Central Asia

Climate Adaptation and Mitigation Program for the Aral Sea Basin

Environmental Management Framework: Vol. I

Main Text

May 11, 2015

ABBREVIATIONS

CAMP4CA	Climate Adaptation and Mitigation Program in Central Asia
CCSCA	Climate Change Secretariat for Central Asia
CIGP	Climate Investment Grant Program
CEP	Committee for Environment Protection
DEP	Department of Environmental Protection
EE	Ecological Expertise
EA	Environmental Assessment
EIA	Environmental Impact Assessment
ECA	Europe and Central Asia
EMF	Environmental Management Framework
EMP	Environmental Management Plan
FAO	Food and Agricultural Organization
GIS	Geographic Information Systems
GAP	Good Agricultural Practices
LEE	Law on Ecological Expertise
LEP	Law on Environmental Protection
ICSD	Interstate Commission on Sustainable Development
ICT	Information and Communication Technology
IPM	Integrated Pest Management
NCU	National Coordinating Unit
OP/BP	Operational Policy/Best Practice
NGO	Non-Governmental Organization
PFIs	Participating Financial Institutions
RSC	Regional Steering Committee
PEE	Personal Protection Equipment
SEE	State Ecological Expertise
TOT	Training of Trainers
TWG	Technical Working Group

CONTENT

INTRODUCTION

1. *Main project objectives.* The Climate Adaptation and Mitigation Program for Central Asia (CAMP4CA) is aimed at supporting the integrated development of climate-smart information, institutions, and investment capacities throughout the countries of Central Asia. This is expected to be achieved through strengthened coordination mechanisms; improved information gathering, sharing, and analysis for decision support; and demonstration of innovative, climate-smart action for potential scale up. In particular, the project will support two main components, the first that is aimed at supporting the establishment and operation of a new institutional platform for regional dialogue and collaboration on climate-change related issues, namely a Climate Change Secretariat for Central Asia (CCSCA). The second is aimed at supporting climate investments for national rural production, land resource management, and other resilience and mitigation investments for testing and scaling-up climate-smart approaches and technologies.

2. *Project Location.* The project activities will be implemented initially in three Central Asia countries – Kyrgyz Republic, Tajikistan and Uzbekistan, during the first project phase and additionally in Kazakhstan and Turkmenistan during the second phase. Its Climate Investment Grant Program (CIGP) would be implemented in selected areas of participating countries that are vulnerable to climate change. These areas are expected to include each of the major agro-ecological systems (rangelands, mountains, irrigated and arid) of the participating countries, which will be further narrowed based on the criteria below. The final selection of project areas will be made at the project outset based on climate vulnerability such as extent of land and vegetation degradation, expected water shortages, and predicted increase in temperature; located in the parts of the country with the highest share of bottom 40% population; and areas having the largest concentration of population outside municipal centers.

3. *Project category.* In accordance with the Bank's safeguard policies and procedures, including OP/BP/GP 4.01 *Environmental Assessment*, the project is classified as Category B for which an Environmental Impact Assessment (EIA) with Environmental Management Plan (EMP) is required. As before Appraisal it is not possible to identify which CIGPs will be financed, the appropriate Environmental Assessment (EA) instrument is the Environmental Management Framework (EMF) which would specify all rules and procedures for the CIGP sub-projects EA.

4. *Purpose of Environmental Management Framework.* The purpose of the EMF is to provide the participating governments rules and procedures for project EIA, identify the significant environmental impacts of the project (both positive and negative), to outline rules and procedure for the CIGP sub-projects environmental screening and to specify appropriate preventive actions and mitigation measures (including appropriate monitoring plan) to prevent, eliminate or minimize any anticipated adverse impacts on environment.

5. *The process of designing countries' specific EMFs.* An initial EMF report was prepared by an international consultant as a guiding document for participating countries. The document

was based on the following: (i) analysis of the existing EA national legal documents, regulations and guidelines; (ii) World Bank safeguard policies, as well as other EA guiding materials; (iii) existing EMFs for similar World Bank projects, and (iv) experience of EMF implementation of on-going World Bank funded projects in the CAMP4CA countries. Based on the EMF, each participating country have revised and adjusted the document to suit their specific needs and conditions. The overall EMF and country specific EMFs describe the procedures for the climate resilience investment subprojects' environmental assessment, along with the EA documentation needed for different types of projects, and the roles and responsibilities of different stakeholders to be involved in the EA process. As the CAMP4CA has a community driven approach and capacity at the community level is low, the EMFs provide environmental knowledge management and training activities for the proposed range of investment interventions likely to be funded under the project, including practical application of the environmental participatory analysis for the subprojects assessment and monitoring of results.

