition, the main drainage collectors will be rehabilitated, including 330 kilometers (km) in Navoi, 640 km in Bukhara, and 500 km in Kashkadarya, covering an area of 162,300 ha. Rehabilitation of drainage and irrigation structures for improved water control and efficiency will be prioritized.

(v) Project management will comprise the establishment of project offices and performance monitoring and evaluation units, surveys, and water and soil quality monitoring. A project management office (PMO) will be established at MAWR to manage project activities. Three project implementation units (PIU) will be set up in Navoi, Bukhara, and Kashkadarya to implement the Project in their areas, and to maintain liaison with local and beneficiary organizations.

C. Special Features

26. The Project represents a shift in ADB's sector assistance from irrigation rehabilitation to a comprehensive improvement in land and water management, focusing on the worsening and expanding land degradation. To do this, the Project expands and deepens the ongoing, programmatic approach to agriculture sector reforms implemented under the ADB-financed projects in the sector. In addition, it will also establish a supportive policy and institutional framework for sustainable land management, including enhanced security of land tenure and farmers' access to commercial credit. To help the Government implement these reforms, an associated TA will provide expertise and resources to enhance local institutions' capacity, and to monitor the reform progress (para. 43). These reforms ensure increased freedom in farm decisions (i.e., what to grow and where to sell), fair and timely payments of state-procured commodities, and secured access to land use rights—all according to the transparent and

[30] The Tashkent Institute of Irrigation and Melioration and the Cotton Research Institute have agreed to participate.

predictable rule of good local governance. The Project's contribution to achieving good local governance, particularly in restricting official and unofficial interventions of local authorities in farm management decisions, reflects the CSP's recognition of governance risks associated with local governments. Further, it is in line with the recommendations of ADB's *Country Assistance Program Evaluation for Uzbekistan* for strategic approach to governance issues.[31]

27. A grant from GEF Operational Program 15 on Sustainable Land Management is proposed to enhance the project impact at national and subregional levels. ADB submitted a request for grant financing ($3.0 million) to the GEF Council to finance additional activities to ensure sustainable ecological productivity in the project area. If approved, ADB will administer the GEF grant, according to GEF-ADB agreement, to promote modern land management, enhance project replicability, and generate additional global environmental benefits. The GEF-financed activities will (i) address regulatory conditions for improved land management; (ii) foster coordination among line agencies to ensure an integrated, participatory approach to project activities; (iii) involve all stakeholders in planning, implementing, and monitoring of sustainable land management; (iv) pilot test innovative technical systems and public and private partnerships; and (v) include monitoring and evaluation to increase the replicability of the Project. The GEF Council will review the proposal in June 2006. If approved, GEF financing will begin in 2007 and will be implemented over 4 years. If GEF does not approve financing, only the project activities financed by the two ADB loans (para. 25) will be implemented.

D. Project Investment Plan

28. The Project is estimated to cost $76.18 million, including $11.59 million for taxes and duties, $8.60 million for physical and price contingencies, and $5.06 million in estimated financial charges during implementation. The project cost estimates are summarized in Table 1, while the detailed cost estimates by expenditure category and detailed cost estimates by financier are provided in Appendix 4 and Supplementary Appendix O.

Table 1: Project Investment Plan
($ million)

Item		Amounts[a]
A.	**Base Costs**[b]	
1.	Land and Agricultural Improvement	1.69
2.	Capacity Building of Land and Water Management Institutions	0.58
3.	Rehabilitation of Land Management Infrastructure	54.34
4.	Project Management	5.85
	Subtotal (A)	**62.46**
B.	**Contingencies**[c]	**8.97**
C.	**Financial Charges During Construction**[d]	**4.13**
D.	**Commitment Charges**	**0.62**
	Total (A+B+C+D)	**76.18**

[a] Includes taxes and duties of $11.59 million.
[b] In 2006 prices.
[c] Physical contingencies computed at 5%. Price contingencies are based on the cost escalation during 2006–2009.
[d] Computed at the 5-year forward London interbank offered rate as of 23 March 2006 plus a spread of 60%.
Source: ADB estimates.

[31] ADB. 2006. *Country Assistance Program Evaluation for Uzbekistan*. Manila.

E. Financing Plan

29. The Government has requested a blend of two loans to finance the Project: (i) a loan of $32.6 million from ADB's ordinary capital resources (OCR), and (ii) a loan in various currencies equivalent to SDR 18,515,000 from the Special Funds (SF) resources.

30. The OCR loan will finance a portion of the cost of the on-farm I&D rehabilitation works and other project activities, such as land and water management improvement, institutional strengthening, and project management. The loan will have a 25-year term, including a grace period of 5 years, an interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, a commitment charge of 0.75% per year, and such other terms and conditions set forth in the draft loan agreement (ordinary operations). A portion of the OCR loan not exceeding $16.7 million will be used to finance on-farm I&D rehabilitation works, and will be recovered from the beneficiary farmers through WUAs (para. 34). The Government has provided ADB with (i) the reasons for its decision to borrow under ADB's LIBOR-based lending facility, and (ii) an undertaking that these choices were its own independent decision and not made in reliance on any communication or advice from ADB.

31. The SF loan will be utilized solely to finance the cost of the main and inter-farm rehabilitation works. The loan will have a term of 32 years, including a grace period of 8 years, an interest rate of 1.0% per year during the grace period and 1.5% per year thereafter, and other terms and conditions set forth in the loan agreement (special operations).The beneficiaries also will contribute $0.39 million towards the cost of the demonstration farms. The Government will finance the remainder of the project cost, estimated at $15.58 million, including $11.59 million for taxes and duties. The financing plan is in Table 2.

Table 2: Financing Plan
($ million)

Source	Total	%
A. Asian Development Bank		
1. Ordinary Capital Resources	32.60	42.8
2. Asian Development Fund	27.60	36.2
B. Government	15.58	20.5
C. Beneficiaries	0.40	0.5
Total	**76.18**	**100.0**

Source: ADB estimates.

F. Implementation Arrangements

1. Project Management

32. MAWR will be the project Executing Agency. A high-level project steering committee will be established and meet quarterly to provide policy guidance. The deputy minister of water resources in MAWR will be designated as project director with responsibility for project implementation. A PMO will be established within MAWR to manage project activities and liaise with ADB. PIUs will be set up to handle project implementation in the three project provinces, and to liaise with local administrations and beneficiaries. A full-time manager will lead the PMO, while a site manager will oversee each PIU. The Government will nominate the PMO manager,

who will be endorsed by ADB. A panel of experts appointed by the Government will select the key staff based on merit. The management organization chart is in Appendix 8. The National Women's Committee will be represented in the PMO to implement the Gender Action Plan (GAP) presented in Appendix 13. A financial management assessment was undertaken during project preparation, indicating that the MAWR has satisfactory management capability and systems for financial and accounting management, reporting, auditing, and internal controls. The financial management assessment of MAWR is in Supplementary Appendix R.

2. Implementation Period

33. The Project will be implemented over 6 years, starting in October 2006. Project activities during the first year will focus on fielding consultants, procuring equipment, and establishing the PMO and PIUs. Surveys, investigations, and preparation of designs and bidding documents will start within 6 months of project implementation. In parallel, participatory community consultation with stakeholders will determine the scope of on-farm rehabilitation and agricultural interventions. The results will be collated in the design processes. The project civil works will begin 24 months after the start. The project implementation schedule is in Appendix 6.

3. Cost Recovery

34. A portion of the OCR loan not exceeding $16.7 million will be used to finance on-farm I&D rehabilitation works, and will be recovered from the beneficiary farmers. Before beginning on-farm civil works, the PMO, WUAs, and farmers jointly will review and agree on the scope and costs of the rehabilitation works. Further, the WUAs and farmers will enter into agreements with the PMO (on behalf of the Government), indicating their approval of the scope of works, cost estimates, and readiness to recover the costs. The Government will ensure that these agreements are prepared and executed in a form and substance satisfactory to ADB. The PMO will maintain the records on the selection and approval of the agreements for ADB's review. ADB will pay the civil works contractors directly. A commercial bank designated by the Borrower, and acceptable to ADB, will collect payments through the WUAs and deposit them in a special account.[32] The average rehabilitation cost is estimated at $350/ha or $7,000/farm equivalent, and the terms of repayment will be decided on case-by-case basis during implementation in consultation with farmers. In general, repayments will be made for up to 25 years, including a grace period of 5 years, with the maximum interest of 8% per year, subject to changes to be agreed upon during the midterm review of the Project.[33] A financial analysis of a typical size farm confirmed that farmers will have the capacity to repay. The proposed flow of funds is in Supplementary Appendix T.

4. Procurement

35. Goods, related services, and civil works will be procured in accordance with ADB's *Procurement Guidelines*. Major contracts for equipment costing $1,000,000 equivalent or more will be awarded through ADB's international competitive bidding (ICB). Contracts estimated at less than $1,000,000 will be awarded using national competitive bidding (NCB) procedures acceptable to ADB. Shopping will be allowed for contracts valued at $100,000 equivalent or less. The Executing Agency will certify to ADB that the goods and services financed by the loan are procured from ADB member countries. For works contracts costing less than $50,000, ADB might agree to force account procedures, provided that MAWR can implement these works at a

[32] For these services, an administrative fee of up to 1.5% per year will be paid to the designated bank.
[33] The maximum repayment period of 25 years is based on the economic life of the Project, while the 5-year grace period takes into account the duration of construction and the benefits' built-up period.

reasonable cost. ADB must approve in advance the awarding of all contracts and substantial contract variations. The procurement plan is in Appendix 7.

5. Consulting Services

36. The Project will provide 131 person-months of international consulting services and 857 person-months of domestic consulting services in the following areas: (i) land and water management; (ii) institutional capacity building; (iii) design, procurement, and construction supervision; and (iv) project management, monitoring, and evaluation. At the start of the Project, MAWR and ADB will reassess the required inputs, based on the refined project schedule. The consulting services will be provided by an international firm, in association with domestic consultants or a domestic firm. MAWR will engage the consultants in accordance with the *Guidelines on the Use of Consultants by Asian Development Bank and Its Borrowers*, using full technical proposals and quality- and cost-based selection. [34]

6. Disbursement Arrangements

37. The proceeds of the ADB loans will be disbursed according to ADB's *Loan Disbursement Handbook*. For consulting services, civil works, and equipment following ICB procedures, loan funds will be disbursed directly. For civil works following NCB procedures and small expenditures related to the PMO and PIUs, reimbursement and imprest fund procedures will be applied. After loan effectiveness, the PMO will open imprest accounts for each loan in a commercial bank in Uzbekistan acceptable to ADB. The combined initial deposit to the imprest accounts will not exceed the estimated expenditures for 6 months of project implementation, or 10% of both loans, whichever is lower. ADB's statement of expenditures procedure may be used to reimburse advances made into the imprest account for eligible expenditures, with individual payments amounting to $100,000 or less.

7. Accounting, Auditing, and Reporting

38. MAWR will maintain separate project accounts and financial statements, in accordance with the provisions of the Loan Agreement, the recommendations of the financial management assessment (FMA), and the *Guidelines for the Financial Governance and Management of Investment Projects Financed by ADB*. Further, MAWR will have them audited annually by independent auditors acceptable to ADB. MAWR will submit to ADB certified copies of the annual audited project accounts and financial statements, as well as the auditor's report, which will include a separate opinion on the use of the imprest account and statement of expenditures, and management letter, all in English, within 6 months of the end of each fiscal year during project implementation. MAWR was advised of ADB's requirement for timely submission of audited project accounts and financial statements, and the suspension of disbursements of the ADB loan if it fails to comply with this requirement.

39. MAWR, through the PMO, will submit quarterly and annual reports to ADB, indicating progress made, problems encountered, steps taken to remedy the problems, program of activities, and expected progress during the remaining period. The reports will incorporate the project performance monitoring data and relevant financial data. MAWR also will provide reports and information on the Project, such as ADB may reasonably request, including environmental impacts, dialogue with beneficiaries, and related social issues. Within 3 months after project

[34] The outline terms of reference for consulting services are in Appendix 9.

completion, MAWR will submit to ADB a project completion report with detailed information on project implementation, use of the loan proceeds, and accomplishment of the project objectives.

8. Project Performance Monitoring and Evaluation

40. To monitor the progress of physical works, the Project provides for a comprehensive system of M&E that will be established in accordance with ADB guidelines within 1 year of loan effectiveness. An M&E unit will be established in the PMO to monitor project performance, including environmental, poverty, gender, and social impacts, as specified in the Summary Initial Environmental Examination (SIEE) and the poverty, social, and gender assessment (PSGA). The assessment will be based on the monitoring indicators in the project framework (Appendix 1). Sample surveys, conducted at project completion, will be compared with baseline data. For periodic monitoring, key indicators will be confirmed at project inception, with data incorporated into the system focusing on outcomes, efficiency, profitability, and quality. The TA associated with the Project will monitor the implementation of policy reforms, and assess their impacts.

9. Project Review

41. The Government and ADB will review project implementation at least once a year. After 3 years of implementation, the Government and ADB will carry out a midterm review of the Project to identify problems and assess the need to modify the project scope, as well as implementation and financing arrangements. The parameters for assessing the implementation milestones will include (i) implementation status, (ii) design and construction standards, (iii) physical progress and disbursements, (iv) status of compliance with loan covenants, (v) achievement of the Project's objectives, (vi) progress of policy reforms, and (vii) need for any changes in the project scope to achieve project impact. On completion, the Project will be evaluated according to the terms of reference agreed upon by the Government and ADB.

10. Anticorruption Measures

42. ADB's *Anticorruption Policy* (1998) was explained to, and discussed with, the Government and Executing Agency. Consistent with its commitment to good governance, accountability, and transparency, ADB reserves the right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive, or coercive practices relating to the Project. To support these efforts, relevant provisions of ADB's *Anticorruption Policy* are included in the loan regulations and the bidding documents for the Project. In particular, all contracts financed by ADB in connection with the Project shall include provisions specifying the right of ADB to audit and examine the records and accounts of the Executing Agency and all contractors, suppliers, consultants, and other service providers as they relate to the Project. Combating corruption is part of broader work on good governance and capacity building that forms and important element of the Project. It is intended to ensure enduring behavior changes of local authorities, and enable transparent and equitable distribution of farm profits to support farmers' incentives for improved land management. Measures to improve local governance, empower farmers to make independent farm production decisions, and combat corruption are incorporated in the project design. Supplemented by institutional capacity building, these policy reforms will be implemented in the project districts to increase farmer's independence, improve land tenure security, and limit the interference of local authorities in business decisions (paras. 25–26). At the project level, the financial management capacity of the Executing Agency has been assessed as satisfactory (para. 32). A stand-alone PMO will manage the Project to mitigate the risks associated with weaknesses in government systems, and project accounts will be audited externally each year (paras. 38 and 63). The project civil works have been packaged

into large contracts to attract reputable contractors and will require ADB's approval before being awarded. Since direct involvement of the intended beneficiaries in procurement is recognized as an effective measure to combat corruption, the planning and construction supervision of the on-farm I&D rehabilitation works (28% of the loan amount) will be carried out in close consultation with the participating farmers and WUAs, and the beneficiaries will confirm their agreement with the scope and cost of these works before contracts are awarded. The accompanying TA also provides for close participatory monitoring of project implementation.

IV. TECHNICAL ASSISTANCE

43. A TA grant will support the Government in implementing and monitoring the agreed policy reforms (para. 62.), TA impacts are accelerated agriculture sector reforms and dissemination of reform knowledge that can be replicated within Uzbekistan. The TA outputs are (i) reduced quotas, register land use contracts, and liberalize agricultural markets in the project districts; (ii) an implementation plan for reforms; and (iii) monitoring of reform implementation, and proposals to expand reform initiatives. The TA will have three components: (i) design of the implementation of reforms; (ii) support to institutions in implementing the agreed reforms; and (iii) a participatory system for monitoring the implementation and impact of reforms on Government revenues, farm profitability, and poverty reduction.[35] The TA also will carry out extensive consultation campaigns to disseminate reform information.

44. The TA is estimated to cost $1,000,000 equivalent. ADB's TA funding program will provide a grant for $200,000, while the Poverty Reduction Cooperation Fund administered by ADB will finance $600,000. The Government will finance the remaining $200,000 by providing offices and logistical support. The TA will be implemented over 24 months, starting in October 2006. The Ministry of Economy will be the TA Executing Agency. The TA will require 14 person-months of international consulting services and 36 person-months of domestic consulting services. ADB will recruit the TA consultants in accordance with the *Guidelines on the Use of Consultants*. Simplified technical proposals and ADB's quality- and cost-based selection system will be used. The detailed TA description and cost estimates are in Appendix 10.

V. PROJECT BENEFITS, IMPACTS, ASSUMPTIONS, AND RISKS

A. Economic and Financial Impact

45. The main economic benefits are expected from (i) the avoidance of production losses that would have occurred without the Project due to further land degradation; (ii) higher cotton and wheat yields resulting from the implementation of proposed technical, institutional, and policy interventions; and (iii) increased and sustainable farmer incomes derived from incentive and productivity improvements. The economic analysis was based on an estimated 25-year project life. The project economic internal rate of return, excluding the impact attributable to the policy reforms, is estimated at 21.5% with a net present value of $26.78 million.

46. Project interventions will mitigate the gradual loss of production due to land degradation. For 60,785 ha, the full rehabilitation of I&D infrastructure, combined with improved land and water management, would increase crop yields and cropping intensity. Cotton yields are expected to rise from 2.6 tons/ha to 3.4 tons/ha in Navoi, from 1.8 tons/ha to 2.8 tons/ha in Bukhara, and from 2.2 tons/ha to 3.2 tons/ha in Kashkadarya. Another 64,850 ha will benefit from the rehabilitation of only off-farm infrastructure, with cotton yields increasing by 10% and

[35] Including collection and analysis of gender-disaggregated data.

wheat yields by 16%. For private farms, net farm incomes are expected to rise by $4,120 per year. The Project also will increase the net value of production of dekhan farms—from 23% in Navoi to 30% in Kashkadarya. A farm budget analysis illustrates that, with the higher crop production and a 25% quota reduction, farmers will be able to meet the full on-farm investment.

47. An analysis of the policy reforms under the Project indicates a positive impact on farmers and the Government. Without the Project and reforms, private profit is low ($94/ha), suggesting a lack of incentives for productivity improvements. With the Project, private profits would increase significantly ($435/ha) due to a 25% quota reduction and higher prices. If combined with productivity improvements from better land management, profits would increase even further. Higher profits are expected to increase farmers' investments in land improvement, raising productivity and revenues further. By adopting the 25% quota reduction and allowing a greater proportion of the land to be planted with cotton—the crop with the comparative advantage—cotton production is expected to increase 15% in the area and the Project's efficiency in earning foreign exchange is expected to improve. Government revenues from the project areas are forecast to increase by 20% due to the sale and export of additional production, increased tax collection, and savings from lower production subsidies.

B. Environmental Impact and Assessment

48. An initial environmental examination (IEE),[36] conducted during project preparation, confirms that the Project will have considerable positive environmental impacts. The rehabilitation of main drains will have a direct and positive impact on groundwater tables. In addition, the rehabilitation of on-farm I&D infrastructure for 33,890 ha will increase irrigation efficiency, decrease water losses, and reduce groundwater levels. These improvements will reduce waterlogging and soil salinity significantly, and improve soil quality. The Project will not increase the use of river water. Instead, it will improve water use efficiency, thereby benefiting downstream users by increasing stream flows. Better agriculture and land management practices also will improve stream flow quality.