6. *The structure of the document.* The document contains of two major parts – the main text which present the overview of the prepared countries' specific EMFs and its annexes, presenting the country specific EMFs. The main text is presented in English, while the Annexes – in Russian. The overall EMF and country specific EMFs have generally similar structure covering all most important EA aspects and in particular: description of project activities; EA rules and procedures in participating countries and according WB Safeguards Policies as well as their comparison; expected potential environmental and social impacts of the proposed type of investments along with the Environmental Guidelines which specify rules and procedures for environmental screening; guidance for preparing sub-projects EIA and/or simple EMPs as well as of EMP Checklist for identified small scale construction and reconstruction activities; possible mitigation measures for different types of sub-projects; requirements for monitoring and supervision of implementing of EIA/EMPs; and institutional arrangements for EMF implementation. They also contain a series of measures to raise awareness and educate potential beneficiaries regarding safe pesticide handling and use of Integrated Pest Management (IPM) and management and monitoring of the EA review and approval process.

7. *Integration of the EA requirements into the project documents.* The EMFs documents specify environmental requirements will be integrated into the individual country Project's Operational Manual and be used as part of all contracts involving proposed activities and selected sub-projects. The subproject EMPs will be also integrated into the contracts for approved activities, both into specifications and bills of quantities and the Contractors will be required to include the cost in their financial bids and grant proposals.

I. Project background

8. *The Project Development Objective* (PDO) is to enhance regional coordination and access to improved climate change knowledge services for key stakeholders (e.g., policy makers, communities, and civil society) in participating Central Asia countries and support climate-smart investments and capacity building for climate vulnerable communities facing common challenges in these countries. This is expected to be achieved by strengthening climate-smart information, institutions, and capacity for multi-sector and cross-country planning.

9. *Project Beneficiaries*. The Program's benefits will extend throughout all Central Asian countries in terms of facilitating greater learning, dialogue, and cooperation among Program stakeholders, through the sharing of lessons and experiences in implementing climate investments. These climate investments contribute to a coordinated approach for strengthening climate preparedness and response in Central Asia: they will be selected according to criteria agreed upon by all Central Asian countries based on regional priority areas where climate action must be scaled-up, and they will generate results and lessons on climate-related approaches and technologies to be shared not only in the country of implementation, but more widely in all countries of the Central Asia region. Project beneficiaries will also include private farmers and farmer groups, villages or village communities, interested in introducing climate measures (resilience or mitigation). These communities will particularly benefit from funding opportunities that enable them to implement necessary sub-projects that improve their own livelihoods while also demonstrating important climate change mitigation and/or adaptation efforts that can be ultimately shared across the region.

10. *Project description*. The Program will include the following components:

Component 1. Regional Climate Knowledge Services (US$12.4 million in regional IDA financing). This component will provide technical assistance as well as minor civil works, software and equipment, at both the regional and national levels, to develop a unified, regional analytical platform for climate smart-development in Central Asia, with improved data, information, knowledge, and decision-support tools. Although this information platform will be managed at the regional level, national agencies and other stakeholders (e.g., academia, civil society organizations) in each participating country will have access to this system. In addition to providing an improved data and information platform, this component will also develop a mechanism to assess the results and lessons of the Climate Investments implemented under the Program (under Component 2) in order to ensure that these lessons and results are systematically evaluated and disseminated to support Central Asia countries in their planning processes and lead to greater scale-up of climate action in the region. This dissemination and regional capacity building will be further supported under the component via annual climate fora as well as regional training and e-learning events. The component's climate knowledge services will include:

- *Strengthening the Information Platform for Central Asia*, including data and information to facilitate public-domain collection, sharing, and maintenance of datasets relevant for climate-smart assessment. This platform will build on existing systems to collate, analyze, disseminate, and use climate-change relevant data. The platform will

make available a comprehensive and up-to-date data and information base, which could be shared and leveraged through public-domain access platforms and the creation of a range of knowledge products and services. This activity will be supported with approximately US$3.5 million in regional financing.

- *Targeted upgrading of climate-related monitoring systems*. This activity will support improved monitoring systems to support project activities (e.g., snow, permafrost, and glacier/cryosphere surveys and monitoring, agricultural and forest systems monitoring). These investments can then be scaled up under other national and regional investments (including the forthcoming CAWaRM Program). This activity will be supported with approximately US$3.3 million in regional financing.
- *Setting up a Climate Investment Assessment Mechanism*. This activity will support the systematic evaluation of the climate investment pilots under Component 2. A pool of experts, comprising national TWG members from the five Central Asian countries, Regional Climate Change Secretariat technical experts, and additional experts, will be established. As pilots are completed, two to three experts from this pool, including from Central Asian countries other than that of the location of the pilot, will evaluate the pilot, within 3 months of its completion, and will draw lessons based on a pre-established assessment methodology. The evaluations will be available for public dissemination, including for presentation and discussion at events such as the Annual Climate Forum. These evaluations will also be inputs to knowledge products, e.g., strategy papers or sectoral policy papers. This activity will be supported with approximately US$385,000 in regional financing.
- *Developing methodologies, approaches, and tools using the knowledge base for decision support*. This activity will include regional development of climate screening tools for specific sectors, climate impact assessment and management analytical tools, and support for climate-related decision making (e.g., robust-decision making) and development of climate-smart investments (e.g., review of climate strategies and development of investment programs) at the national level. This activity will be supported with approximately US$1 million in regional financing.
- *Developing knowledge products*, under a broad range of support such as web portals, mobile apps, publications, specialized analytical work (e.g., climate risk and vulnerability analyses, strategy papers to inform future orientations for Climate Knowledge Services and Climate Investment Grants), periodic *Climate and Sustainability Report*, on trends and indicators in the region for climate as well as environmental and socio-economic impacts. This activity will be supported with approximately US$1.3 million in regional financing.
- *Capacity building*, including activities related to training and study tours (e.g., on climate-smart options, on greenhouse gas inventories), engaging young professionals via internship programs, holding an annual Climate Knowledge Forum (for engagement of Central Asia stakeholders around the Program's results and its future orientations), and fostering climate knowledge collaborative networks. This activity will be supported with approximately US$2.85 million in regional financing.
- *Designing and implementing an effective communications and public engagement strategy to support knowledge dissemination, public outreach, and coalition building.* This activity will include stakeholder mapping and public opinion research; developing protocols for external and internal communications; providing

communications support for the Climate Knowledge Forum and workshops; and engaging with media and building their capacity. This activity will be supported with approximately US$100,000 in regional financing.

Component 2. Regional Climate Investment Facility (US$29.1 million in IDA financing and US$10.08 million in beneficiary contribution). This component will provide technical assistance and facilitation support for vulnerable communities[1] to plan, implement, and manage climate investments. In addition, it will provide financing in the form of grants to communities for climate investments, considered by participating Central Asia countries as priority for scaled-up climate action.

Sub-component 2.1. Capacity Building and Community Support (US$5 million in IDA financing). This sub-component includes financing for awareness raising, participatory planning, and implementation support of climate investment plans at the community level. This "Facilitation package" is expected to raise interest of potential beneficiary communities for climate investment grant opportunities under the Program, improve the quality of the grant-funding proposals prepared by these communities, and enhance the likelihood of success for these investments. Contracted Non-Governmental Organizations (NGOs) and other organizations will help beneficiaries assess and understand climate threats and impacts, and factor in the potential impact of climate change on livelihoods and vulnerability to weather hazards, based on local and scientific knowledge of climate variability and its likely effects. Local knowledge will include information about trends and changes experienced by the communities themselves and strategies they have used in the past to cope with similar shocks or gradual climate changes, or to mitigate threats and impacts. The contracted organizations will then support community-level participatory appraisals and community action plans, which promote fairness, equity, and transparency. These facilitating organizations will assist beneficiaries to identify and design appropriate investment plans that show clear linkages to the findings of the climate change appraisals. These organizations will also help build the technical and organizational capacities of communities to manage and implement their investments.