49. The project area does not include any national parks, or environmental or cultural monuments. The flora and fauna in the area, which has been cultivated for more than 25 years, have been impacted by human activity. As no species are registered on the Species Survival Commission's Red List,[37] none is recognized as endangered. The current flora and fauna appear to be adapted to the irrigated agricultural environment. Since the Project will not extend to new areas, negative impacts on flora and fauna are not expected. The only potential negative impacts identified in the IEE are due to rehabilitation works, though these are considered insignificant. Mitigation measures, environmental management, and monitoring have been integrated into the project design and costs. These include (i) stockpiling of spoil from drains; (ii) disposal of waste material from repairs; and (iii) provision of suitable locations for contractors' camps, which will meet national health, safety, and hygiene requirements.

C. Impact on Living Standards

50. Socioeconomic and gender analysis, based on in-depth interviews, participatory rural appraisal, and household survey, has shown that the Project will have significant positive impacts on the living standards of the rural population. Some 4,000 private farms and about 70,000 dekhan farms, established within the project area in the past 3–4 years, urgently need land improvements. Decreasing soil salinity and increasing soil fertility, as well as building the

[36] The IEE is in Supplementary Appendix Q, while the summary SIEE is in Supplementary Appendix S.
[37] The list is in Supplementary Appendix Q.

capacity of agricultural service providers and WUAs, are particularly important. About 85% of the respondents in the project area have saline land, and 40% have land affected by high groundwater. Only 10% of private farmers believe that their land is in good condition. During the study, farmers reported that the growth of farm productivity and household incomes is constrained by (i) the deteriorated condition of I&D systems, (ii) limited access to credit and inputs, and (iii) high leasing costs for machinery. As many as 97% of respondents indicated that land improvement is critical to raising their living standards. The Project also is expected to have a significant impact on the women employed in the agriculture sector.

1. Poverty Reduction

51. The household survey undertaken during project preparation showed that poverty incidence was similar in Navoi and Jandor district of Bukhara (28.3% and 27.3%, respectively), and as high as 37.3% in Kashkadarya. In 2004, the national average was 26.5%. Average extreme poverty is 5% in the entire project area. Project households generate up to 70% of their income from agriculture and in-kind household consumption of products grown on household plots. Most of the poverty determinants are related to agriculture, and are explained by low income in the agriculture sector. This, in turn, is explained by policy distortions, deteriorated land conditions, and lack of resources and skills.

52. After project implementation, household incomes will increase up to 44.5% in Kashkadarya, 56.3% in Navoi, and 71.3% in Bukhara. Higher incomes of private and dekhan farms will increase household incomes by 15% in Kashkadarya, 23% in Navoi, and 30% in Jandor district of Bukhara. In-kind consumption growth will average 10–15% in the project area. Income of poor households will increase by 16.0% in Kashkadarya, 12.5% in Navoi, and 18.0% in Bukhara. Productivity growth, combined with higher income and consumption of poor households, will reduce poverty incidence at project completion (i) from 37.3% to 35.0% in Kashkadarya, (ii) from 28.3% to 24.2% in Navoi, and (iii) from 27.3% to 22.5% in Bukhara.

53. The project impact on employment within the project area will be moderate (2%), due to the low elasticity of demand for labor in the agriculture sector. Production intensification should increase employment in household and dekhan plots. Employment is also expected to grow (by 3–4%) among service providers, I&D maintenance enterprises, and the related segments of the labor market (trading, services, handcraftsmanship, and agricultural production processing).

2. Gender and Development

54. During project preparation, a detailed PSGA was carried out (Appendix 11) and a Project Participation Plan was prepared (Appendix 12). Key findings of the gender analysis confirm women's increasing exclusion from the farm privatization process. Based on the potential gender impact of the Project, a project-specific GAP will promote the equal participation of all stakeholders as project beneficiaries. Proposed GAP activities aim to (i) establish quotas for women's representation in the decision-making processes, model farms, and WUAs; (ii) integrate women's needs in the design and operation of project infrastructure; (iii) establish quotas for the participation of rural women farmers in training activities; and (iv) ensure the effective involvement of women in the project monitoring and evaluation. The Women's Committee of the Republic of Uzbekistan, which is represented in the PMO, will be involved in implementing gender design features, and monitoring gender-relevant targets and indicators, in collaboration with the Association of Women's NGOs.[38]

[38] Established in 2003, the Association of Women's NGOs comprises of 53 local women's NGOs.

3. Rural Governance and Institutional Development

55. The Project will link the physical improvements with rural governance and institutional development, and enhanced land security. The Project will introduce improved and transparent land registration procedures and contracts to enhance farmers' security of land tenure. Rural institutions to be developed include WUAs, which require assistance in achieving self-sustainability. The focus of their development will be on improved irrigation management through participatory management and application. Rural women's groups also need to be developed to broaden the opportunities for women to participate in all project activities at the field and management level. The strongest institutions in rural areas are the provincial and district governors. Their support, therefore, is essential to the success of the Project, and to improved rural governance. Through the TA capacity building programs, local institutions' implementing capacity will be enhanced to ensure their support for the Project.

4. Land Acquisition and Resettlement

56. All rehabilitation works for the main system will be within the boundaries of existing structures, or along existing canals and drains, which are within the Government's right-of-way. Results from field surveys and public consultations indicate that involuntary resettlement will not be required for the main system works. The on-farm works include rehabilitation[39] of minor on-farm structures and drains on leasehold agricultural land. Participation in these works is voluntary. Farmers and WUAs will be involved in the design, construction quality control, and related activities of the on-farm rehabilitation program. On-farm construction will start only after individual farmers have signed construction contracts.

5. Impact of the Project on Indigenous Peoples

57. Based on the poverty and social assessment, no ethnic minority issues are anticipated in the project areas. The ethnic composition is homogeneous, with Uzbeks accounting for 97.3% of the population in Kashkadarya and Navoi, and 99.5% in Bukhara. Project beneficiaries will be treated equally, and the Project will reduce rural poverty and improve incomes of all stakeholders. Therefore, the Project will not have any adverse impacts on indigenous peoples or ethnic minorities, and will not activate ADB's policy on indigenous peoples.

D. Risk Assessment

58. **Policy Reforms.** The Project aims to bring about the enduring changes in addressing land degradation and implementing agriculture sector reforms at all levels, including in national and local governments, and beneficiaries. The Government has demonstrated its commitment to implementing agriculture sector reforms slowly, but consistently. The Government gradually has raised production incentives through (i) accelerated farm privatization, (ii) decreased net transfers from agriculture, (iii) reduced cotton and wheat procurement quotas, and (iv) gradual liberalization of the cotton trade. It has also developed a new simplified tax code for agriculture. Therefore, the risk that the Government might turn away from its commitment to reforming the agriculture sector and addressing land degradation in a comprehensive manner is considered low. ADB and the World Bank continue to collaborate closely in monitoring and assessing the progress of reforms. The associated TA will assess the outcomes and impacts of the reforms and promote awareness and understanding among stakeholders.

[39] The private farmers will decide whether their land needs improvements, and will select the type of on-farm works.

59. **Institutions.** Institutions with adequate capacity and legal authority must support the intended behavior changes. In particular, the institutions responsible for sustainable land management must be provided with clear mandates and enhanced capacity. The Project recognizes the risk of falling short in delivering the intended results due to institutional weaknesses. Thus, it aims to develop institutions based on several ongoing ADB-assisted institutional strengthening activities, notably for water sector institutions, WUAs, and land management institutions. The proposed Project and associated TA will build on the progress from these activities, while the proposed GEF grant will support national level planning and institutional strengthening.

60. **Project Implementation**. One potential risk involves the inadequate maintenance of the rehabilitated I&D schemes due to a lack of funds and technical skills. The Project addresses this in two ways: (i) schemes with low O&M costs have been selected through systematic screening and consultation with stakeholders; and (ii) the Project will help develop participatory design, implementation, and O&M of the selected schemes through WUAs, utilizing the experience from the ADB-financed Ak Altin Agricultural Development Project in WUA development and training, in close collaboration with other funding agencies. The reform agenda that will be implemented under the Project also will support institutional strengthening of MAWR and WUAs, and raise farmers' incomes to enable them to invest in sustainable water management.

61. **Operation and Maintenance.** There is discernable risk of the rehabilitated I&D schemes not being maintained adequately due to the lack of funds and technical skills. The Project addresses this risk by (i) selecting, through systematic screening and consultation, schemes with low O&M costs; and (ii) developing participatory design, implementation, and O&M of these schemes through WUAs utilizing the experience of the ADB financed Ak Altin Project in WUA development and training, in close collaboration with other funding agencies.

VI. ASSURANCES

A. Specific Assurances

62. The following conditions and assurances, which are incorporated in the legal documents, have been agreed with the Government:

(i) The Government will ensure timely and adequate budgetary funds for maintaining the normal operation of the project I&D systems, and will continue providing capital replacement and O&M for primary and secondary canals and drains until the costs can be recovered from the beneficiaries.

(ii) The Government will ensure that contractors employed under the Project fully comply with applicable labor laws of the Government, and provide adequate safety and health protection of workers employed. The Government will ensure that no minors will be employed for works financed with the proceeds of the loan, in compliance with the Government's legislation prohibiting child labor.

(iii) The Government will ensure that within 6 months from the beginning of project implementation, an adequate financing and accounting control system will be established to allow the PMO and the PIUs to apply international accounting standards acceptable to ADB. For the purpose of conducting external audit of accounts, the loan proceeds may be used to finance expenditure for private sector auditors and translation of auditors' reports into English, provided that (a) such auditors have qualifications, expertise, and terms of reference acceptable to ADB; and (b) the recruitment process is acceptable to ADB.

(iv) The Project will be carried out, and all facilities constructed, operated, maintained, and monitored, in accordance with the existing laws, regulations, and standards of the Government concerning environmental protection, and ADB's environment policy; and the Government will ensure that MAWR implements the environmental mitigation measures and monitoring requirements as outlined in the IEE. Further, the Government will assure that appropriate resources including budgetary allocation are provided and the State Committee of Nature Protection fulfills its responsibilities for implementation of mitigation measures and monitoring requirements, as outlined in the IEE.

(v) All civil works will be undertaken on Government rights-of-way and no persons will be affected. In case that construction beyond the Government rights-of-way is required which results in impacts on people, the Government will prepare a resettlement plan based on detailed designs and in accordance with ADB's policy on involuntary resettlement policy. The plan will be disclosed to all affected persons in a form and language that they can understand, and it will be submitted with the EA's endorsement to ADB for review and approval before any civil works contract is awarded.

(vi) The Government will ensure that the GAP is implemented in a timely manner over the entire project period, and that adequate resources are allocated for this purpose. The GAP will aim at: (a) establishing quotas for women's representation in the decision-making processes, in demonstration farms, and WUAs; (b) integrating women's needs in the design and operation of project infrastructure; (c) establishing targets for women farmers' participation in training; and (d) ensuring women's effective involvement in the monitoring and evaluation of the Project. Implementation of the GAP will be closely monitored, and the progress reported in the quarterly reports to ADB.

(vii) Commencing from the cropping season of 2007, the Government will set the mandatory state procurement quota for cotton and wheat in the project districts to 25% of the long-term average actual production achieved during 2001–2005 to be expressed in tons for each project district. Farmers will maintain their right to sell to the Government their over-quota production.

(viii) Commencing from the cropping season of 2007, the Government shall ensure that individual farmers in the project districts (a) receive final payment for raw cotton after crop delivery, according to their contracts with the gins; and (b) are entitled to sell above-quota cotton at their discretion to any buyer in accordance with the current legislation.

(ix) Commencing from the 2007 cropping season, the procurement prices for raw cotton and wheat and future price adjustments for these commodities will reflect changes in international border prices, inflation, and market-based exchange rates. For raw cotton, the procurement price will be in accordance with Presidential Decree No. UP/3114 of 20 August 2002 entitled "The mechanism for setting-up procurement prices for cotton."

(x) Cropping patterns, production, marketing, and financial activities in the project districts will be carried out independently by the farmers (without interference of the local authorities), and the sale of agriculture produce will be decided by the individual farmers, pursuant to Presidential Decree No. 3226 of 24 March 2003 entitled "On the Most Important Directions of Deepening Agricultural Reforms."

(xi) The land use right lease between the Government and farmers in project districts will be improved and registered to ensure protection of farmer's land use rights (a) from outright cancellations of these contracts and eviction from farmland without recourse to legal process, and (b) systems of fair and transparent

warnings and penalties be introduced for breaches of contract conditions. The Government shall ensure that the land lease contracts are inheritable and can be used as collateral to access loans from commercial banks, pursuant to the Land Code and the Central Bank Regulation No. 54 dated 10 January 2005.

B. Conditions for Loan Effectiveness

63. As a condition for loan effectiveness, the Government will adopt resolutions confirming that (i) the project-specific assurances stated in items vii to xi in para. 62 will be implemented, and (ii) the PMO has been established, including the appointment of manager and provision of office and facilities.

VII. RECOMMENDATION

64. I am satisfied that the proposed loans would comply with the Articles of Agreement of the ADB, and recommend that the Board approve

(i) the loan of $32.6 million to the Republic of Uzbekistan for the Land Improvement Project from ADB's OCR, with interest to be determined in accordance with ADB's LIBOR-based lending facility; a term of 25 years, including a grace period of 5 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan Agreement presented to the Board; and

(ii) the loan in various currencies equivalent to SDR 18,515,000 to the Republic of Uzbekistan for the Land Improvement Project from ADB's Special Funds resources with an interest charge at the rate of 1.0% per annum during the grace period and 1.5% per annum thereafter; a term of 32 years, including a grace period of 8 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan Agreement presented to the Board.

Haruhiko Kuroda
President

30 June 2006

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and Indicators	Sources and Reporting Mechanisms	Assumptions and Risks
Impact Farmers' incomes are increased in nine districts in three provinces of Uzbekistan	Poverty incidence in the project area is reduced from 34.3% in 2005 to 28.8% within 5 years of project completion Annual net incomes on private farms (30 ha) increase from $1,275 in 2005 to $2,900 within 3 years of project completion Average per capita income of households increases by 23% within 5 years of project completion	Provincial and district statistics on agricultural and rural incomes Project performance monitoring and evaluation: Socioeconomic survey data and findings	**Assumption** The country's transition to a market-based economy continues **Risk** The gradual implementation of macroeconomic policy reforms is slow to support agriculture sector reforms
Outcome Agricultural land quality and productivity in the project area are improved	Land area with soil salinity and/or water logging decrease from 52,650 ha in 2005 to 21,250 ha in 2011 Cotton yields per ha increase from 2.0 t in 2005 to 3.0 t within 5 years of project completion Wheat yields per ha increase from 2.0 t in 2005 to 3.5 t within 5 years of project completion	Provincial and district statistics on crop areas, yields, and production Performance monitoring and evaluation by PMO (socioeconomic, agricultural, and environmental surveys) Annual soil and water quality monitoring by the State Hydro Geological Monitoring Expedition CACILM Sustainable Land Management Information System	**Assumption** Reliable supply of irrigation water in the project areas is maintained **Risks** Private sector does not develop at a sufficient pace to enable farmers to realize fully benefits from project level policy reforms Adverse climate conditions reduce crop yields
Outputs 1. Implemented policy reforms: (i) enhanced incentives, including reduced quotas; (ii) improved procurement prices aligned with international prices; (iii) deregulated (free) marketing of produce, liberalized farm management (e.g., cropping patterns, financing, and marketing of	Cotton and wheat quota reduction to 25% implemented in project area by 2007 Gap between cotton and wheat procurement price and international price reduced by 10% by end of the Project Improved and registered land use contracts of private farms increase to cover 50% of the private farms area in the project districts by the end of the project	Government resolution to implement agreed reforms in project districts Surveys and results of consultations with farmers (monitored by TA)	**Assumptions** Broad-based commitment and political will for policy reforms Farmers are fully aware of the agricultural and water sector reforms in the project areas Local authorities fully respect farmers' land use rights and free choice of crops Conservation

Design Summary	Performance Targets and Indicators	Sources and Reporting Mechanisms	Assumptions and Risks
production); and (iv) improved land tenure			agriculture practices replicated to 10,000 ha through GEF cofinancing Mandates of institutions responsible for sustainable land management are clarified **Risks** Local government institutions' capacity remains inadequate Local government officials continue to interfere in activities of private farmers Competitive input and produce marketing systems are established slowly Rehabilitated irrigation and drainage schemes not maintained adequately due to lack of financial resources and/or technical skills
2. Improved management practices: adoption of integrated land reclamation, water, and land management practices	Improved on-farm water management and agronomic practices adopted over 60,785 ha by 2011 Area of alternative crops increased from 14,350 ha in 2005 to 15,030 ha by 2011 Conservation agriculture practices introduced on 1,000 ha of salt-affected land by 2011	Agricultural and environmental survey data and findings by PMO Annual soil and water quality monitoring by the State Hydro Geological Monitoring Expedition	
3. Increased institutional capacity: strengthened Government and nongovernment water management institutions	MAWR management and O&M capacity upgraded, and the rehabilitated main systems operated and maintained to design parameters 3 BISAs providing effective and timely irrigation water supplies (as per signed contracts) to WUAs by 2011 100% of areas undergoing on-farm rehabilitation have effectively functioning WUAs responsible for O&M by 2011	Performance monitoring and evaluation by PMO (socioeconomic, agricultural, and environmental survey data and findings) Statutes of WUAs	
4. Rehabilitated land and water infrastructure: drainage network and irrigation control structures	Irrigation efficiency increased from 37% in 2005 to 57% by 2011 Area with medium salinity reduced from 31,700 ha in 2005 to 9,900 ha by 2011 Area with poor drainage reduced from 109,300 ha in 2005 to 52,100 ha in 2011	Project performance monitoring and evaluation system Annual soil and water quality monitoring by the State Hydro Geological monitoring Expedition	
5. Operational and effective project management and monitoring systems	Timely and comprehensive reporting of PMO that reflects accurately project implementation	Project and TA monitoring and evaluation system records	

Design Summary	Performance Targets and Indicators	Sources and Reporting Mechanisms	Assumptions and Risks
	Timely implementation of project policy, and institutional and physical interventions Consultation campaigns at national/district levels designed and carried out in an inclusive and gender-balanced manner Monitoring by international organizations and elected representatives of the policy agenda implementation		

Activities with Milestones	**Inputs** (million)
1. Enhanced incentives for farmers to invest in land improvement 1.1 Prepare a detailed program for phased implementation of the agreed reforms. 1.2. Assist the Government in undertaking institutional reform and capacity building to enable local authorities to implementation the agreed policy reforms, and ensure a common interpretation of reforms in the project area. 1.3 Support the Government in drawing up relevant regulations and programs to ensure effective implementation of the proposed policy reforms. 1.4 Review the impact of agreed policy reforms upon crop production, farm productivity and incomes, and Government revenues. 1.5 Establish a system for the monitoring and evaluation of policy reforms that involves participatory consultation with key stakeholders, including civil society and elected representatives, which can be applied during and after completion of the TA. Milestones: Reforms start in 2007 and monitored throughout project implementation. **2. Adoption of improved land, water and agricultural management practices** 2.1 Establish and operate demonstration farms and training to promote: (i) improved on-farm land improvement technologies (e.g., land leveling, subsoiling); (ii) innovative on-farm irrigation technologies for efficient water management; (iii) better practices (e.g., improved varieties, and integrated pest management); (iv) alternative cropping systems, crop rotations, and crop diversification; and (v) improved farm business management skills. Milestones: Demonstration farms established during first 2 years. 2.2 Demonstrate and replicate conservation management of salt-affected lands (GEF funded). Milestones: Start in 2008 and operational through out the Project. **3. Strengthened water management institutions** 3.1 Carry out capacity building of Basin Irrigation System Authority (BISA) through staff training, introduction of improved management and O&M procedures, adoption	Total Project $76.2 ADB Loan 1. ADB (OCR): $32.6 2. ADB (ADF): $27.6 3. National Government: $15.6 4. Beneficiaries: $0.4 Key expenditure accounts: 1. ADB (OCR): Civil works: $19.3; Vehicles, equipment, and materials: $1.0; Staff and office expenses: $1.1 Surveys and design: $0.2 Consultancy services: $5.0 Training: $0.6. 2. ADB (ADF): Civil works: $27.6; 3. National Government: Civil works: $15.4; Equipment and materials: $0.2. 4. Beneficiaries: $0.4

Activities with Milestones	**Inputs** (million)
of an integrated water resources management, and enhancement of service provision. 3.2 Carry out capacity building of WUAs through the introduction of improved O&M practices, and adoption of innovative irrigation techniques, as well as the development of the technical and financial capacity of WUAs. 3.3 Carry out capacity building of MAWR departments through the training of staff in the improved new land/water management technologies and agronomic practices. Milestones: Training and capacity building program implemented between mid-2007 and 2011. WUAs members trained between mid-2007 and 2011. **4. Rehabilitated land and water infrastructure** 4.1 Rehabilitate main I&D systems and key structures for the improved systems' efficiency and timely delivery of water. 4.2 Rehabilitate on-farm I&D infrastructure, including irrigation and drainage canals, for improved management and equitable delivery to farmers. Milestones: Survey and design start in 2nd quarter 2007. Contractors appointed between 4th quarter 2007 and 3rd quarter 2008. Rehabilitation works commence in 2008 and completed by 2012. 4.3 Introduce improved O&M management practices for farmers, WUAs, and MAWR. 4.4 Adopt efficient and equitable water management practices. Milestones: Training and demonstration of improved water management commences at 3rd quarter of 2009 and completed by 2011. **5. Operational and strengthened project management and monitoring systems** 5.1 Establish PMO in MAWR and three project implementation units (PIUs). 5.2 Procure consultancy services to provide support to PMO/PIU. 5.3 Establish project performance monitoring systems (including social and environmental monitoring). Milestones: PMO and PIU established and consultants recruited by the end of 2006. Project performance monitoring and evaluation commences in mid-2007.	