Sub-component 2.2. Investment financing (US$24.1 million in IDA financing and US$10.08 million in beneficiary contribution). This sub-component aims to increase productivity and address climate change by promoting the adoption of rural production, land management, and other climate-resilient and mitigation investments, by providing financing (grants or loans, depending on participating countries' preferences) at the village community and resource-user levels. Eligible investments are expected to primarily contribute to: (a) crop diversification, climate-resilient seed varieties, and seed system support measures, (b) on-farm water resource management and efficiency improvement measures, (c) rehabilitation of degraded lands and land degradation control through agro-forestry and rangeland management measures, (d) promotion of stability and sustainability of mountain ecosystems and livelihoods, (e) conservation agriculture, (f) energy efficiency improvements (e.g., insulation, lighting, etc.), and (g) expansion of renewable energy sources, particularly for those communities in remote

[1] Including farmers, farmer groups, private companies, water user associations, pasture management and/or user groups, and other private business representatives.

rural areas. Eligible investments will include those that meet criteria agreed upon by all participating countries that reflect regional priority areas where climate action must be scaled-up. Investments in a given country will be financed through the IDA financing mobilized by that country. Eligible investments are expected to be in the following main areas:

a) Improving productivity of field and horticultural crops, by Crop diversification, climate-resilient seed/sapling variety and seed system support measures adopting new and appropriate technologies:
   - Establishing low cost green houses
   - Fodder seed (both pulses and grass) production
   - Private nurseries
   - Vineyards and orchards
   - Improved cropping systems, such as crop diversification
   - Improved crop and tree varieties (wood lots)
   - Improved seed varieties (e.g., more tolerant to drought, pest, disease and salinity).
b) On-farm water resource management and efficiency improvement measures
   - Drip and plastic tube irrigation
   - Land levelling
   - Alternate furrow irrigation.
c) Land degradation control through agro-forestry and rangeland management measures Infrastructure to access and use remote pastures
   - Small machinery to produce and harvest fodder
   - Rehabilitation measures for degraded areas.
d) Pest and disease control
   - Biological controls
   - Integrated pest management (with use of bio-pesticides only).
e) Off-grid renewable energy
f) Conservation agriculture.

Depending on participating countries' preferences, the Facility will provide financing on the following terms[2]:

a) *Matching Grants*, supporting village communities (mahallas), private farmers, water user associations, pasture user groups, among others, to scale up suitable technologies improving climate resilience, risk reduction, mitigation, and economic and social benefits. Beneficiaries will be able to receive up to 80% of a sub-project investment as a matching grant, in the case of village communities when the investment benefits the entire village, water user association, or pasture user group. Village beneficiary contributions can be in cash or in-kind, while private farmers contributions can be in the form of cash, complementary goods, or paid labor. Project financed grants for sub-project investments are expected to be up to US$100,000.

[2] In consultation with the participating countries was decided that in Kyrgyz Republic the project will provide Matching Grants while in Tajikistan and Uzbekistan - loans

b) *Loans (including micro-finance)*, through Participating Financial Institutions (PFIs) supported by a credit line. These PFIs would provide financing through loans, leasing transactions and micro-finance (e.g., in the case of very small businesses). Maximum financing will not exceed US$300,000 per beneficiary, with a minimum 10% required co-financing by the sub-borrower. To participate, PFIs would have to meet a set of eligibility criteria, such as satisfactory financial and management structure, a satisfactory risk-based capital adequacy, an acceptable asset quality and lending performance, adequate liquidity, and the organization, management and technical staff and other resources required for the efficient carrying out of the operations. Technical assistance would also be provided to the PFIs to improve their skills in assessing climate investment proposals in the range of eligible activities considered, broadly covering land, water, agriculture, and energy sectors.

Component 3: Regional Climate Secretariat Services and National Coordination (US$5.5 million in IDA financing). The component will have the following sub-components:

Sub-component 3.1 Regional Coordination ($2.6 million in IDA grant financing). This sub-component will finance the operating costs of the Regional Coordination Unit (RCU) to be established under the regional host institution (EC-IFAS), responsible for regional coordination and implementation. Support will be provided to the RCU for procurement, financial management, regional coordination, reporting, and monitoring and evaluation.

Sub-component 3.2 National Coordination ($0.9-1 million in IDA financing per country). This sub-component will support the operating costs of the National Coordination Units (NCUs), responsible for national investment oversight, in each of the participating countries. Support will also be provided to the NCUs for national-level coordination, reporting, safeguards oversight, and monitoring.