ADB – Asian Development Bank; ADF – Asian Development Fund; BISA – Basin Irrigation System Authority; CACILM – Central Asian Countries Initiative for Land Management; GEF – Global Environment Facility; I & D – irrigation and drainage; MAWR – Ministry of Agriculture and Water Resources; O&M – operation and maintenance; OCR – ordinary capital resources; PIU – project implementation unit; PMO – project management office; TA – technical assistance; WUA – water users' association.
Source: ADB estimates.

SUMMARY AGRICULTURE AND WATER SECTOR ANALYSIS[1]

A. Macroeconomic Context

1. Since independence in 1991, Uzbekistan's economy has been in transition from a centrally planned, command-based structure to a more market-oriented system. The Government has adopted a gradual approach to this transition, with the state retaining a central role in the economic life of the country. For example, the introduction of structural adjustment measures, including the privatization of state enterprises, has remained slow.

2. Uzbekistan's gross domestic product (GDP) growth rate increased from 4.2% in 2002 to 4.4% in 2003, driven by a robust performance of the agriculture sector and a rebound of the trade sector,[2] according to official estimates. The economic forecast for Uzbekistan shows that real GDP growth might decline from 4.4% in 2005 to 4.0% (2006) and 3.9% (2007). In addition, price trends for cotton, Uzbekistan's main export commodity, appear favorable in 2006–2007, as a rundown of global stocks will lead to a gradual rise in prices. The textile sector's contribution to economic growth should increase, as new cotton processing facilities begin operations.[3]

B. Sector Context

3. **Contribution of the Agriculture Sector to the Economy.** Agriculture is a key sector of the economy, accounting for an estimated 29% of the GDP and about 25% of export earnings. The agriculture sector employs up to 33% of the population. Uzbekistan is the world's sixth largest cotton producer, and more than 80% of cotton production is exported as raw fiber. Moreover, agriculture is an important source of income for the rest of the economy, and annual net transfers out of agriculture are significant. These transfers are made possible by an institutional and policy framework that gives the Government control over the production and marketing of the two major crops, cotton and wheat.

4. **Main Crops**. Cotton and wheat are the two strategic crops. Cotton is grown on 41% of the irrigated land, while wheat is cultivated on 42% of irrigated land. The Government imposes production quotas on these crops. Other crops include fodder (9% of irrigated land); and potatoes, vegetables, and fruits (less than 8% of irrigated land).

5. **Land Resources**. Uzbekistan has 44,410 million hectares (ha) of land resources.[4] The country's physical geography can be divided into three zones: (i) desert (Kyzylkum), steppe, and semi-arid region, covering 60% of the country; (ii) fertile valleys (Ferghana valley, Samarkand oasis), which border the Amu Darya and Syr Darya rivers; and (iii) mountainous areas in the east, with peaks 4,500 meters (m) above sea level (Tien Shan and Gissaro-Alay Ridges). Uzbekistan's ability to maintain the economic potential of its land is increasingly threatened by severe land degradation, resulting from (i) secondary salinization, (ii) waterlogging and flooding, (iii) loss of organic matter, (iv) water erosion and pollution; and (v) aerial transport of salt and dust from the dry bed of the Aral Sea to irrigated lands.

6. **Land Degradation.** Land degradation is widespread, with the most adverse impacts being experienced in the provinces of Bukhara, Navoi, and Kashkadarya, as well as in the Fergana Valley. While erosion from water and wind are the major forms of land degradation,

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1 The full description is presented in Supplementary Appendix A, Agriculture and Water Sector Review.
2 ADB. 2004. *Uzbekistan Country Program and Strategy Update 2004–2006*. Manila.
3 EIU. 2006. *Uzbekistan Country Report*. London.
4 FAO. 2002. *Gateway to Land and Water Information Uzbekistan*. Rome.

secondary salinization is one of the most important factors. Caused mainly by the over-irrigation, secondary salinization affects up to 47% of the irrigated area. Irrigable land is being degraded steadily. Of the more than 4.1 million hectares (ha) of irrigable land, an estimated 20,000 ha are abandoned each year. The abandonment results from (i) progressive failure of the irrigation systems, (ii) inadequate drainage, and (iii) increasing soil salinity. Due to lack of maintenance, the drainage systems also have deteriorated, which has caused water tables to rise as leaks and other losses from the irrigation system steadily worsen. Land salinization causes an estimated $31 million in annual crop production losses in Uzbekistan, while the economic value of land abandoned due to high salinity is approximately $12 million.

7. **Water Resources.** The climate of Uzbekistan is continental and arid. Average annual rainfall is 264 millimeters (mm), ranging from less than 97 mm in the northwest to 425 mm in the mountainous zone. Rainfall occurs during the winter season, mainly between October and April. The two river basins in Uzbekistan—the Amu Darya basin in the south and the Syr Darya basin in the north—cover 86.5% of and 13.5% of the country, respectively, and form the Aral Sea basin. The estimated average surface runoff is (i) 22.33 cubic kilometers (km^3)/year for the Syr Darya River basin at the border between the Kyrgyz Republic and Uzbekistan, of which 11.8 km^3/year is transit flow to Tajikistan; (ii) 11.54 km^3/year for the Syr Darya River basin at the border between Tajikistan and Uzbekistan, of which 10 km^3/year is transit flow to Kazakhstan; and (iii) 22 km^3/year for the Amu Darya River basin. The total river flow generated inside Uzbekistan is estimated at 9.54 km^3/year.[5]

8. Irrigation is vital to Uzbekistan's agriculture because of its climate. The design of the irrigation and drainage (I&D) infrastructure developed during the Soviet era was geared mainly to cotton production. Most I&D works were constructed according to sound technical standards. Since the late 1980s, however, funds to maintain I&D infrastructure adequately have been lacking. During 2000–2003, maintenance of regular irrigation works covered only an estimated 55–66% of actual requirements. More than 60% of irrigated land depends to some extent on water pumping, either for irrigation or drainage. Of the 5,100 pumping stations, more than 80% of major, 50% of medium, and 30% of small pumping stations need rehabilitation or replacement, according to estimates. Official figures indicate an irrigation efficiency rate of 60%. In many areas, however, as little as 40% of the water reaches the field. On average, at least 50% of irrigation water is lost in the system.

C. Institutions

9. **Public Institutions.** The Ministry of Agriculture and Water Resources (MAWR) of Uzbekistan was established in 1996, and its organizational structure was approved in 2001. The main functions of MAWR are (i) to monitor compliance with the legislation on water, cooperatives (shirkat), and private farms; (ii) to participate in the development and implementation of branch and regional agriculture, as well as water management development programs in conjunction with other Government ministries and agencies, state committees, and local and Government state bodies; (iii) to coordinate the development and implementation of measures for multisector agriculture and rights protection of rural producers, with other ministries, agencies, and state committees; and (iv) to develop the strategy for rural industrial and social infrastructure.[6] MAWR, therefore, is the national institution responsible for I&D. As such, it has offices at central, province, and district levels. Following the 2003 presidential decree on deepening reforms in agriculture, MAWR is being reorganized. The decree promotes

[5] FAO. 1997. *Aquastat Country Profile Uzbekistan*. Rome.
[6] Information on MAWR from the Portal of the State Authority (www.gov.uz).

the introduction of a basin-level water resource management system. Before 2003, the institutional structure of the water management system was based on administrative boundaries. Now the Government is completing the restructuring of local organizations into water management agencies based on 10 basins.

10. **Financing for the Sector.** MAWR is a self-financing entity, receiving contributions from its provincial departments and organizations. A review of the last 3 years of income statements shows that the planned level of revenue for MAWR was around $1 million annually. However, only 60–80% of the planned amount was received. Thus, MAWR had barely enough money for salaries; social insurance; business trips; and operation and maintenance (O&M) of buildings, cars, equipment, and other operating expenses. A new system of financing cotton and wheat has been introduced for private farms. Despite the low annual interest rate of 3%, the complexity of the credit application has discouraged many farmers. In response to the rapidly growing number of private farms, banks are expanding their branch network into rural areas.

11. **Property Rights and Land Tenure**. Uzbekistan has three main types of agricultural producers: (i) *shirkats* (cooperative farms), (ii) private farms, and (iii) *dekhan* farms (household plots). With the restructuring of shirkats accelerating in recent years, private farms are expected to dominate the agriculture sector soon. Although the first private farms were created in 1992, most date from 1996. As of late 2004, the country had more than 100,000 private farms, cultivating about 1.6 million hectares (38% of irrigated land). Despite the rapid restructuring of shirkats into private farms, the registration of allocated land has not made similar progress. In addition, during the restructuring of shirkats, some farmers expressed concern that the distribution of land is neither fair nor transparent. Private property and written contracts are also difficult to enforce. Finally, as the land tenure agreement between the leaseholder and the local government has no transferable value, it cannot be used as collateral to obtain credit from banks.

D. Policy Environment

12. The Government's agricultural strategy is focused on three broad goals: (i) generation of foreign exchange earnings; (ii) improvement in food security; and (iii) promotion of rural employment, improvement in living standards, and enhanced social stability. The Government intervenes in the agriculture sector by setting production targets for cotton and wheat, fixing output prices, and executing procurement quotas. In 2001, in line with the sector strategy and under pressure from funding agencies, the Government agreed to pilot test procurement and pricing policy reforms in six districts covered by Asian Development Bank (ADB) Ak Altin Agricultural Development Project[7] and the World Bank's Rural Enterprise Support Project. The reforms under these projects focused on (i) abolition or easing of wheat and cotton production targets, (ii) reduction in the mandatory crop procurement quotas, (iii) abolition of joint responsibility of farms and family groups for fulfilling procurement quotas, (iv) adjustment of the state procurement prices based on movement of international prices and domestic inflation, and (v) gradual reduction in wheat and cotton procurement by the Government.

13. **Agricultural Taxation**. Before 1999, the Government imposed a variety of agricultural taxes, including profit tax, value-added tax (VAT), environment tax, water tax, property tax, land tax, and other local taxes and fees. On average, agricultural enterprises paid about 23% tax on their revenue, and 18% on their cost of production. In 1999, the Government introduced a single

[7] ADB. 2002. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to Uzbekistan for Ak Altin Agricultural Development Project*. Manila.

land tax to unify and simplify agricultural taxation. This applies to all agricultural producers except dekhan farmers, who pay land tax, water tax, and property tax. Since the introduction of the new unified land tax in Tashkent and Samarkand oblasts, the overall tax burden declined from 23% in 1999 to 14.6% in 2003.

14. **Water Sector Priorities.** The rehabilitation of key water management facilities is one of the Government's top national priorities. The Government recognizes that rehabilitation is required to protect the livelihoods of many rural people, and to maintain the basic resource and infrastructure foundation. Without such rehabilitation, ongoing reforms to increase agricultural production and to increase farm income would be compromised. In 2001, with the assistance of the World Bank, the Government prepared a strategy for the irrigation and drainage subsector. A two-phase approach was proposed. The first phase comprised a public investment program to rehabilitate priority works of the main and inter-farm I&D systems. The second phase covered the rehabilitation and upgrading of all I&D infrastructure in Uzbekistan, and would include improvements to the on-farm infrastructure funded mainly by water users' association (WUAs) and farmers.

E. Binding Constraints to Sector Performance

15. Since 1991, the cotton subsector has been in decline, with cotton planting area and productivity steadily falling. Cotton area has declined from 1.75 million ha in 1991 to 1.4 million hectares in 2003, while cotton yields have fallen from about 2.55 tons (t)/ha in the early 1990s to a current average of 2.25 t/ha. This reduced cotton output from 4.5 million tons in 1991 to 3.2 million tons in 2004. Some of the binding constraints to sustainable development in the agriculture sector can be grouped into three broad categories: incentives, infrastructure, and institutions.

16. **Incentives**. The Government's restrictive pricing and procurement policies give farmers little incentive to increase their productivity and efficiency. Rigid control is largely limited to cotton and wheat marketing, with the Government acquiring almost all cotton and 50% of wheat. Shirkats and private farmers growing cotton and wheat also are required to sell a significant proportion of their produce to the Government at fixed prices.[8] Implicit taxes, through suppressed cotton and wheat prices, are a major source of financial transfers from the agriculture sector. These implicit taxes include the non-repayment of VAT on the sales of seed cotton, and the inefficient Government monopoly of cotton processing and marketing. This pricing policy and tax burden significantly reduces the gross incomes of private farmers and shirkats, which are required to meet compulsory production quotas for cotton and wheat. VAT, which is applied by Government, was reduced from 16% to 13% as of 5 July 2005.

17. In addition, the cropping pattern imposed by the Government is highly detrimental to soil fertility. As cotton and wheat tend to exhaust the soil, a significant proportion of the area (30%–40%) could be planted with lucerne and other leguminous crops to replenish soil nutrition, absorb salts, and supply feed for livestock.

18. Shirkats and private farms deliver their cotton and wheat quotas to Government-controlled purchasing centers. After the crop is delivered and inspected, farms are paid via account transfers through local banks (a detailed description of the full cotton marketing chain is presented in a recent World Bank report[9]). In 2002, however, the Government made a

[8] Farmers are required to sell 50% of their raw cotton and wheat at fixed prices to the Government.
[9] World Bank. 2003. Uzbekistan Cotton Policy Note (draft). Washington.

commitment to liberalize cotton marketing gradually[10] with the aim of developing a competitive market in the procurement, processing, distribution, and export of cotton. In 2002, 20,000 t of cotton were sold through an auction system established by the commodities exchange. The quantities of cotton marketed through this exchange are expected to expand rapidly in the future. Wheat marketing is less regulated, with a number of private mills purchasing non-quota wheat from farmers.

19. Even though the state procurement prices were increased recently to more closely reflect world market prices, and procurement quotas are being relaxed gradually, the current policies are still very restrictive and severely limit a farmer's ability to allocate resources to alternative farm enterprises in a productive and profitable manner. Farmers who fail to meet production targets can face punishments from local authorities, including lower prices and possible eviction from their land. Farmers, therefore, have very little incentive to increase their productivity and efficiency under these restrictive pricing and procurement policies.

20. **Infrastructure**. The Government has been unable to provide sufficient funds for capital investment and operation and maintenance (O&M) to ensure that I&D infrastructure remains in satisfactory condition. Since the mid 1990s, only about 40% of the funds needed for O&M have been allocated in the budget. Between 1995 and 2002, Government financing of water sector fell from 2.9% of GDP to 1.8% (i.e., 60% reduction), while the resources allocated for capital investment in the water sector also declined from 0.9% of GDP to 0.6%.[11] As a result, considerable deferred capital and O&M expenditure (estimated at more than 40% of total asset value) is urgently required to return the system to a satisfactory standard. On-farm I&D infrastructure is also in very poor condition, as the low net returns from cotton and wheat production over the past decade have reduced the financial resources available to maintain these systems.

21. The cost recovery mechanism for O&M of I&D infrastructure is ineffective and almost entirely dependent on Government budget allocations, which have been diminishing in recent years. The vast majority of farmers receive irrigation water for free. This lack of funding and neglect of basic maintenance requirements have jeopardized the future sustainability of irrigated agriculture.

22. The decline in the condition of I&D infrastructure contributes to the depletion of the agricultural resource base, as well as to environmental degradation. The continued deterioration of I&D infrastructure, which could lead to the collapse of some of these systems, also endangers the livelihoods of millions of rural people who depend on the efficient operation of these large-scale irrigation systems. Moreover, unless this deterioration is arrested, it will undermine the ongoing agriculture sector reform program, which cannot succeed without the effective functioning of basic I&D infrastructure. It also will harm the livelihoods of the future farming generations.

23. **Institutions**. One of the key limitations to the accelerated development of private farming is the lack of adequate support services, such as input supply, machinery services, and credit facilities. The quantity and timing of farm inputs is often unreliable. Machinery services are also frequently not available in a timely manner, which undermines crop productivity. Government agencies and banks are responsible for financing and rationing 90% of input supplies. Inputs for cotton and wheat are rationed according to production plans, and their use

[10] Letter of Intent of the Government of Uzbekistan on Policy Reforms to the IMF, 29 July 2002.
[11] Center for Economic Research, Uzbekistan.

for other crops is strictly forbidden. Input quantities are based on MAWR norms calculated for planned cotton and wheat production areas.

F. Conclusion

24. These sector constraints have a profound impact on the livelihoods of rural farmers. Compared with other sectors of the economy, incomes from agriculture are very low. Rural incomes are estimated to have dropped to less than 5% of urban wage rates. The increasing disparity has resulted from a combination of falling rural incomes and the need for the farm sector to absorb a high proportion of the growth in the working population. Furthermore, the private agribusiness sector remains poorly developed, largely due to the unclear business environment. Private rural businesses involved in trading, processing, or construction generally are limited to small-scale operations with modest capital investment.

25. The main binding constraint seems to be the system of incentives, such as the state production quota, restrictive crop procurement, and pricing policies. These policies and practices do not provide sufficient motivation and freedom of choice for private farmers to increase investments in their land to realize productivity gains, implement more sustainable cropping systems, and choose higher value products. Hence, the proposed Land Improvement Project emphasizes policy reforms. The other key binding constraint that the proposed Project will address is the deterioration of land and water infrastructure, and the lack of effective O&M cost recovery mechanisms. Thus, the Project will include a component on rehabilitating such infrastructure, coupled with the adoption of improved on-farm management practices, as well as a component on strengthening land and water institutions.

MAJOR EXTERNAL ASSISTANCE TO THE AGRICULTURE AND WATER SECTORS

Project	Funding Source	Amount ($ million)	Year	Location
Cotton Subsector Improvement	World Bank	66.0	1995–2005	National
Rural Enterprise Support Project (Appraisal)	World Bank	36.0	2001–2006	Five Districts
Drainage, Irrigation, and Wetlands Improvement	World Bank	60.0	2003–2010	Three Districts in South Karakalpakstan
Ak Altin Agricultural Development	ADB	36.0	2000–2006	Ak Altin
The Grain Productivity Improvement	ADB	26.0	2004–2009	Tashkent, Samarkand, Jizzak
Amu Zhang Irrigation Rehabilitation	ADB	73.0	2004–2009	Sukhandarya
Irrigated Agriculture and Food Industry Development	EU	1.6	1997–2001	National
Regional Agricultural Development	EU	2.4	1997–2001	
Supply of O&M Equipment to the MAWR	PRC	5.1	2005–2006	Navoi, Bukhara, Kashkadarya, and other oblasts
Integrated Water Management	SDC/IWMI	4.8	2001–2008	Kyrgyz Republic, Tajikistan, and Uzbekistan
Regional Special Initiative Water Program	USAID	10.0	2002–2005	
Natural Resources Management	USAID	25.0	2000–2005	Kyrgyz Republic, Tajikistan, and Uzbekistan (various provinces)
Water User Associations Support	USAID	25.0	2004–2009	Kyrgyz Republic, Tajikistan, and Uzbekistan
Total		**370.9**		

ADB – Asian Development Bank; EU – European Union; IWMI – International Water Management Institute; PRC – People's Republic of China; SDC – Swiss Development Corporation; USAID – United States Agency for International Development; WB – World Bank

Source: ADB estimates.

COST ESTIMATES AND FINANCING PLAN

DETAILED COST ESTIMATES
Table A4.1: Detailed Cost Estimates by Category

Expenditure Accounts	Local	(SUM million) Foreign	Total	Local	($'000) Foreign	Total	% Foreign Exchange	% Total Base Costs
I. Investment Costs								
A. Civil Works								
1. Main & Inter-farm Structures	440	188	628	364	156	520	30	1
2. Main & Inter-farm Collections	28,310	15,244	43,554	23,441	12,622	36,063	35	58
3. On-Farm Rehabilitation Works	16,489	4,122	20,612	13,653	3,413	17,067	20	27
4. Civil Works - Model Farms	218	108	326	181	89	270	33	0
Subtotal Civil Works	45,458	19,662	65,120	37,639	16,280	53,920	30	86
B. Survey, Design and Construction Supervision								
1. Field Surveys and Investigation	242	0	242	200	0	200	0	0
C. Machinery and Equipment	298	842	1,140	247	697	944	74	2
D. Materials	362	0	362	300	0	300	0	0
E. Vehicles	78	117	196	65	97	162	60	0
F. Training								
Staff Training	247	17	265	205	14	219	7	0
Beneficiary Training	427	33	461	354	28	382	7	1
Subtotal Training	675	51	725	559	42	601	7	1
G. Consultancy Services	1,272	4,131	5,403	1,053	3,421	4,474	76	7
H. O&M Vehicle and Machinery	151	38	188	125	31	156	20	0
I. Studies	837	0	837	693	0	693	0	1
J. Government Staff	838	0	838	694	0	694	0	1
K. Travel	98	0	98	81	0	81	0	0
L. Office Expenses	166	0	166	137	0	137	0	0
M. Office Renovation[a]	122	0	122	101	0	101	0	0
Total Investment Costs	**50,595**	**24,841**	**75,437**	**41,893**	**20,569**	**62,462**	**33**	**100**
II. Total Baseline Costs	50,595	24,841	75,437	41,893	20,569	62,462	33	100
Physical Contingencies	2,530	1,713	4,243	2,095	1,354	3,449	33	5
Price Contigencies	16,295	7,388	23,683	3,780	1,733	5,513	31	9
Total Project Costs	**69,420**	**33,942**	**103,363**	**47,768**	**23,656**	**71,424**	**97**	**114**
Interest During Construction	0	5,692	5,692	0	4,129	4,129	100	7
Commitment Charges	0	931	931	0	622	622	100	1
Total Costs to be Financed	**69,420**	**40,565**	**109,985**	**47,768**	**28,408**	**76,176**	**37**	**122**

a Covering the Project Management Office and the three Project Implementation Units.
Source: Asian Development Bank estimates.

PROJECT COST FINANCING
Table A4.2: Detailed Cost Estimates by Financier
($'000)

Item	Government of Uzbekistan Amount	%	Asian Development Bank (OCR) Amount	%	Asian Development Bank (ADF) Amount	%	Beneficiaries Amount	%	Total Amount	%	Foreign Exchange	Local (Excl. Taxes)	Duties & Taxes
I. Investment Costs													
A. Civil Works													
1. Main & Inter-farm Structures	174	29.5	359	5.5	385	65.0	0	0.0	918	0.8	177	325	89
2. Main & Inter-farm Collections	12,083	29.5	2,256	5.5	26,670	65.0	0	0.0	41,010	53.8	14,353	18,454	8,202
3. On-Farm Rehabilitation Works	2,952	15.0	16,731	85.0	0	0.0	0	0.0	19,683	25.8	3,937	12,794	2,952
4. Civil Works - Model Farms	54	18.0	244	82.0	0	0.0	0	0.0	298	0.4	98	146	54
Subtotal Civil Works	15,263	24.8	19,590	31.3	27,055	43.9	0	0.0	61,909	80.8	18,565	31,719	11,297
B. Survey, Design and Construction Supervision													
1. Field Surveys and Investigation	0	0.0	213	100.0	0	0.0	0	0.0	213	0.3	0	213	0
C. Machinery and Equipment	124	12.0	907	88.0	0	0.0	0	0.0	1,030	1.4	762	145	124
D. Materials	0	0.0	0	0.0	0	0.0	340	100.0	340	0.4	0	340	0
E. Vehicles	53	30.0	123	70.0	0	0.0	0	0.0	175	0.2	105	18	53
F. Training													
1. Staff Training	11	4.4	235	95.6	0	0.0	0	0.0	246	0.3	16	219	11
2. Beneficiary Training	21	4.8	408	95.2	0	0.0	0	0.0	429	0.6	31	377	21
G. Consultancy Services	44	0.9	4,951	99.1	0	0.0	0	0.0	4,995	6.6	3,815	1,136	44
H. O&M Vehicle and Machinery	35	20.0	87	49.0	0	0.0	55	31.0	177	0.2	35	106	35
I. Studies	0	0.0	777	100.0	0	0.0	0	0.0	777	1.0	0	777	0
J. Government Staff	0	0.0	781	100.0	0	0.0	0	0.0	781	1.0	0	781	0
K. Travel	0	0.0	91	100.0	0	0.0	0	0.0	91	0.1	0	91	0
L. Office Expenses	30	19.3	124	80.7	0	0.0	0	0.0	154	0.2	0	147	8
M. Office Renovation[a]	0	0.0	108	100.0	0	0.0	0	0.0	108	0.1	0	108	0
Total Investment Costs	**15,581**	**21.9**	**28,395**	**39.5**	**27,055**	**38.1**	**394**	**0.6**	**71,425**	**93.3**	**23,329**	**36,176**	**11,592**
II. Recurrent Costs													
Total Project Costs	**15,581**	**21.9**	**28,395**	**39.5**	**27,055**	**38.1**	**394**	**0.6**	**71,425**	**93.3**	**23,329**	**36,176**	**11,592**
Interest During Construction	0	0.0	3,584	86.8	545	13.2	0	0.0	4,129	5.4	0	0	0
Commitment Charges	0	0.0	622	100.0	0	0.0	0	0.0	622	0.8	0	0	0
Total Disbursement	**15,581**	**20.5**	**32,600**	**42.8**	**27,600**	**36.2**	**394**	**0.6**	**76,176**	**100.0**	**23,330**	**36,176**	**11,592**

a Covering the Project Management Office and the three Project Implementation Units.

Source: Asian Development Bank estimates.

SUMMARY FINANCIAL AND ECONOMIC ANALYSES[1]

A. Rationale for Public Intervention

1. Agriculture remains critical to the livelihoods of rural communities and the sustainable growth of Uzbekistan's economy. To achieve the sector goal of accelerated, environmentally sustainable development, key constraints must be removed to reverse natural resource depletion, improve land and water management, and improve productivity.

2. Rapidly worsening land degradation is threatening the performance of the agriculture sector. Land degradation causes an estimated $31 million in annual crop production losses in Uzbekistan. If land degradation is not arrested, and irrigation and drainage (I&D) facilities are allowed to deteriorate further, the cropped area could shrink by up to 25% over the next 30 years, according to estimates. As a result, crop yields will continue to decline, and the livelihoods of a large proportion of the poor rural population—and of the subsequent rural generations—will be jeopardized.

3. Public sector involvement is necessary to address market and institutional failures in the agriculture sector. Through this Project, the Government will implement key policy reforms and address institutional constraints, including (i) reducing production quotas to improve farmers' incentives in project areas, (ii) reducing interventions by local authorities into farming activities, and (iii) improving land tenure rights.

4. **ADB's Role.** The new Asian Development Bank (ADB) country strategy and program (2006–2010)[2] in Uzbekistan recognizes that the main constraints to increasing agricultural productivity are (i) the state procurement system, and (ii) state intervention in inputs and marketing. It also recognizes the need to strengthen land rights, as well as market and land and water management institutions, and to maintain the physical state of land and water infrastructure. This Project is complemented by other ADB activities in Uzbekistan, which support the ongoing policy and institutional reforms (e.g., alternative procurement quota systems and the formulation of a water delivery cost recovery policy).

B. Financial and Economic Impact and Feasibility

1. Expected Benefits

5. Economic and financial analysis of the "with project" and "without project" scenarios was carried out to assess the economic impact and viability of the Project. This analysis also aimed to determine the financial impact on farmers, as well as the impact of project-related reforms. The main economic benefits are expected from (i) avoidance of production losses that would have occurred without the Project due to further land degradation; (ii) increased productivity from a more efficient alignment of cotton, wheat, and other cropping patterns; and higher cotton and wheat yields resulting from the implementation of proposed technical, institutional, and policy interventions; (iii) higher and more sustainable farmer incomes derived from price incentives and profitability improvements; and (iv) an increase in net Government revenue from the project area.

[1] The full description is presented in Supplementary Appendix N, Financial and Economic Analysis; and Supplementary Appendix O, Detailed Cost Tables.

[2] ADB. 2006. *Country Strategy and Program 2006-2010*. Manila.

2. Assumptions

6. The economic and financial analysis was undertaken in 2006 constant prices. The sum was used as the unit of account, at the official exchange rate of SUM1,207 to $1 (March 2006). Basic assumptions used in the analysis include:

(i) The use of a domestic price numeraire.

(ii) The project implementation period is over 6 years, and the project life (following project completion) is estimated at 25 years.

(iii) Economic prices for traded goods (i.e., wheat, cotton, and chemical fertilizers) were derived from World Bank commodity price projections[3] for 2015. Prices were converted to 2006 constant prices using the manufacturing unit values index, and were adjusted for insurance, freight, processing, transport, and handling to determine economic farm gate prices. Economic prices for cotton were derived on an export parity basis, while the economic prices for wheat and fertilizers were calculated on an import parity basis.

(iv) For imported goods and services, a shadow exchange rate factor of 1.18 was used. In view of the high subsidy levels of machinery services, a conversion factor of 1.33 was used for converting financial prices to economic values.

(v) A shadow wage rate factor of 0.80 was used to reflect rural employment rates.

(vi) The unified land tax has been included in the farm budget financial analysis. Average land tax within the subproject area is estimated to range from SUM8,000 per hectares (ha) to SUM11,000 per ha.

(vii) Taxes and duties were omitted in the economic valuation.

7. **Without Project (Current) Yield Assumptions**. The current "without project" cropping pattern comprises 58.2% cotton and 38.7% wheat (weighted average in the project districts), as shown in Table A5.1. Current yields in the project area were based on data collected from the project districts, Ministry of Agriculture and Water Resources (MAWR), and household socioeconomic surveys. The weighted average yield for cotton is 2.01t/ha and 2.11t/ha for wheat.

[3] World Bank. 2004. *Global Economic Prospects, Appendix 2: Global Commodity Price Prospects*. Washington, DC.

Table A5.1: Data and Assumptions

Province	Bukhara	Navoi	Kashkadarya		Total	% of Project Area
			Kasan	Guz/Kam		
Area of Project Rayons (ha)						
Total Area	55,752	67,428	99,216		**222,396**	
Agricultural Area	42,000	46,307	36,910	37,090	**162,307**	
Project Area (ha)						
Full Rehabilitation Area	21,460	15,174	12,095	12,054	**60,783**	37
Off-Farm I&D Rehabilitation Area	11,160	17,500	19,550	16,640	**64,850**	40
Total Project Area	32,620	32,674	31,645	28,694	**125,633**	100
Agric. Area without Direct Project Benefits	9,380	13,633	5,265	8,396	**36,674**	23
Project Areas as % of Agricultural Area	78	71	86	77	**77**	
Present Cropping Mix (%)						
Cotton[a]	73	50	54	56	**58.2**	
Wheat[a]	21	48	44	42	**38.7**	
Present Cropped Area (ha)						
Cotton	30,660	23,154	19,931	20,770	**94,515**	
Wheat	8,820	22,227	16,240	15,578	**62,666**	
Present Yields and Average Production						
Present Yield (t/ha) – Cotton	1.8	2.6	2.2	1.5	**2.01**	
Average Production (t/yr) – Cotton	55,188	60,199	43,849	31,156	**190,392**	
Present Yield (t/ha) – Wheat	1.6	2.6	2.3	1.5	**2.11**	
Average Production (t/yr) – Wheat	14,112	57,791	37,353	23,367	**132,623**	

Crop	Cotton	Wheat	Cotton		Wheat	
Production of Production Quotas (%)	100	100	50	25	50	25
Production from Full Rehabilitation Area	71,301	49,666	35,650	17,825	24,833	12,417
Production from Off-Farm I&D Rehabilitation Area	76,071	52,990	38,036	19,018	26,495	13,247
Production from Areas without Direct Project Benefits	43,020	29,967	21,510	10,755	14,983	7,492
Total Present Production	**190,392**	**132,623**	**95,196**	**47,598**	**66,311**	**33,156**

I&D – irrigation and rehabilitation; ha – hectare; t – ton; yr – year.

[a] Totals are a weighted average.

Source: ADB estimates.

8. **With Project Assumptions**. In the "with project" scenario, the base case for the financial and economic analysis assumes that the farmers benefit from rehabilitated irrigation and drainage infrastructure, as well as improved agricultural and water management practices. Besides this base case, further analysis also has been carried out on the policy reforms.

9. **Quota Assumptions**. The level of production quotas has been calculated based on the current weighted average yields, which is in line with the approach used on the ongoing ADB-financed Ak Altin Agricultural Development Project,[4] Grain Productivity Improvement Project,[5] and Amu Zang Irrigation Rehabilitation Project.[6] Cotton and wheat production under 50% quotas are estimated as percentages of the present (without the project) weighted average yields (e.g., 2.01 t/ha for cotton and 2.11 t/ha for wheat), and are assumed to be 50% less under the 25% quota scenario. The formula used for these calculations is:

[4] ADB. 2002. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to Uzbekistan for Ak Altin Agricultural Development Project*. Manila.

[5] ADB. 2004. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to Uzbekistan for Grain Productivity Improvement Project*. Manila.

[6] ADB. 2004. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to Uzbekistan for Amu Zang Irrigation Rehabilitation Project*. Manila.

Quota Production = Cultivated Area x % Under Cotton or Wheat x Present Yield x Quota %

For example, the 50% quota for cotton in the full rehabilitation area is 60,785 ha x 58% x 2.01t/ha x 50% = 35,650 t. The 25% cotton quota for the same area is calculated at 9,939 tons.

Table A5.2: Cotton and Wheat Production and Procurement Quotas in the Project Area

Crop	Cotton	Wheat	Cotton		Wheat	
Production Quotas (%)	100	100	50	25	50	25
Production from Full Rehabilitation Area	71,301	49,666	35,650	17,825	24,833	12,417
Production from Off-Farm I&D Rehabilitation Area	76,071	52,990	38,036	19,018	26,495	13,247
Production from Areas w/o Direct Project Benefits	43,020	29,967	21,510	10,755	14,983	7,492
Total Present Production	**190,392**	**132,623**	**95,196**	**47,598**	**66,311**	**33,156**

I&D – irrigation and drainage
Source: ADB estimates.

10. The "with project" analysis on the policy reforms assumed that (i) over-quota prices are 20% higher than quota prices mandated by the Government and applied countrywide; (ii) over-quota cotton production is sold to the Government; (iii) the Government sales price is SUM350,000/t ($289.98/ton) for cotton and SUM119,000/ton ($98.59/ton) for wheat; and (iv) direct cotton production subsidies[7] include cotton production credit at concessional rate, oil price differential, fuel value added tax (VAT), machinery, fertilizers VAT, and ammonium nitrate. Wheat subsidies and additional export earnings from increased production, which are not included in this analysis, would increase Government revenues further.

3. Economic Impact and Viability of the Project

11. The economic internal rate of return (EIRR) of the Project is calculated at 21.5% with a net present value of $26.78 million at a 12% discount rate. EIRRs were calculated for each of the subproject areas, and all are above 12%. These analyses were carried out on the base case (para. 8). The results of the sensitivity analysis show that the project's economic viability is sensitive to declines in crop yields, drops in world prices for cotton, quota relaxation, and delays in physical works. As the economic impact of the Project hinges on the policy reforms, namely the relaxation of production quotas, the expected economic impact is discussed in the section on impact of policy reforms.

4. Financial Impact on Farmers

12. Project area interventions will mitigate the gradual loss of production due to further land degradation. Over the past 15 years, an estimated 12,000 ha (or 11% of the irrigable project area) has been abandoned. Without the rehabilitation of I&D infrastructure, another 13,000 ha of land could go out of production over the next 15 years.

[7] Estimates are based on the World Bank. 2005. *Cotton Taxation in Uzbekistan*. Washington, DC. The direct subsidies are calculated pro rata for the cotton area within Land Improvement Project.

13. For 60,780 ha of the project area, the full rehabilitation of I&D infrastructure, coupled with improved land and water management, are expected to lead to improved crop yields, higher cropping intensity, and an expansion of the irrigated area. Cotton yields are expected to increase from 2.6 t/ha to 3.4 t/ha in Navoi, 1.8 t/ha to 2.8 tons/ha in Bukhara, 2.2 t/ha to 3.2 t/ha in Kasan, and 1.5 t/ha to 2.7 t/ha in Kamashi and Guzar. In the areas where rehabilitation works cover only off-farm infrastructure, the Project is expected to benefit an additional 75,404 ha. For this area, cotton yields are expected to increase by about 10% and wheat yields by 16%. Modest increases in cropping intensity are expected from expanded horticulture and fodder crops for local markets.