11. *Program Financing*. The financing included under the Program will be provided for a five-year operation, financed with IDA credit and grant resources of US$47 million. National IDA contributions from Kyrgyz Republic, Tajikistan, and Uzbekistan total US$20 million, complemented with an additional US$27 million in regional IDA resources, of which US$15 million is IDA grant and US$12 million is IDA credit. Beneficiary contributions are estimated at US$10.08 million. The financing currently included under the Program is anticipated to be for the first phase of Program support. Additional financing is expected in FY16 to support both Kazakhstan's and Turkmenistan's participation in the Program. This financing would be provided in the form of an IBRD loan of approximately US$15 million or more for Kazakhstan (including counterpart co-financing) and Reimbursable Advisory Services for Turkmenistan. It is also expected that additional, parallel support would be provided by other donor agencies.

12. *Institutional and Implementation Arrangements*. Given its mandate to coordinate cooperation to improve the environmental and socio-economic situation in the Aral Sea Basin, as well as use existing water resources more effectively, EC-IFAS will serve as the implementing agency for the Program's regional, cross-cutting activities. EC-IFAS provides a platform for dialogue among the countries of Central Asia, as well as the international community. As noted earlier a Regional Coordination Unit under EC-IFAS will be

established to provide overall program coordination in collaboration with national agencies. The Program's proposed management arrangements will ensure a balance between effective regional and national coordination. These management arrangements are expected to include:

- *Regional Coordination Unit* (RCU) under EC-IFAS responsible for the implementation of Regional Climate Knowledge Services (Component 1) as well as Regional Coordination (Sub-component 3.1). The RCU will provide general Program oversight, provide a final review of national investment proposals to ensure their consistency with guiding investment priorities set by the Regional Steering Committee, oversee implementation of activities implemented at the regional level, organize reviews with country TWG members to assess lessons learned from investments, and ensure lessons and results from Program activities are systematically disseminated to 2010 the IFAS Board approved the CAHMP and its implementation arrangements.
- *National Coordination Units* (NCUs), in each participating country, responsible for the implementation of the Climate Investment Facility (Component 2), together with Participating Financing Institutions (when climate investment financing is provided via credit lines), as well as ensuring, overall National Coordination (Sub-component 3.2). NCUs will operate under the supervision of a national focal point and the national Technical Working Group, will be responsible for overseeing the implementation of the Climate Investment Facility, ensuring awareness-raising and outreach of investment opportunities, providing training for grant proposal preparation, and in the case of grant funding, screening proposals, and pre-selecting investments for funding. The NCUs will also monitor investment implementation and ensure compliance with Bank safeguards and fiduciary requirements. Participating Financing Institutions (PFIs) will be responsible for identifying prospective sub-borrowers, have full autonomy in sub-project approval and determination of lending terms (such as the interest rate and repayment and grace periods) and will bear the lending risks.
- *Regional Steering Committee*, comprised of representatives from the NCUs, Director of the RCU, and Chairmen of EC-IFAS and ICSD, meeting every six months to review program progress and recommend program priorities. The Regional Steering Committee will provide advisory support, establish the Program's guiding investment priorities on an annual basis, ensure country coordination, monitor Program progress on a bi-annual basis, as well as settle controversies that might arise during implementation.

II. National Environmental Assessment Regulatory Frameworks

13. *Overall assessment of the National EA Frameworks.* During last two decades all participating countries have developed most of the needed environmental laws and regulations, including in the area of EA which create a favorable legal framework for environmental protection in the countries as well as for usage and protection of its natural resources. All of them have in place framework Environmental/Nature Protection laws along with other basic environmental laws which stipulates all aspects of the activities in the domain. Furthermore, they also have developed all necessary regulatory documents that prescribe in details necessary rules and procedures for EA. In this regard in all participating