14. For each subproject area, farm budgets were prepared for private farms (30 ha) and dekhan farms (0.25 ha). These farm models were based on the crop budgets and cropping patterns derived from detailed information on crop areas, crop yields, input use, labor and machinery requirements, and input and output prices collected for private and dekhan farms during the agro-economic survey. For private farms, net farm incomes are expected to increase by an average of $4,120 per year, or $3,940 after operation and maintenance (O&M) fees. The Project will have a positive impact on the net value of production of dekhan farms with increases ranging from 23% in Navoi to 30% in Kashkadarya. Annual O&M costs for the on-farm infrastructure were estimated at $68/ha, and $12/ha is assumed to be needed to cover part of the O&M costs for the main and inter-farm systems.

15. **Affordability.** The farm budget analysis demonstrates that the increased crop production, combined with the quota reduction from 50% to 25%, will enable farmers to meet the on-farm investment and O&M costs. On the basis of this analysis, an assessment was undertaken of the farmers' capacity to pay I&D fees sufficient to meet (i) O&M costs for on-farm civil works, (ii) O&M costs for part of main and inter-farm civil works (i.e., excluding pumping), and (iii) betterment levy to meet 100% of the on-farm rehabilitation costs. In the "future with the project" situation, the annual O&M expenditure required for on-farm infrastructure was estimated at SUM75,500 per hectare, with SUM13,300 per hectare assumed to be needed to cover part of the O&M costs for the main and inter-farm systems. Regarding the farmers' capacity to meet these future O&M costs, I&D fees were expressed as a percentage of the additional net farm returns (before I&D fees) for both types of farm. Currently, the water users' association (WUAs) is charging only nominal fees, and this is assumed to continue in the "with project" situation. As an indicator of farmers' capacity to pay, the general rule is that I&D fees (as a percentage of additional net farm income before I&D fees) should not exceed 50%. The analysis suggests that farmers might have the capacity, in theory, to meet O&M costs. However, this is not likely to be sufficient, given the substantial constraints private farmers face in the current "control and command" farming environment. These constraints include restricted credit facilities, delayed payments, and lack of alternative marketing facilities, as well as procurement quotas and low farm gate prices for cotton and wheat. The results of this analysis highlight the importance of complementing on-farm productivity improvements with policy reforms.

5. Impact of Policy Reforms

16. The analysis of the policy reform measures associated with the Project, using a policy analysis matrix[8] approach, indicates a positive impact on farmers and the Government. Four key indicators were used: (i) private profit and loss, (ii) economic profit and loss, (iii) domestic resource cost (DRC) ratio, and (iv) private resource cost (PRC) ratios.

[8] See Harrigan *et al.* 1992. Agricultural Price Policy: Government and the Market. *FAO Training Materials for Agricultural Planning No. 31*. Rome: FAO; and ADB. 2004. *Economic Analysis of Policy-Based Operations: Key Dimensions*. Manila.

17. The private (farmer) profits and losses reflect the results of the Land Improvement Project (LIP) farm budget analyses. In the "without project" scenario, private profit is low (SUM103,000/ha), indicating that farmers do not have a strong incentive to expand or improve productivity. This situation will deteriorate further without the project, and will likely generate losses if costs that were not accounted for are included. This would make the introduction of land improvements even more difficult in the future. However, private profits would increase with the relaxation of quotas, which would raise the prices farmers receive, and reallocation of resources to cotton. Combined with productivity improvements from drainage technology, this would enable profits to improve further. For example, under the 25% quota and full land improvement package, private profit is estimated at SUM478,000/ha ($396/ha equivalent). Higher private profits would increase the incentives for farmers to invest in land improvement, raising productivity and revenues further.

18. The economic profit and losses also reflect the LIP farm budget analyses. The "without project" scenario shows a higher economic return compared with private return (SUM217,000/ha or $195.50/ha). Still, this is marginally efficient in terms of its foreign exchange earning capacity. Quota relaxation would allow farmers to grow more cotton and receive prices that are closer to economic prices, increasing allocative and productive efficiency. Land improvement technologies also increase economic efficiency: under the 25% quota and full land improvement package economic profit is SUM717,000/ha or $594.03/ha.

19. DRCs for cotton in the "without project" scenario and for all project options are below 1 and greater than 0, indicating that the project area has a comparative advantage in cotton.[9] DRCs move closer to 0 with quota relaxation and with land improvement technology, again showing greater efficiency under the 25% quota and full land improvement package option. Calculation of DRCs in financial terms, the PRC ratio, indicates low output prices and value added compared with factor and other costs, and low competitive advantage of farmers. The results of the summary policy analysis for selected LIP scenarios are in Table A5.3.

Table A5.3: Effects of LIP Technologies and Quota Reductions on Economic and Private Performance of Cotton

Indicators	Present Situation	Future Without Project	With Project Off-farm Rehab. Only	With Project Off-farm Rehab. Only	With Project Full Rehab.	With Project Full Rehab.
(SUM '000/ha)	50% Quota	50% Quota	50% Quota	25% Quota	50% Quota	25% Quota
Private Profits/Loss	103.0	26.0	144.0	385.0	291.0	478.0
Economic Profit/Loss (SUM '000/ha)	217.0	119.0	310.0	553.0	553.0	717.0
Private Resource Cost Ratio	0.7	0.9	0.7	0.5	0.6	0.4
Domestic Resource Cost Ratio	0.4	0.6	0.3	0.2	0.2	0.2

ha - hectare
Source: ADB estimates.

[9] DRCs are based on economic prices, and have removed any price distortions. Economically profitable enterprises have a high value added in relation to domestic factor costs. DRCs greater than 1 show low comparative advantage. DRCs between 0 and 1 show underlying comparative advantage.

20. The analysis also shows that an efficiency policy objective, rather than a food security policy objective, would achieve greater financial profit and economic efficiency by growing more cotton and less wheat. Further, the Government and the economy would benefit from greater efficiency in foreign exchange earning capacity, raising the capacity to import, for example, food from countries with a comparative advantage in growing wheat. For the 25% quota reduction and land improvement in the LIP areas, wheat production was unchanged.

21. The adoption of a 25% quota would increase the efficiency of the project areas to earn foreign exchange, reduce the need for subsidies, and increase Government revenues. The analysis indicates that the 25% quota reduction would not compromise wheat production in LIP areas, and would increase cotton production by 15%.[10] In addition, Government revenue would increase 20% due to the sale and export of additional cotton production, increased tax collection, and savings from lower subsidies.

6. Distribution and Poverty Impact

22. The Project's impact on employment within the project area will be moderate (2%), due to the low elasticity of workforce demand in the agriculture sector. However, continued commercialization should increase employment in household and dekhan plots. Employment is also expected to grow (by 3–4%) among service providers for agricultural operators, I&D infrastructure maintenance enterprises, and related segments of the labor market (trading, services, agricultural production processing, etc.).

23. The distribution of project effects among the main stakeholders—cooperative farmers, private farmers, private traders, state enterprises, and local government and national governments—also was analyzed qualitatively within the broader context of the agricultural policy reforms. Table A5.4 shows the Project's anticipated effects, assuming the reforms are carried to improve access to markets, inputs, and credits; improve producer land rights; and promote the transfer of irrigation management to WUAs.

Table A5.4: Project Effect on Key Stakeholders

Project Outputs / Stakeholders	Policy Reforms at the Project and Sector Levels	Improvements in Land and Water Management Practices	Rehabilitation of Land Management Infrastructure
Private Farmers	Gain from price increases Gain from freedom to choose most profitable crop combination Gain through increased incentive to invest in productivity and land improvement	Gains from productivity and yield increases Gains if WUA becomes financially viable	Gain from improved land quality and timely delivery of irrigation water
Private Traders	Gain assuming expansion in private processing and trading	Gain from increased marketed surplus due to improved land and	Gain from increased marketed surplus due to improved land and

[10] The Ak Altin area cotton yields and sales to the Government increased by 30% from 2002, and wheat yields have risen by 95% compared with 2003, even before the rehabilitation of I&D infrastructure.

Project Outputs / Stakeholders	Policy Reforms at the Project and Sector Levels	Improvements in Land and Water Management Practices	Rehabilitation of Land Management Infrastructure
	due to increase in off-quota crop production	water management	water management
Local Government	Gains through higher revenue from taxes Loss of influence of district authorities as quotas reduced	Loss of influence of district authorities as quotas reduced Loss of direct authority over water management	Gains through higher revenue from taxes
National Government	Gains through higher revenue from taxes and export of cotton Gains from lower fiscal burden from inputs and credit subsidies, and O&M	Gains from lower expenditure on O&M Gains through higher revenue from taxes and export of cotton Gains through increased income tax collection with higher growth and economic activity in the long term	Gains from lower O&M costs due to efficient and improved main system network

O&M – operation and maintenance; WUA – water users' association
Source: ADB estimates.

PROJECT IMPLEMENTATION SCHEDULE

Components/Activities	2006		2007				2008				2009				2010				2011				2012	
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II
A. Project Management, Monitoring and Evaluation																								
1. Project Management																								
2. Performance Monitoring and Evaluation																								
3. Environmental Monitoring and Assessment																								
4. Socioeconomic Monitoring and Assessment																								
B. Institutional Support and Training																								
1. Preparation and Implementation of Training Plan																								
2. Support to Basin Irrigation System Authorities																								
3. Development of Sustainable WUA																								
4. Strengthening Extension Services																								
C. Infrastructure Rehabilitation																								
1. Surveys and Investigations / Participatory Approach																								
2. Design of Infrastructure Improvements																								
3. State Expertise																								
4. Preparation of Bidding Documents																								
5. Procurement of Contractors																								
6. Construction Supervision of Rehabilitation Works																								
(i) Package 1 - Navoi - 26,301 ha main/inter-farm drains, with 6,911 ha on-farm works																								
(ii) Package 2 - Bukhara -26,658 ha main/inter-farm drains, with 10,184 ha on-farm works																								
(iii) Package 3 - Kashkardarya I - 19,726 ha main/inter farm drains, with 7,653 ha on-farm works																								
(iv) Package 4 - Kashkardarya II - 36,610 ha main/inter-farm drains with 9,143 ha on-farm works																								
D. Land Improvement and Agriculture Development																								
1. Core Demonstration Areas (total 300 ha)																								
(i) Surveys / Investigations / Participatory Approach																								
(ii) Procurement of Equipment																								
(iii) Design of Interventions																								
(iv) Scope of Works Documentation																								
(v) Contractor/WUA & Farmer Construction Works																								
(vi) Construction Supervision																								
(vii) Operation of Model Farms																								
2. Conservation Management of Soils and Agriculture on Marginal and Abandoned Lands (GEF Component)																								

GEF – Global Environment Facility; ha – hectare; WUA – water users' association
Source: ADB estimates.

PROCUREMENT PLAN[a]

Project Information		
Country	:	Uzbekistan
Name of Borrower	:	Republic of Uzbekistan
Project Name	:	Land Improvement Project
Loan Reference	:	[to be assigned after approval]
Date of Effectiveness	:	[to be indicated after the Loan becomes effective]
Amount in $	:	OCR loan: $32.6 million; ADF loan: $27.6 million equivalent
Of which committed, $	:	0
Executing Agency	:	Ministry of Agriculture and Water Resources
Approval Date of Original Procurement Plan	:	[to be filled up later]
Approval of Most Recent Procurement Plan	:	not yet applicable
Publication for Local Advertisements[b]	:	June 2006
Period Covered by the Plan	:	18 months from loan approval

A. Procurement Thresholds, Goods and Related Services, Works and Supply and Install

Procurement Method		To be Used for Contracts Valued at
ICB Works	:	More than $1.0 million
ICB Goods	:	More than $1.0 million
NCB Works	:	Not more than $1.0 million
NCB Goods	:	Between $0.5 million and $1.0 million
Shopping Works	:	Not more than $100,000
Shopping Goods	:	Not more than $100,000
Exceptional Methods		
• International limited tendering may be used for the procurement of agricultural machinery and equipment		• Less than $1.0 million.
• Direct contracting may be used for procurement of vehicles and office equipment and consumables		• Not more than $0.1 million
• Force account will be used for the renovation of one project management unit and three project implementation units		• No contracts will be awarded.

B. Procurement Thresholds, Consultant Services

Procurement Method	To be Used for Contracts Valued at Above
QCBS	$1.0 million

C. List of Contract Packages in Excess of $100,000, Goods, Works, and Consulting Services

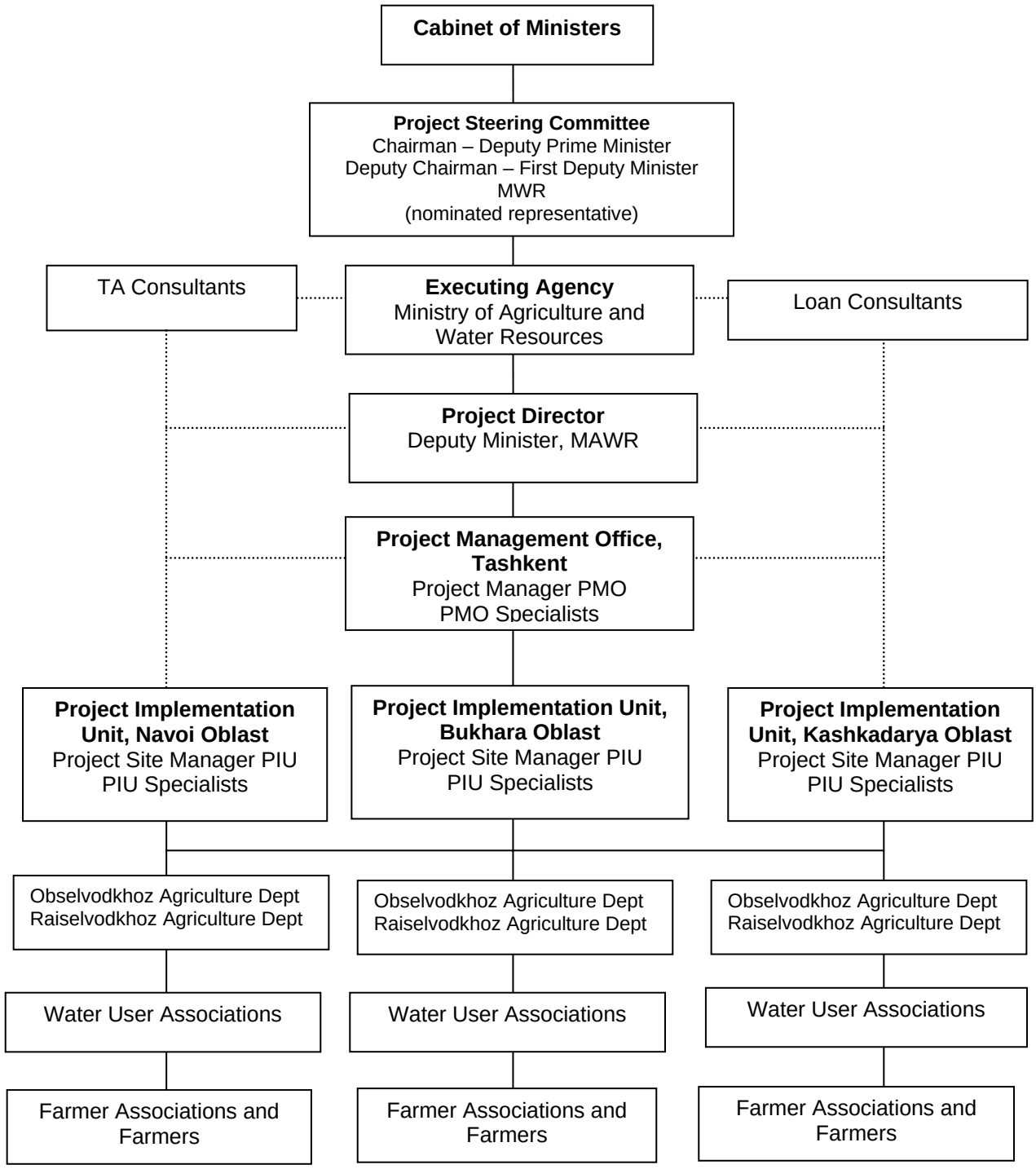
Ref	Contract Description	Estimated Cost ($ million)	Procurement Method	Expected Date of Advertisement	Prior Review Y/N	Comments
1	Civil works for the rehabilitation of main and inter-farm and on-farm irrigation and drainage infrastructure in Navoi, Bukhara, and Kashkadarya.	TBD	ICB	June 2007	Y	Contract packaging will be finalized during implementation
2	Civil works for land and agricultural improvement	TBD	NCB	Not mandatory for this contract size	Y	
3	Machinery and equipment, including tractors, subsoiling equipment, ploughs, etc.	TBD	International limited tendering	June 2007 (optional)	Y	Contract packaging will be finalized during implementation
4	Consulting services for project implementation	TBD	ICB	Posted in ADBBO since February 2006	Y	QCBS method and full technical proposal will be used

[a] Contract packages will be reviewed and finalized during implementation. This procurement plan will be revised when the contract packages have been finalized.

[b] General procurement notice, invitations to prequalify and to bid, and calls for expressions of interest.

ADBBO – Asian Development Bank Business Opportunities; ICB – international competitive bidding; NCB – national competitive bidding; OCR – ordinary capital resources; QCBS – quality and cost-based selection
Source: ADB estimates.

MANAGEMENT ORGANIZATION CHART



MAWR – Ministry of Agriculture and Water Resources; PIU – project implementation unit; PMO – project management office; TA – Technical Assistance.
Source: ADB estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTING SERVICES[1]

A. Introduction

1. The Land Improvement Project (LIP) will require 131 person-months of international consulting services and 857 person-months of domestic consulting services to assist the Ministry of Agriculture and Water Resources (MAWR) in managing and implementing the Project. The project will be implemented over 6 years, beginning in October 2006.

B. Institutional Capacity Building

2. The consultants will undertake a training needs assessment of all project stakeholders, and will provide the necessary institutional support and training for MAWR, Government agencies, water users' association (WUA), and farmers. The consultants also will help identify appropriate operation and maintenance (O&M) procedures for off-, inter-, and on-farm infrastructure, and assist with the establishment of appropriate budgetary systems and repayment mechanisms by beneficiaries.

C. Land and Water Management

3. The consultants will arrange for detailed field surveys and investigations on the two demonstration farms. Areas requiring remedial works will be identified, and necessary interventions designed. The consultants also will identify the equipment and services needed for the demonstration farms, assist with such procurement, and supervise implementation of the land improvement works. Further, the consultants will initiate farmer and WUA participatory activities, and assist in the development of their overall capabilities.

D. Design, Procurement, and Construction Supervision

4. The consultants will arrange and supervise field investigations, and design and civil works procurement; and will supervise feasibility studies, final designs, and bidding documents. The consultants will assist with the procurement of works, goods, and services needed for the civil works contracts. In addition, the consultants will be responsible for construction supervision, and will act as "engineer" under the terms of Federation Internationale des Ingenieurs-Conseils (FIDIC) conditions of contract.

E. Project Management, Monitoring, and Evaluation

5. This component will concentrate on assisting the Project Management Office (PMO) with (i) implementing and managing the Project; (ii) establishing monitoring, contract management, and accounting systems; (iii) conducting environmental impact assessment of project components; and (iv) establishing a framework and design for socioeconomic impact assessments.

F. Reporting

6. The consultants will prepare the Technical and Economic Report, bidding documents, bid evaluation reports, and contract agreements. Further, the consultants will assist with the preparation of environmental and socioeconomic reports, while taking prime responsibility for

[1] For the full TOR, see Supplementary Appendix G, Detailed Terms of Reference for Consulting Services.

the preparation of the inception report, quarterly progress reports, the midterm review report, and the draft final and final reports

G. Proposed Consultant Inputs

7. The required international and local consultants' inputs are summarized below.

Table A9: Consultants' Inputs

Expertise	Person-Months	
	International	Domestic
Team Leader and Irrigation Engineer	24	0
Deputy Team Leader and Irrigation and Drainage Engineer	0	24
M & E Specialists (Environment)	6	18
M & E Specialists (Social)	2	18
Institutional and Legal Specialists	4	16
Surveyor and Geotechnical Specialists	0	60
Irrigation and Drainage Design Engineers	12	284
Training Specialists	2	12
WUA and Institutional Development Specialists	3	36
O&M Engineers	6	24
Irrigation Agronomist	0	36
Procurement Specialists	11	17
Chief Resident Engineer	48	48
Resident Engineers (3)	0	144
Agricultural Economists (M&E)	4	24
Agronomist	0	24
Demonstration Farm Managers	9	72
Total	**131**	**857**

M&E – monitoring and evaluation; O&M – operation and maintenance; WUA – water users' association
Source: ADB estimates.

TECHNICAL ASSISTANCE FOR IMPLEMENTATION AND MONITORING OF POLICY REFORMS IN AGRICULTURE SECTOR

A. Objectives and Scope

1. The Government of Uzbekistan, which has prioritized addressing land degradation, asked Asian Development Bank (ADB) to finance the Land improvement Project (LIP). The Project will cover nine districts in Bukhara, Kashkadarya, and Navoi provinces, which experience the most adverse impacts of land degradation. The Project will improve farmers' livelihood through higher yields, enhance land productivity, and increase incomes.

2. The Government also agreed to expand and deepen the reforms outlined in the Presidential Decree of 24 March 2004, and to improve security of land tenure and farmers' access to commercial credit in the project areas. However, during implementation of other ADB-financed projects, some constraints were identified. These included a lack of (i) common understanding and approach to policy reforms at the central and provincial levels, (ii) collaborative/participatory policy reform review and evaluation measures, (iii) comprehensive monitoring and evaluation mechanism, and (iv) key stakeholder awareness of the impact of reforms on their farming and financial operations. Therefore, technical assistance (TA) is proposed to address these issues.

B. TA Impact, Outcome, Outputs, and Components

3. To expand and deepen the reform process beyond the ongoing ADB-financed projects, the implementation and outcomes of the reforms in the LIP areas must be monitored carefully, evaluated and discussed among all key stakeholders. The TA will (i) facilitate the implementation of the reform package agreed under the Project; (ii) raise the awareness of local government and rural communities regarding the implemented reforms; (iii) monitor their impacts on Government revenues and expenditures, and on rural livelihood and poverty, in a transparent and participatory manner; and (iv) propose measures for improving reform effectiveness.

4. One impact of the TA will be accelerated agriculture sector reforms, as a result of the implementation of the agreed reforms. Another impact will be widespread dissemination and sharing of reform knowledge, which can be replicated in wider geographical context within Uzbekistan and in Central Asia. The TA outcome will be the acceptance of the participatory reform processes. The TA will have three components, each implemented as a separate phase of the TA.

5. **Phase 1: Analysis and Design of Reform Measures, and Dialogue with Key Stakeholders and International Funding Agencies.** The main tasks will include (i) developing methods to measure progress of quota reduction at district and farm levels; (ii) designing measures to improve land use contracts in the project area—and their use as collateral for bank credit—and a time-bound program for registration of these contracts; and (iii) assessing the liberalization of marketing of agricultural products. Following the initial review and analysis, the TA will establish an open and participatory forum to review and assess regularly the progress and impacts of reforms. This forum will involve national, provincial, and district governments; farmers; and civil society. A dialogue with bilateral and multilateral agencies (World Bank, International Monetary Fund (IMF), European Bank of Reconstruction and Development (EBRD), Department for International Development (DFID), etc.) will be initiated to ensure a coordinated approach to agriculture sector reforms and poverty reduction. This will be followed

by a joint assessment of (i) costs and benefits associated with each policy reform to key stakeholders, including national, local, and farmer communities; (ii) anticipated impact on the rural poor; and (iii) preparation of a timetable for implementation.

6. **Phase 2: Implementation of Agreed Policy Reform Agenda.** Assistance will be provided to the central, provincial, and district governments to implement the agreed policy reform agenda on a sustainable basis. This will be carried out through stakeholder consultations at all levels, including poorer farmers and particularly female-headed farms. Consultation at the farm and local government levels will receive greater emphasis to ascertain the desired grassroots reform needs. A comparative analysis of the governance and institutions in the project districts will be carried out, and assistance will be provided in capacity building of implementing agencies to ensure a common interpretation of the policy reforms. The TA also will support the Government in improving land registration legislation, as well as in drawing implementation programs to ensure that reforms with immediate impact on poverty can be implemented in an effective and timely manner.

7. **Phase 3: Monitoring the Impact of Reforms and Stakeholder Consultation.** To assess the impact of the project and policy reforms on farm incomes and poverty reduction, the following tasks will be carried out: (i) establishment of a participatory system for monitoring and evaluation of the impact of policy reforms on poverty, which will involve consultation with key stakeholders, civil society, and elected representatives; (ii) initial monitoring of the implementation of policy reforms and their impact on governance, Government revenues, farm profitability, and poverty reduction;[1] and (iii) identification of nongovernment organization (NGOs) or other independent agencies that could take over the monitoring process after TA completion. In particular, the TA will monitor (i) progress in terminating the involvement of local authorities in farm operations, management, and marketing; (ii) registration of land use rights; (iii) impact of reforms on rural incomes; and (iv) proposals for expansion of reform initiatives based on an assessment of the impact of implemented reforms.

8. The TA outputs will include (i) agreed measures to reduce quotas, register land use contracts, and liberalize agricultural markets in the project districts; (ii) implementation plan for reforms; and (iii) monitoring design, implementation plan, and reports. The TA will also design and carry out policy consultation campaigns, national and district workshops, emphasizing legal and financial aspects, as well as gender-related impacts,[2] of the reform process.

C. Implementation Arrangements

9. The TA will be implemented over 24 months, starting in October 2006. The Ministry of Economy will be the TA Executing Agency. The TA consultants will work closely with the Ministry of Agriculture and Water Resources (MAWR) and other key stakeholders. Other Government institutions that might participate in TA implementation include National Bank of Uzbekistan, Ministry of Finance, and the Ministry of Justice. The consultants also will interact with the ADB-financed Ak Altin Development Project[3] and Amu Zhang Irrigation Rehabilitation Project[4], as well as relevant ongoing projects of other international agencies (e.g., World Bank),

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[1] Including collection and analysis of gender-disaggregated data.

[2] A project-specific gender action plan has been developed under LIP to promote the equal participation of male and female stakeholders in the Project.

[3] ADB. 2002. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to Uzbekistan for Ak Altin Agricultural Development Project*. Manila.

[4] ADB. 2004. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to Uzbekistan for Amu Zang Irrigation Rehabilitation Project*. Manila.

particularly those that have undertaken policy and taxation reviews. Intensive consultations will be conducted with civil society organizations and private sector organizations.

10. The TA will require 14 person-months of international consulting services and 36 person-months of domestic consulting services. The international consultant inputs will include a monitoring and evaluation specialist/team leader (6 person-months), an institutions specialist (3 person-months), a social development specialist (3 person-months), and a credit specialist (2 person-months). The domestic consultant inputs will comprise a monitoring and evaluation specialist/deputy team leader (24 person-months), a legal specialist (3 person-months), a water users' association (WUA) specialist (2 person-months), a credit specialist (3 person-months), a gender specialist (2 person-months), and a public awareness specialist (2 person-months). The recruitment of the TA consultants will be in accordance with ADB's *Guidelines on the Use of Consultants*. Simplified technical proposals and ADB's quality- and cost-based selection system will be used to choose consultants.

D. Reporting

11. The consultants will submit an inception report 1 month after starting work on the TA. The consultants also will submit a final report for phase I, bimonthly progress reports, and a comprehensive draft final report at the end of the 10th month of phase III, followed by a final report at the end of TA implementation. Each report, which will be published in English and Russian, will include a section on the Government's progress toward meeting loan covenants and policy reforms. All public consultation and dissemination materials will be published in English, Russian, and Uzbek.

E. Estimated Costs

12. The TA is estimated to cost $1,000,000 equivalent. ADB's TA funding program will provide a grant for $200,000, while the Poverty Reduction Cooperation Fund (PRF) administered by ADB will finance $600,000. As phase 3 will be completed after the PRF cutoff date of December 2007, it will be financed by the ADB TA funding program. The Government will finance the remaining $200,000 by providing offices, logistical support, and counterpart staff. The estimated breakdown of the costs is in Table A10.

F. Description of Tasks

1. Phase 1: Analysis and Design of Reform Measures, and Dialogue with Key Stakeholders and International Funding Agencies

13. The consultants will review Government policies that affect land tenure, freedom of farming decisions, and incomes. As envisaged, the review will:

(i) Assess Government policy on cotton and wheat quotas.
(ii) Assess the level of, and terms and conditions for, land tenure security that farmers might enjoy.
(iii) Compare farm gate prices for cotton and wheat with international prices.
(iv) Assess the availability of commercial sources of farm credit, and determine the extent of market liberalization for agricultural products.
(v) Identify and prioritize reforms, and assess their impact, through consultations at national, provincial, and district levels, as well as with farmers.
(vi) Assess the benefits and costs associated with each policy reform.
(vii) Prioritize the agreed reforms, and prepare program for phased implementation.

2. Phase 2: Implementation of Agreed Policy Reform Agenda

14. The consultants will assist the Government in implementing the agreed policy reform agenda on a sustainable basis. To achieve this, the TA will

(i) Help the Government undertake stakeholder consultations on the reform agenda, at all levels, including farmers. Consultation at the farm and local government levels will receive greater emphasis to ascertain the grassroots reform needs. Based on the stakeholders' feedback, necessary changes to the policies and their implementation will be proposed.
(ii) Support the Government in identifying the strengths and weaknesses of the institutions and agencies that will be involved in implementing the policy reforms.
(iii) Assist the Government in undertaking the required capacity building to enable implementing agencies to understand how each policy should be implemented, and to ensure a common interpretation of the policy reforms.
(iv) Support the Government in drawing up relevant regulations and programs to ensure the effective implementation of the proposed policy reforms.
(v) Assist in identifying the resources required to implement each policy initiative.

3. Phase 3: Monitoring the Impacts of Policy Reform

15. The consultants will:

(i) Establish a system for monitoring and evaluating agreed policy reforms that concentrates on the project districts, and involves participatory consultation with key stakeholders, including civil society and elected representatives. The system must be applicable during and after completion of the TA. Further, the consultants will examine the potential of selected independent agencies for monitoring after TA completion.
(ii) Monitor the implementation progress of policy reforms in the project districts, and their impact on farm productivity and profitability, as well as the cost and availability of inputs and private machinery services, output prices, farmers' incentives, etc. In particular, the TA will monitor progress in (a) terminating the involvement of local authorities in farm operations, and the removal of remaining constraints to the free marketing of cotton and wheat; (b) implementing measures to improve conditions for the supply of inputs by the private sector; and (c) improving land tenure contracts to enhance land use security, and to enable land use certificates to be used as collateral for bank credit.
(iii) Provide feedback on compliance with other policy reform agreements with bilateral and multilateral agencies.
(iv) Carry out policy awareness campaigns, including the organization of training and workshop/meetings, and the development of literacy material to disseminate the policy reform agenda, TA findings, and recommendations. This also will include the organization of several activities under the project-specific Gender Action Plan (GAP) (Appendix 13): (a) gender technical and legal training (activities 2[c]1 and 2[c]2); (b) meetings among rural farmers and service institutions' representatives (activity 2[d]); (c) capacity development training and consultation on GAP implementation with the project management office (PMO), project implementation unit (PIU) and Executing Agency (activity 4[e]).
(v) Undertake a baseline poverty assessment and farm income survey in phase 1.

(vi) Present the results to ensure that the level of farm incomes and poverty are readily identifiable by gender in the project areas.
(vii) Establish the impact that the project and policy reforms have made in reducing poverty, increasing farm incomes, and improving agricultural production.
(viii) Prepare proposals for the expansion of reform initiatives based on the assessment of the reforms' impacts.

Table A10: Cost Estimates and Financing Plan
($'000)

Item	Total Cost
A. Asian Development Bank Financing[a]	
1. Consultants	
a. Remuneration and Per Diem	
(i) International	256.0
(ii) Domestic	90.0
b. International and Local Travel	27.2
c. Reports and Communications	
Translation and Interpretation	19.2
2. Equipment	5.0
3. Field Surveys	20.0
4. Seminars, Workshops [b]	228.9
5. Information Dissemination	50.0
6. Contract Negotiations	10.0
7. Miscellaneous Administration and Support	8.0
8. Contingencies	85.7
Subtotal (A)	**800.0**
B. Government Financing	
1. Counterpart Staff, Per Diem, and Travel	90.0
2. Project Office	35.0
3. Miscellaneous Administration and Support Costs	7.0
4. Seminars and Workshops	48.0
5. Contingencies	20.0
Subtotal (B)	**200.0**
Total (A+B)	**1,000.0**

[a] Funded by Asian Development Bank technical assistance special fund ($200,000) and the Poverty Reduction Cooperation Fund ($600,000).
[b] As indicated in para. 15(iv), these budgetary provisions are intended to support activities 2(c)1, 2(c)2, 2(d), and 4(e) of the Gender Action Plan (Appendix 13).
Source: ADB estimates.

SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

A. Links to the Country Poverty Analysis

Is the sector identified as a national priority in country poverty analysis?	☒ Yes ☐ No	Is the sector identified as a national priority in country poverty partnership agreement? [a]	☒ Yes ☐ No

Contribution of the sector/subsector to poverty reduction in Uzbekistan:

Agriculture accounted for about 29% of gross domestic product in 2000–2004 and about 25% of export earnings (IMF 2005), and provided 33% of the country's employment. About 15 million people, or 60% of the population of 25.6 million, live in rural areas and depend solely on the agriculture sector for their livelihoods. Some 3 million *dekhan* farms (small inheritable households plots free in farms crop selection and marketing) grow agricultural products on small plots (from 0.15 to 0.35 hectare (ha)), thus contributing significantly to household budgets. Despite the expected 15% decrease in agriculture sector employment from 2005 to 2010, agriculture will continue to be an essential sector of the national economy. It will absorb more than a fourth of the 300,000 young people who enter the labor market annually. While Uzbekistan does not have an official definition of poverty, the Government has been addressing poverty-related issues in collaboration with international funding agencies. In 2003, two major studies were carried out: the World Bank-funded Living Standard Assessment (LSA); and the study entitled Linking Macroeconomic Growth Policy to Poverty Reduction, funded by United Nations Development Program (UNDP). These studies formed the basis for the formulation of the Medium-Term Strategy for Improving the Living Standards of the People of Uzbekistan (SILSP), funded by the Asian Development Bank (ADB). They also contributed to the finalization of the Interim Poverty Reduction Strategy Paper (I-PRSP) in June 2005.

The World Bank's LSA found the incidence of rural poverty in Uzbekistan was 30.5% in 2001. The percentage of poor households was 18.7% (Navoi oblast), 13.4% (Bukhara), and 62.6% (Kashkadarya). Data in the I-PRSP indicate that the average poverty incidence in Uzbekistan has decreased from 27.5% in 2001 to 26.2% in 2003. The SILSP and I-PRSP emphasize the critical role of agriculture in reducing poverty in rural areas, where 70% of the poor reside. These documents emphasize the need to address poverty by (i) increasing agricultural productivity, (ii) improving irrigation and drainage (I&D) systems, (iii) developing a free market of commodities and agricultural input resources (fertilizers and machinery), (iv) developing water users' association (WUAs), and (v) implementing market reforms. Agricultural development is one of the Government's priorities. Planned reforms include the liberalization of the agriculture sector by reducing Government-order target output of cotton and wheat, and transferring land to private farms. The I-PRSP provides for an increase of private farmers from 102,000 in 2004 to 151,000 in 2010, and for restructuring 77% of agricultural land for private farmers (against 47% in 2004). By 2010, private farmers are expected to contribute 26.6% of the country's agricultural output, compared with 17.3% in 2004 and 3.5% in 1998. The I-PRSP emphasizes that the decrease in crop yields and crop areas resulting from land salinization and degradation now affects about 50% of the irrigated land area, with an immediate impact on the living standards of the population. Land conditions continue to deteriorate in Uzbekistan. During the Soviet era and the time of collective farms (*shirkats*), shirkat workers were not motivated to produce results from their work. Following independence, the fleet of tractors and other agricultural machinery decreased 40–70% between 1997 and 2003. Rehabilitation of drainage networks has been limited, and construction of new drains has not materialized, due to a lack of Government funding for operation and maintenance (O&M), rehabilitation, and upgrading.

The relatively new Government policy of restructuring shirkat land into farmland managed by private/leasehold farmers is improving farmers' motivation to enhance land management. However, thousands of new private farmers lack resources and machinery and equipment to undertake the necessary agricultural and land improvement tasks, because their crops are purchased under Government order at approximately 30% of world prices. This has decreased the viable income of cotton farms. In the project area, about 85% of private farmers surveyed have saline land; 40% of private farmers have land affected by high groundwater table; and 20% of private farmers have low soil fertility. Land degradation has contributed to a decrease in all crop yields of almost 50%, which strongly influences household income and poverty levels.

The legacy of the Soviet era centrally planned system and state procurement quotas also has affected the use of juvenile labor[b] Under pressure to meet state quotas, local officials order schools and universities closed[c] during the cotton harvest, and students are sent to work in the fields[d] Pupils are paid for their labor, though their actual wages after deduction of costs (e.g., food and accommodation) are unclear. However, due to farm restructuring, the situation is changing. Private farmers, who seek to reduce production costs, are hesitant to use inefficient juvenile labor and pay for students' food and accommodation. Due to the agreed policy reforms (e.g., quota reduction[e] and limited intervention of local authorities in private farming) and rapid farm privatization, the use of juvenile labor in the project areas is expected to be reduced greatly. Specific assurances regarding the use of juvenile labor in the project area are included in the legal documents.

B. Poverty Analysis **Targeting Classification:** General intervention

The population in the project districts is about 1,400,000. Based on the results of the sample survey of 1,800 households (April 2005), using consumption level as key poverty indicator, poverty incidence in the project area was 37.3% (Kashkadarya), 28.3% (Navoi), and 27.3% (Jandor rayon of Bukhara oblast). The extreme poverty rate was

about 5%. As of March 2005, the poverty levels in monetary terms were $9.5 (Kashkadarya), $10.8 (Navoi), and $10.4 (Bukhara) per capita per month. During the same period, the minimum food basket price that ensures per capita consumption at 1,500 kcal per day (extreme poverty line) was $6.3.

In March 2005, the Kashkadarya oblast's average household income was $87, and the average per capita income was $13. The average total household income and average per capita income amounted to $100and $18 (Navoi) and $87 and $15 (Bukhara). The average per capita income of the poor households was 1.5–2 times lower than that of non-poor households, i.e., $11 (Kashkadarya), $10.5 (Navoi), and $8.7 (Bukhara) per month. Day wage labor and social transfers (pensions and social benefits) are the main sources of income for low-income households. Pensions and social transfers as a percentage of the incomes of poor households is 23% (Kashkadarya), 35% (Navoi), and 26% (Bukhara). Poor households spend more than 60% of their household income for foodstuffs, while the level of meat consumption meets recommended standards in only 14% of households. The staple foods are carbohydrate-containing foodstuffs (flour, potato) and fats (vegetable oil). The number of poor households spending for education is 20% lower than that of the non-poor households. In monetary terms, poor households spend 50% less for education than non-poor households. Poor households also spend 50% less income for medical treatment, and allocate only 5% of their total expenditures for medical treatment (compared with 10% for non-poor households). In monetary terms, poor households spend three times less on medicines and doctors than non-poor households.

For non-income poverty indicators, poor and non-poor households have limited access to municipal services, such as clean potable water and public sanitary facilities. Access to piped water is limited to 12% of households (Kashkadarya), 28% (Navoi), and 2% (Bukhara). Many settlements have no medical clinics, or they are in such poor conditions and have such limited funding that they cannot operate effectively. Rural areas have few drugstores, with limited choice of medicines and excessively high prices. Access to basic medical services has been identified as a critical need for more than 25% households. The education level of poor households is close to the average educational level of the population. However, the percentage of members with a secondary, vocational, and/or higher education is 1.2 to 1.5 times lower in poor households. The availability of agricultural land and the quality of that land are important factors in determining the well-being for households, given the lack of employment opportunities in rural areas. Direct and indirect benefits from agricultural ventures accounted for 70% of total household income in the project area. Most of the poverty determinants, which are related to farming, are caused by low income in the agriculture sector. While low income is explained largely by increased land deterioration and decreasing yields, the lack of skills and resources among farmers and agricultural workers also contributes to low income levels.

C. Participation Process

Is there a stakeholder analysis? ☒ Yes ☐ No

During preparatory technical assistance (PPTA) consultations and loan fact-finding, a broad range of stakeholders were identified and consulted at central and local government levels, including grassroots consultations with local communities in the project area. During the preparation of the Poverty, Social and Gender Analysis (May 2005), a sample survey was carried out with 1,800 households. This provided an opportunity to inform the stakeholders about the Project's outcome and impact. In addition, 40 in-depth interviews were organized with experts, private farmers, and local self-governance bodies. Four rural participatory rapid assessments were carried out, and included group discussions with the general public and experts to identify key social problems and discuss issues related to living standards, employment, and income generation. When the data was collected and analyzed, the specific needs and constraints faced by women and other vulnerable groups were emphasized. The agro-economic study in the project area provided additional performance analyses and needs assessments of 80 private farms, 80 dehkan farms, and 10 shirkat farms. Key project stakeholders are poor and non-poor agricultural operators, women, agricultural workers, agricultural input suppliers, agricultural service providers, financial institutions for agriculture, construction companies, central and local authorities, and land and water resource management institutions. Key vulnerable groups in the project area include women, the unemployed (mostly people who lost their jobs as a result of the restructuring of shirkats into private farms), and families with household land plots.

Is there a participation strategy? ☒ Yes ☐ No

The project-specific participation plan (Appendix 12) aims to involve all stakeholders in the implementation of the Land Improvement Project (LIP), and in any consultative and/or participatory process aimed at assessing the Project's impact on poverty reduction. The stakeholders include Government authorities at central and oblast level; oblast agricultural and water management agencies; river irrigation system management agencies (RISMA); research and development institutes; civil society organizations, including WUAs and nongovernment organization (NGOs); and project beneficiaries (shirkat farms, private farms, and dehkan farms). Participation will be encouraged by emphasizing consultation, sharing information, empowerment and/or shared control, collaboration and/or shared decision making, and negotiations during project implementation. Participation methods will include workshops and meetings, as well as qualitative and quantitative surveys (projects outset and project completion). To expand and deepen the reform process beyond the LIP, a technical assistance (TA) (Appendix 10) will (i) facilitate the implementation of the reform package agreed under the LIP project, (ii) raise the awareness of local government and rural communities regarding the implemented reforms, (iii) monitor the impacts on Government revenue and on rural livelihood and poverty in a transparent and participatory manner, and (iv) propose measures for improving reform effectiveness.

D. Gender Development

In Uzbekistan, women's contribution to the country's economy is important. The labor force participation rate is estimated at 60% among men and 31% among women. These estimates do not include those doing unpaid work in the family or on small subsistence plots. In 2005, the proportion of women among the officially unemployed was 61.5%, compared to 38.5% for men. The average duration of job searches is higher among women than among men. As a result, 67.7% of those unemployed for more than 1 year are women. In urban areas, employed women are concentrated within low-income sectors of the national economy, mostly state-funded and/or low-skill jobs. In agriculture, women tend to do low-productivity manual work, such as cotton picking. This type of work is also often seasonal. Women with young children are much less likely to participate in the labor force, or are more likely to have their employment choice limited to household production activities (small plots). Women's opportunities to participate are limited due to the limited availability of child care facilities. Furthermore, women traditionally are responsible for household tasks and children. The traditional gender division of labor results in women's wages averaging 70% of men's wages. This continues to worsen, as the percentage of young women seeking professional degrees is decreasing and limited to traditional disciplines, a practice that exposes them to the risks of unemployment and/or accepting low-paid jobs. In rural areas, the shift from collective farms to joint stock shareholding companies (shirkats) has resulted in labor retrenchment, which has affected women significantly. The liquidation of collective farms in favor of private farms organized as farmers' associations (PDFA) and/or WUA has consolidated farm management as a male occupation. Women's claim to private farms is limited. The available data suggests that women represent only 4.8% of private farmers. Farm management appears to have become a male occupation. This implies that women are being excluded from key employment opportunities in the restructuring process, as well as from positions of authority that could help empower them in local communities. Their low representation among private farmers seems likely to be due partly to their lack of appropriate agricultural and business skills, and also to cultural stereotypes that are particularly strong in rural areas. Lack of influence over decisions regarding the distribution of land also might mean that women get poorer quality plots. While the actual labor input of women into farming activities in cotton production, on private subsidiary plots, and household plots remains extremely high, they are increasingly incorporated into the workforce as unpaid laborers or as casual laborers earning piece-wage rates. In addition, decreased access to municipal services and potable water affects the status of rural women farmers.

During project preparation, a detailed poverty, social, and gender analysis was carried out. Key findings of the gender analysis and follow-up discussions during loan fact-finding confirmed women's increasing exclusion from the benefits and opportunities derived from the ongoing farm privatization process. Based on LIP's potential gender impact, a project-specific Gender Action Plan (GAP) has been developed (Appendix 13) to promote the equal participation of male and female stakeholders as agents and beneficiaries of the Project. Proposed activities aim to (i) establish quotas for women's representation within decision-making processes and structures of model farms and WUAs, (ii) integrate women's needs and constraints in the design and operation of project infrastructure, (iii) establish quotas for rural women farmers' participation in training activities, and (iv) ensure women's effective involvement in the monitoring and evaluation of project impacts. The Women's Committee, which will be represented in the project management office (PMO), will be responsible for implementing gender design features, as well as monitoring gender-relevant targets and indicators, in collaboration with the Association of Women's NGOs. The GAP is consistent with the National Platform of Action on Improving Women's Status, adopted in 1998, and the Presidential Decree entitled "On additional measures to support the activity of Women's Committee of Uzbekistan", adopted in 2004.

Has an output been prepared? ☒ Yes ☐ No

E. Social Safeguards and Other Social Risks

Item	Significance	Strategy to Address Issues	Plan Required
Resettlement	☐ Significant ☐ Not significant ☒ None	The rehabilitation of the land improvement and irrigation system and the construction of new ones do not require resettlement.	☐ Yes ☒ No
Affordability	☒ Significant ☐ Not significant ☐ None	As many as 97% of respondents consider the improvement of their land condition extremely important for improving the living standards of the project area population. Private farmers, households, and local authorities are ready to support the Project as much as possible. However, land improvement costs might not be incurred or recovered entirely since currently farmers' incomes are low.	☐ Yes ☒ No
Labor	☐ Significant ☐ Not significant ☐ None	The Project will have a moderate impact on employment in the project area (employment is expected to increase by no more than 2%). The Project also will encourage the growth of employment in the sector of service providers for agricultural operators, and irrigation and drainage service maintenance.	☐ Yes ☒ No
Indigenous Peoples	☐ Significant ☐ Not significant ☒ None	No	☐ Yes ☒ No

Item	Significance	Strategy to Address Issues	Plan Required
Other Risks/ Vulnerabilities	☐ Significant ☒ Not significant ☐ None	A mechanism of time-sensitive re-registration of private farms' land area excluded from agricultural use, resulting from the construction of new drains, should be included in the work plan for the construction of new drains (if such construction is required). In practice, local authorities have been reluctant to do so and often delay the re-registration process. As a result, private farmers have to pay an exaggerated incorrect amount as land and water tax to meet target crop yields that are based on an overestimated land area, and consequently are exposed to a high risk of eviction from their private farm plot.	☐ Yes ☒ No

[a] Uzbekistan did not conclude a poverty partnership agreement, but adopted its National Strategy for Improving the Living Standards of the People (funded by ADB TA), and the Interim Poverty Reduction Strategy Paper.

[b] Article 77 of the Uzbek Labor Code, dedicated to child labor, mandates that the minimum working age is 14. Work must not interfere with the studies of those under 18. Children 14–16 years old may work only 20 hours per week when school is not in session, and 10 hours per week when school is in session. Children 16–18 years old may work 30 hours per week while school is not is in session, and 15 hours per week while school is in session.

[c] Curriculum is amended to allow up to 2 months break in September–October.

[d] In 2000, UNICEF estimated that 22% of Uzbek pupils worked at least part time harvesting cotton.

[e] Local officials are concerned only about the state quota, and students are employed until the quota is met. According to UNICEF, the local government in Tashkent province has outlawed the use of students' labor.

PROJECT PARTICIPATION PLAN

Stakeholder Group	Objective of Their Intervention	Type of Participation	Participation Methods	Project Components			
				1	2	3	4
1. Government, ministries, and agencies (MAWR and other relevant sector ministries)	Making decisions on critical policy and legal/regulatory aspects related to land and water resource management	• Decision making in policy and project work	• Workshops and meetings • Qualitative and quantitative surveys (project outset and project completion) • Biannual meetings among rural farmers and service institutions' representatives (oblast and/or province authorities heads of WUA, banks, tax committees, MAWR, MJ (GAP, activity 3[d]) • Biannual CD training and consultation with EA, PMO, PIU on progress in the achievement of gender goals and the implementation of the GAP (GAP activity 4[e])				
2. Oblast agricultural and water management agencies (*Oblselvodkhoz)*, under MAWR	Improving the effectiveness of agricultural production, irrigated land fertility, and reasonable water and land use at the oblast level	• Collaboration/shared decision making • Project implementation					
3. River irrigation system management agencies (Amu-Kashkadarya, Zaravshan, Amu-Bukhara)	Effective water resource management within the river basin territory	• Collaboration/shared decision making • Project implementation					
4. Research and development institute	Contribution to the technical oversight in the construction of project-related infrastructure	• Project implementation • Project evaluation					
5. Civil society organizations	Effective representation of local community members throughout project implementation	• Consultation/seeking feedback • Information sharing • Empowerment/shared control • Independent monitoring and control • Project implementation • Project evaluation	• Workshops and meetings • Qualitative and quantitative surveys (project outset and project completion)				
• *Mahalla* (assemblies of citizens)	Representing the interests of citizens at the level of settlements, *dekhans*, *auls*, and urban mahallas						
• Water user associations (WUA)	Association of private farms providing paid services in the field of water distribution and maintenance of intra-farm I&D systems						
• Private and *dehkan* farm associations (PDFA)	Associations of dehk0061n and private farms and small agricultural product processing enterprises						
• NGOs	Not-for-profit organizations and public foundations ensuring civil society control over, and monitoring of, environment conditions and ecological actions						

Stakeholder Group	Objective of Their Intervention	Type of Participation	Participation Methods	Project Components			
				1	2	3	4
6. Construction organizations	Ensure construction and repair work of project-related infrastructure	• Consultations • Negotiations	• Consultations • Negotiations				
7. Agricultural input providers	Ensure adequate provision of agricultural inputs						
8. Agricultural products procurement organizations	Ensure adequate procurement of agricultural products						

Project Beneficiaries	Objective of Their Intervention	Type of Participation	Participation Methods	Project Components			
1. *Shirkat* farms (joint stock shareholding companies)	Large agricultural enterprise enjoying the rights of legal entity, based on shareholding ownership and largely family- or group-based subcontract	• Consultation/seeking feedback • Information sharing • Project implementation • Project evaluation	• Workshops and meetings • Qualitative and quantitative surveys (project outset and project completion) • Biannual meetings among rural farmers and service institutions' representatives (local authorities), heads of WUA, banks, tax committees, MAWR, MJ (GAP, activity 3[d]) • Biannual CD training and consultation with EA, PMO, PIU on progress in the achievement of gender goals and the implementation of the GAP (GAP activity 4[e])				
2. Private farms	Independent economic entity performing agricultural production using land plots granted for long-term lease						
3. *Dehkan* Farms (household farms)	Family-based small production farm, producing and marketing agricultural products on the basis of personal labor inputs of family members, with use of household plot granted to the head of household for lifelong heritable use						

CD - community development; EA – executing agency; GAP – Gender Action Plan; I&D – irrigation and drainage; MAWR – Ministry of Agriculture and Water Resources; NGO – nongovernment organization; PDFA – Private and Dekhan Farm Associations; PIU – project implementation unit; PMO – project management office; RISMA – River Irrigation System Management Agencies; WUA – water users' association
Source: ADB estimates.

GENDER ACTION PLAN

A project-specific Gender Action Plan (GAP) has been developed to promote the equal participation of female and male stakeholders as agents and beneficiaries of the Land Improvement Project (LIP). Proposed activities aim to (a) establish quotas for women's representation in the decision-making processes and structures of model farms and water users' association (WUAs); (b) integrate women's needs and constraints in the design and operation of project-related infrastructure; (c) establish quotas for rural women farmers' participation in training activities; and (d) ensure women's effective involvement in the monitoring and evaluation of project impacts. The National Women's Committee (NWC), which will be represented in the project management office (PMO), will be involved in the implementation of gender design features, as well as the monitoring of gender-relevant targets and indicators, in collaboration with the Association of Women's nongovernment organization (NGOs). The GAP is consistent with the National Platform of Action on Improving Women's Status, adopted in 1998, and the Presidential Decree entitled "On additional measures to support the activity of Women's Committee of Uzbekistan", adopted in 2004. It will be implemented through the recruitment of a gender and development specialist at the PMO, the identification of the NWC gender focal points in the three project implementation unit (PIU), and the support of trainers and training centers, as needed. GAP indicators and targets are reflected in the Project Framework matrix, and will be monitored through the LIP project performance monitoring system. Table A13 shows the covenanted activities and indicators and targets under the project four main components of the GAP.

Table A13: Main Components and Activities

Activities	Indicators and Targets	Responsibility	Time (year)
Component 1: Land and Agricultural Improvement			
(i) Include women farmers membership within the selection criteria for the identification of model farms (3) in the project area	30% of rural women farmers members of model farms	PMO (GAD specialist), PIU (GAD focal points), NWC, MAWR, and MJ	1
(ii) Ensure women farmers representation and participation within model farms' decision-making processes and structures	30% of women in public meetings on agricultural development and land improvement		
(iii) Training on improved land preparation, enhanced agronomic practices, diversified cropping systems/rotations, modern farm business management methods	30% of rural women farmers in training		
Component 2: Capacity Building of Land and Water Management Institutions			
(i) Ensure women's representation within private and d*ehkan* farm associations (PDFA) and water user associations (WUA)	30% of rural women farmers registered 30% of women technical staff and board members	PMO, PIU, NWC, MAWR, and MJ	1–6
(ii) Ensure the gender responsiveness of PDFAs and WUAs charters and contract forms (i.e., equal pay for equal work), and/or ensure its amendment as needed	30% of women technical staff, WUA Council and WUA Management Body in model farms		
(iii) Biannual training initiatives on critical gender aspects affecting land and water resource management, based on training needs identified during PPTA consultations (20 people per training):	• Training enrollment data • Training participation data • Training evaluation forms		

Activities	Indicators and Targets	Responsibility	Time (year)
c.1 Gender and Technical Training Module	• 30% of rural women farmers in training • number of cases of gender-discriminatory practices affecting rural women farmers identified and solved • number of cases on illegal allocation of land plots, illegal debt, crop confiscation, intimidation, and/or forceful eviction from land identified and solved • number of gender-discriminatory legal and regulatory provisions changed • Women's representation within WUAs processes and structures • Training evaluation forms	PMO, PIU, NWC, MAWR, PMO; PIU; NWC; MAWR; and MJ	
• Farm business management and marketing			1–6 Quarterly September, December and February
• Farm accounting, taxation, banking, and financial management			
• Land and water resources management (including water saving, water metering, water conservation, water sanitation, and hygiene)			
c.2 Gender and Legal Training Module			
• Administrative and organizational structures for land and water resource management			
• Legal and regulatory aspects of land and water resource management (i.e., procurement and contracting of goods and services)			
• Conflict resolution in the area of land and water resource management			
(a) Biannual meetings among rural farmers and service institutions' representatives (local authorities oblast and *rayon hokims*, heads of WUA, banks, tax committees, MAWR, MJ [150 people per meeting])	30% of rural women farmers in meetings	PMO, PIU, NWC, MAWR, and MJ	1–3 Biannually
(b) Publication of booklets on gender, legal, administrative, and organizational aspects related to land and water resource management	Booklets published and distributed (Uzbek, Karakalpak, and Russian languages)		1-6
Component 3: Rehabilitation of Land Management Infrastructure			
Ensure women's involvement and the integration of their needs in I&D system design, legal/administrative and organizational arrangements, and operation (i.e., quantity, timeliness, timing, equity, and quality of water)	30% of women in public meetings on I&D system design and operation	PMO, PIU, NWC, and MAWR	1-6
Component 4: Project Management			
(i) Ensure collection of gender-disaggregated baseline information	Gender disaggregated baseline information available	PMO (GAD)	1
(ii) Recruit GAD specialist from the National Women's Committee at the PMO (Tashkent)	Full-time presence of GAD specialist in the PIU throughout project implementation	NWC (in consultation ADB/URM)	1–6
(iii) Identify a gender focal point for adequate M&E of gender indicators/targets at PIU (Nawoiy, Bukhara, and Kashkadarya oblasts)	Availability of GAD focal points in PIU during project implementation		1–6
(iv) Ensure gender-balanced composition of the PMO and PIU	30% of women staff in PMO and PIU	MAWR	1–6
(v) Biannual capacity development training and consultation with EA, PMO, and PIU on the implementation of the GAP	Progress toward meeting the GAP indicators and targets	PMO (GAD)	1–6 Biannually
(vi) Ensure the collection of gender-disaggregated end-line information	Gender-disaggregated end-line information available	PMO (GAD)	6

ADB – Asian Development Bank; EA – executing agency; GAD – Gender and Development; I&D – irrigation and drainage; M&E – monitoring and evaluation; MAWR – Ministry of Agriculture and Water Resources; NWC – National Women's Committee; PDFA – Private and Dehkan Farm Associations; PIU – project implementation unit; PMO – project management office; PPTA – preparatory technical assistance; URM – Uzbekistan Resident Mission; WUA – water users' association
Source: ADB estimates.

Annex N: Letters of Endorsement (GEF Focal Point and UNCCD National Focal Point)

1. *Letter of Endorsement from GEF Operational Focal Point in Uzbekistan*
2. *Letter of Endorsement from UNCCD National Focal Point in Uzbekistan*

O'ZBEKISTON RESPUBLIKASI
VAZIRLAR MAHKAMASI
HUZURIDAGI
GIDROMETEOROLOGIYA XIZMATI
MARKAZI
(O'ZGIDROMET)

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REPUBLIC OF UZBEKISTAN
CABINET OF MINISTERS
THE CENTRE OF
HYDROMETEOROLOGICAL
SERVICE
(UZHYDROMET)

HYDROMETEOROLOGICAL
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200 6 yil 06.03 № 22-149/4

_____ sonli xatga

Mr. David McCauley
Senior Environment Economist
and GEF Facilitator
Regional and Sustainable
Development Department
Asian Development Bank

Dear Mr. McCauley:

Re: Endorsement of the Land Improvement Project

We are pleased to endorse the Land Improvement Project, which has been included as part of the Central Asian Countries Initiative for Land Management (CACILM) Multicountry Partnership Framework for funding from the GEF 3 replenishment.

This project has been identified as a high priority activity in the Uzbekistan National Programming Framework (NPF) for Sustainable Land Management. The NPF was developed using PDF-B resources and we have actively participated in national and multicountry consultations relating to its design.

We will provide our full support both to this project and to the entire CACILM program through the mobilization of necessary resources for their implementation.

We look forward to further fruitful cooperation and collaboration with the Asian Development Bank and all other partners in the implementation of this project.

Sincerely yours,

Dr. Sergey Myagkov
GEF Operational Focal Point, Uzbekistan

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Mr. David McCauley
Senior Environment Economist
and GEF Facilitator
Regional and Sustainable
Development Department
Asian Development Bank

Dear Mr. McCauley:

Re: Endorsement of Land Improvement Project

We are pleased to endorse the Land Improvement Project, which has been included as part of the Central Asian Countries Initiative for Land Management (CACILM) Multicountry Partnership Framework.

This project has been identified as a high priority activity in the Uzbekistan National Programming Framework (NPF) for Sustainable Land Management. The NPF was developed during the design phase of CACILM in which we have actively participated in national and multicountry consultation activities. Both the CACILM program and this particular project are envisioned to support national initiatives that are embodied in the NPF in accordance with our commitments under the UNCCD.

We will provide our full support to both this project and to the entire CACILM program through the mobilization of necessary resources for their implementation.

We look forward to further fruitful cooperation and collaboration with the Asian Development Bank and all other partners in the implementation of this project.

Sincerely yours,

Dr. Zokhidjon Nazirov
UNCCD National Focal
Point, Uzbekistan

ANNEX O: Soil Salinity Study for the Project Area

Additional study on soil salinity in LIP area

1. For identification of the expanded irrigation area condition in the second phase of the LIP, an additional study was conducted on the additional areas for Navoi, Bukhara and Kashkadarya oblasts. The technical characteristics of the drainage infrastructure, types of and the scope of the rehabilitation civil works for the LIP are described in the corresponding sections of the report.

2. Assessment of land salinity in the area under the command of main and inter-farm collector drains is based on data provided by MAWR and documents from the oblast HGME, collected by the local consultants during their field visits.

3. The project area soil salinity for the agricultural area under the command of main and inter-farm collector drains is presented in the Tables 6.1 to 6.3, and on the digital maps which are enclosed in this report. A brief description of the current situation in the studied project area is given below.

Navoi

4. Additional study on soil salinity and water table was conducted within the project rayons of Khatirchi, Navbakhor and Kyzyltepa rayons. Analysis of data has shown that more than 53% of the project area is concentrated on the lands under the command of inter-farm collectors. Of which, soil with moderate salinity in the area of direct impact of inter-farm collectors of Khatirchi, Navbakhor constitute 31 and 37% respectively. In the area of their indirect impact, the area with moderate salinity fluctuates from 44% (Navbakhor) to 50% (Khatirchi). Area with the water table up to 2 m covers 39% of total project area, of which 33.5% located in the area of collectors' direct impact and up to 43% of area is in the area of their indirect impact.

Bukhara

5. Additional area in Jandor rayon, as well as irrigation land of Bukhara and Romitan rayons, has been covered by the soil salinity study. Lands with the most impact from inter-farm collectors have been selected for the project area: 4000 ha in Bukhara and 6000 ha in Romitan, as well as 18,600 ha in Jandor.

6. The most unsatisfactory situation is in Jandor and Romitan rayons, where saline soils occupy 80 to 95% of area, of which more than 33 % is classified as moderately saline. High soil salinity is also observed in Bukhara Rayon (more than 52%). Although the groundwater table varies mainly in the range of 2 to 3 m, in the context of farms and WUA, a high level of soil salinity is observed. The most serious problems are faced by the farms of Romitan (Ubaidov, Yusupov, and others) and nearly all farms in Jandor, where more than 95% of agricultural land is affected by soil salinity.

Kashkadarya

7. Additional study was conducted within the project rayons of Kamashi, Guzar and Kasan rayons. There the area of saline lands varies from 72% (Kamashi) to 82% and 83% (Guzar and Kasan, respectively). And, for which 12-20% up to 36-40% of the farm land for the rayons respectively has moderate saline soil. The most vulnerable WUA/shirkats are Pakhtaabad and Kharabog in Kamashi, Akhunbabaev, Navoi and

Jonbulak in Guzar, and Chashma and Beruni in Kasan. Up to 18% to 26% of soils with moderate salinity (and in some farms up to 40%) are concentrated in the area of direct impact of inter-farm collectors, and the remaining 64 to 82 % of lands are in the area of their indirect impact.

Conclusion

8. Hence, the additional project area of agricultural land within the command area of the main and inter-farm drain collectors are characterized as unsatisfactory reclamation condition, with the wide expansion and intensity of soil salinization. This hampers the production growth, crop yields and farmers' income, and limits achievement of economic and ecological benefits, and requires implementing prioritized interventions on rehabilitation of I&D infrastructure, conservation of soil and agriculture.

Tables

9. Please refer to the tables attached to this annex, as listed below:

Table 6.1: The project area and soil salinity in the area under the command of inter-farm collectors in Bukhara oblast
Table 6.2: The project area and soil salinity in the area under the command of inter-farm collectors in Kashkadarya oblast
Table 6.3a: The project area and soil salinity in the area under the command of inter-farm collectors in Navoi oblast
Table 6.3b: The project area and water table in the area under the command of inter-farm collectors in Navoi oblast.

Table 6.1: The project area and soil salinity in the area under the command of inter-farm collectors in Bukhara oblast

Name WUA/shirkat	Total area, th. Ha	Project area, th. Ha	Area on soil salinity and water table							
			Saline area, ha	including, level of salinity in %			Water table area, ha	including %		
				low	moderate	high		1.5-2.	2-3.	3-5.
Romitan										
Madaniyat	3598	960	620	45	47	1	620	2	98	
Chorbakir	2461	520	470	50	29	18	470		99	1
F.Abloev	2078	970	770	45	37	15	770	2	98	
O.Ubaydov	2408	620	620	42	45	11	620	1	98	1
Sh.Khayrullaev	1266	650	420	63	24	10	420	2	97	1
U.Yusupov	2451	280	280	41	29	21	280	1	99	
Sub-total:	14262	**4000**	3180	47	37	12	3180			
Bukhara										
Romitan	1895	990	300	62	17	6	300	8	83	9
Chelongu	3887	1994	1670	71	18	5	1670	11	89	
Kurgon	5444	2824	1030	58	28	10	1030	1	99	
Bogitukon	348	174	80	59	19	17	80	0	100	
Others	18	18	18	33	28	22	18	0	100	
Sub-total:	11592	**6000**	3120	65	21	7	3120			
Jandor										
Makhankul	1648	1648	1648	81	14	5				
Andijon	782	782	782	70	21	9				
Mustakillik	1674	1674	1627	65	28	7				
Tarobiy	**2125**	**2125**	1964	76	15	9				
T.Salimov	**1745**	**1745**	1745	55	35	10				
Ibn-Sion	**2210**	**2210**	1981	67	24	8				
Navoi	1685	1685	1673	72	21	8				
Radjabov	2320	2320	2290	68	19	13				
Sub-total		**14189**								
Istiklol		2045	2013	68	23	9				
Varakhsha		2388	2227	70	21	10				
Bukhoro/ Jamiyat Oydin		2196	2063	63	30	7				
Guliston		2355	2215	68	22	10				
T.Khotamov		2100	1902	67	22	11				
Zarafshon		2130	1903	69	5	26				
Uzbekiston		2450	2304	72	23	5				
Akhunbabaev/ Amu Juyzar		2058	2043	86	11	3				
A.Temur		332	317	72	18	9				
Others		589	589	77	23	0				
Sub-total on additional area		**18643**								
Sub-total Jandor		**32832**	31286	70	21	9				
Total in Bukhara		**42832**								

including
Area of integrated on-farm management - 14.189 th. ha
Area under the command of drainage systems - 28.643 th. ha

Table 6.2: The project area and soil salinity in the area under the command of inter-farm collectors in Kashkadarya oblast

Name WUA/shirkat	Project irrigation area, th. ha	Area of saline soils, th. ha	of which moderate saline, %	Proportion of saline soils			
				in the area of direct impact, th.	*including share of moderate salinity, %*	in the area of indirect impact, th. ha	*including share of moderate salinity, %*
Kamashi							
Kizilkul	3.064	2.68	23	0.13	23	2.55	27
Pakhtaabad	**3.745**	3.34	26	0.14	21	3.20	30
Kirkkiz	2.587	2.58	15	0.34	24	2.24	23
Korabog	2.040	1.68	31	0.06	17	1.62	38
Loykasoy	2.180	1.78	27	0.24	25	1.54	34
Gisarak Boburtepa	0.734	0.12		0.12			
Khontushti	1.100	0.94	19	0.15	40	0.79	29
Elboy Kholikul	1.450	0.97	12			0.97	18
Baland Chayla	1.920	0.62	7			0.62	23
Sub-total:	**18.82**	14.71		1.18		13.53	
Guzar							
Batosh	1.600	1.60	8	0.468	21	1.13	3
A.Tursunov	2.094	1.17	16	0.107	24	1.06	19
Kumchup	1.923	1.42	17	0.239	21	1.18	16
Okhunboboev	3.487	2.44	39	0.143	30	2.30	40
Jonbulok	1.627	1.43	40	0.082	24	1.35	47
T.Zukhra	**3.908**	3.45	18	0.185	22	3.27	20
Navoi	2.774	2.55	39	0.518	26	2.03	47
Sherali	0.857	0.857	27	0.152	32	0.71	26
Sub-total:	**18.270**	14.917		1.894		13.023	
Kasan							
Obron Guliston	2.610	1.320	5	0.15	13	1.17	10
Mudin-Rudaksoy	2.170	1.110	7	0.16	13	0.95	14
Tiniksuv	2.100	1.370	16	0.19	26	1.18	30
Zargar-Tong Yulduzi	2.800	1.900	9	0.31	13	1.59	14
Beruni-Arabkhona	**1.353**	0.947	23	0.04	36	0.90	32
Beruni-Beruni	2.952	2.111	23	0.10	36	2.01	32
Gulbog	**3.750**	3.520	9	0.27	19	3.25	19
Obi-Khayot AN	**4.040**	3.300	11	0.25	28	3.05	28
Kashkadarya	3.110	3.110	8	0.46	13	2.650	14
Buston	2.445	2.445	13	0.2	20	2.245	19
Farovon	2.190	2.190	16	0.82	23	1.370	22
Chashma	1.250	1.250	28	0.32	28	0.930	28
Boburdaryo	3.700	3.700	17	0.27	19	3.430	21
Obi khayot	1.410	1.410	20	0.2	30	1.210	30
UFK - Zarafshon	1.030						
Sub-total:	**35.880**	**29.684**		3.740		25.944	
Total in Kashkadarya	**72.970**						
из них :							
Area of integrated on-farm management - 16.796 th. ha							
Area under the command of drainage systems - 57.204 th. ha							

Table 6.3(a): The project area and soil salinity in the area under the command of inter-farm collectors in Navoi oblast

Name WUA	Project area	In the area of direct impact, th. ha	including area on salinity level				In the area of direct inimpact, th. ha	including area on salinity level				Total
			zero	low	moderate	high and very high		zero	low	moderate	high and very high	
Kiziltepa												
Toshrabot (Uzilishkent)	4833	1.00	-	0.53	0.30	0.17	3.1	-	1.10	1.80	0.2	4.10
Sub-total:	**4833**	1	-	0.53	0.3	0.17	3.1	-	1.1	1.8	0.2	4.1
Khatyrchi												
K.Rakhmatov	2228	0.58	-	0.28	0.21	0.09	1.03	-	0.30	0.53	0.1	1.61
Borchakalon	4244	0.39	-	0.18	0.16	0.05	0.62	-	0.30	0.35	-	1.01
Oltin Suvchi	**1196**											
E.Abdiev	1210	0.14	-	0.07	0.07	-	0.20	-	0.10	0.10	-	0.34
A.Temur (Tez Okar Aryk)	2595	0.79	-	0.42	0.22	0.15	0.96	-	0.40	0.46	0.1	1.75
Ulugbek (Yakkatut Tos)	2382	0.58	-	0.32	0.17	0.09	0.66	-	0.30	0.36	-	1.24
Sh.Rashidov (Sardor Yulduz Pakhtakor)	1210	0.45	-	0.25	0.14	0.06	0.43	-	0.20	0.23	-	0.88
Khalimov	1746	0.22	-	0.11	0.08	0.03	0.20	-	0.10	0.10	-	0.42
A.Navoiy	1612	0.44	-	0.33	0.09	0.02	0.50	-	0.20	0.20	0.1	0.94
Pulatov	630	0.16	-	0.14	0.02	-	0.15	-	0.10	0.05	-	0.31
Ibn-Sino (Mingtut Gulkent)	550	0.16	-	0.14	0.02	-	0.15	-	0.10	0.05	-	0.31
A.Erlarboev (Jakhor chor	1020	0.21	-	0.11	0.10	-	0.20	-	0.10	0.10	-	0.41
Sub-total:	**20623**	4.12		2.35	1.28	0.49	5.1		2.2	2.53	0.3	9.22
Novbakhor												
Yangikurgon (Yangikurgon)	2323	1.07	-	0.53	0.40	0.14	1.13	-	0.35	0.38	0.1	2.20
Gigant (Gigant Suv Maskani)	2245	0.25	-	0.12	0.12	0.01	0.05	-	0.25	-	-	0.30
Istiklol (Suv Khosil Garovi)	3798	0.52	-	0.36	0.16	-	0.52	-	0.30	0.22	-	1.04
Navbakhor (Suvchi Zargar)	1460	0.33	-	0.18	0.12	0.03	0.40	-	0.20	0.20	-	0.73
S.Jurayev (Hayitmirob)	1450	0.12	-	0.08	0.04	0.00	0.18	-	0.10	0.08	-	0.30
Uchtut (Ung Sokhil)	1450	0.15	-	0.10	0.04	0.01	0.25	-	0.10	0.15	-	0.40
Ijant, Navruz (Jurakul Mirob)	2410	0.43	-	0.19	0.18	0.06	0.67	-	0.30	0.37	-	1.10
Yangi Yul Suv maskani	**2188**											
Zarif Mirob	**1772**											
Oston Mirob	**1755**											
Sub-total:	**17324**	2.87		1.56	1.06	0.25	3.2		1.6	1.4	0.1	6.07
Total in Navoi	**42780**	**7.99**		**4.44**	**2.64**	**0.91**	**11.4**		**4.9**	**5.73**	**0.6**	**19.39**

Table 6.3(b): The project area and water table in the area under the command of inter-farm collectors in Navoi oblast

Name WUA	Project area	In the area of direct impact, th. ha	including area on salinity level				In the area of direct inimpact, th. ha	including area on salinity level				Total
			zero	low	moderate	high and very high		zero	low	moderate	high and very high	
Kiziltepa												
Toshrabot (Uzilishkent)	4833	1.00	0.10	0.45	0.46		3.1	0.30	1.10	1.50	0.20	4.10
Итого:	**4833**	1.00	0.1	0.45	0.46		3.1	0.3	1.1	1.5	0.2	4.10
Khatyrchi												
K.Rakhmatov	2228	0.58	0.03	0.20	0.20	0.10	1.03	0.10	0.35	0.40	0.23	1.61
Borchakalon	4244	0.39	0.04	0.1	0.15	0.1	0.63	0.12	0.1	0.3	0.1	1.01
Oltin Suvchi	**1196**											
E.Abdiev	1210	0.14			0.06	0.08	0.20			0.10	0.10	0.34
A.Temur (Tez Okar Aryk)	2595	0.79	0.09	0.35	0.25	0.10	0.96	0.16	0.40	0.30	0.10	1.75
Ulugbek (Yakkatut Tos)	2382	0.58		0.03	0.25	0.30	0.66		0.66	0.30	0.30	1.24
Sh.Rashidov (Sardor Yulduz Pakhtakor)	1210	0.45		0.02	0.25	0.18	0.42		0.03	0.20	0.20	0.88
Khalimov	1746	0.22		0.02	0.10	0.10	0.20			0.10	0.10	0.42
A.Navoiy	1612	0.44	0.04	0.2	0.10	0.10	0.50	0.05	0.25	0.15	0.05	0.94
Pulatov	630	0.16			0.10	0.06	0.15			0.10	0.05	0.31
Ibn-Sino (Mingtut Gulkent)	550	0.16			0.10	0.06	0.15			0.10	0.05	0.31
A.Erlarboev (Jakhor chor Khonaki)	1020	0.21			0.10	0.11	0.20			0.10	0.10	0.41
Sub-total:	**20623**	**4.12**	**0.2**	**0.92**	**1.66**	**1.29**	**5.1**	**0.43**	**1.79**	**2.15**	**1.38**	**9.22**
Novbakhor												
Yangikurgon (Yangikurgon)	2323	1.07	0.07	0.50	0.40	0.10	1.13	0.13	0.50	0.40	0.10	2.20
Gigant (Gigant Suv Maskani)	2245	0.25		0.05	0.10	0.10	0.05		0.02	0.02	0.01	0.30
Istiklol (Suv Khosil Garovi)	3798	0.52		0.10	0.20	0.22	0.52		0.10	0.20	0.22	1.04
Navbakhor (Suvchi Zargar)	1460	0.33		0.05	0.13	0.15	0.40		0.10	0.20	0.10	0.73
S.Jurayev (Hayitmirob)	1450	0.12			0.05	0.07	0.18			0.10	0.08	0.30
Uchtut (Ung Sokhil)	1450	0.15	0.03	0.05	0.05	0.02	0.25	0.05	0.12	0.05	0.05	0.40
Ijant, Navruz (Jurakul Mirob)	2410	0.43	0.05	0.10	0.15	0.13	0.67	0.07	0.15	0.30	0.15	1.10
Yangi Yul Suv maskani	**2188**											
Zarif Mirob	**1772**											
Oston Mirob	**1755**											
Sub-total:	**17324**	2.87	0.15	0.85	1.08	0.79	3.2	0.25	0.99	1.27	0.71	6.07
Total in Navoi	**42780**	7.99	0.5	2.22	3.2	2.08	11.4	0.98	3.88	4.92	2.29	19.39
						33.41677096	42.63157895					
						7.5	38.83445075					