countries there are in place the following documents: (a) Law on State Ecological Expertise (SEE); (b) special by laws/Regulations on conducting Environmental Impact Assessment; and (c) Regulation on State Ecological Expertise. These documents clarify the concept of state ecological "expertise" which seeks to examine the compliance of proposed activities and projects with the requirements of environmental legislation and standards and ecological security of the society. The mentioned laws and regulations also stipulate the mandatory cross-sectoral nature of SEE, which shall be scientifically justified, comprehensive, and objective and which shall lead to conclusions in accordance with the law. SEE precedes decision-making about activities that may have a negative impact on the environment. Financing of programs and projects is allowed only after a positive SEE finding, or conclusion, has been issued. The following activities and projects subject to state ecological review: a) draft state programs, pre-planning, pre-project, and design documentation for economic development; b) regional and sectoral development programs; c) spatial and urban planning, development, and design; d) environmental programs and projects; e) construction and reconstruction of various types of facilities irrespective of their ownership; f) draft environmental quality standards and other normative, technology, and methodological documentation that regulates economic activities; g) existing enterprises and economic entities, etc. These laws stipulate that all types of economic and other activities shall be implemented in accordance with existing environmental standards and norms and shall have sufficient environmental protection and mitigation measures to prevent and avoid pollution and enhance environmental quality. The EIA studies analyzing the short- and long-term environmental, genetic, economic, and demographic impacts and consequences shall be evaluated prior to making decisions on the sitting, construction, or reconstruction of facilities, irrespective of their ownership. If these requirements are violated, construction will be terminated until necessary improvements are made, as prescribed by the Committee for Environmental Protection (CEP) and/or other duly authorized control bodies, such as sanitary, geological, and public safety agencies. An EIA study is a component of the SEE, being the responsibility of the project proponent. The SEE for all investment projects is the responsibility of the CEP under Government of Tajikistan and Uzbekistan or of the State Agency for Environmental Protection and Forestry in Kyrgyz Republic, and/or their regional offices.

14. *Detailed analysis of the participating countries EA regulatory framework.* Although the EA systems in participating countries to large extent are similar, they have also several peculiarities which have been analyzed in details and presented in the countries' specific EMF (see the Annexes to the document).

III. World Bank Safeguards Policies

15. *Overview*. The Bank undertakes environmental screening of each proposed project for which it will provide funding in order to determine the appropriate extent and type of EA. The Bank classifies a proposed project into one of four categories, depending on the type, location, sensitivity and scale of the project and the nature and magnitude of its potential environmental impacts. The four EA Categories are A, B, C, and FI. Category FI is applied to all proposed projects that involve investment of Bank funds through a participating financial intermediary (PFI) to be used for sub-projects of which the environmental impacts cannot be determined during appraisal of the World Bank project.

16. *World Bank's Safeguard Policies and their relevance to project.* There are key 10 Environmental and Social World Bank Safeguard Policies which are intended to ensure that potentially adverse environmental and social consequences of projects financed by Bank are identified, minimized and mitigated. World Bank Safeguard Policies have a three-part format: Operational Policies (OP) - statement of policy objectives and operational principles including the roles and obligations of the Borrower and the Bank, Bank Procedures (BP) - mandatory procedures to be followed by the Borrower and the Bank, and Good Practice (GP) - non-mandatory advisory material. World Bank's Safeguard Policies and their relevance to sub-projects to be funded under the Investment Grant Financing Component are indicated in the Table 1 below.

Table 1. World Bank's Safeguard Policies and their relevance to investment sub-projects

Safeguard Policies	*Relevance*
Environmental Assessment (OP/BP 4.01) This Policy aims to ensure that projects proposed for Bank financing are environmentally and socially sound and sustainable; to inform decision makers of the nature of environmental and social risks; to increase transparency and participation of stakeholders in the decision-making process	**Yes.** This OP is triggered as the project will support pilot investments in key vulnerable sectors, - possibly in the area of re-vegetation and restoration of forests and their services, community forestry and pasture management for participatory, equitable, and improved use of natural shared resources etc. Although the pilot investments will be limited in scope, they may generate various environmental and social impacts related to: soil degradation; water and air pollution; biodiversity conservation; labor safety issues and health impacts, etc. It is also expected these potential impacts will be mostly temporary by nature and site specific. To address these impacts the participating countries prepared EMFs which specify the rules and procedures for subprojects EIA. The EMFs also provide advises for setting up under the component 2 of a regional repository of knowledge and lessons from the region climate-smart agriculture, which might include information materials for training and advice on climate-smart agricultural technologies (e.g., soil, water and crop management for both rainfed and irrigated production systems, livestock and pasture management, global good practices), covering all aspects including production, post-harvest handling and processing, marketing, and financing.
Natural Habitats (OP/BP 4.04) This Policy aims to safeguard natural habitats and their biodiversity; avoid significant conversion or degradation of critical natural habitats, and to ensure sustainability of services and products which natural habitats provide to human society	**Yes.** This OP is triggered as the project might support investments in key natural areas - possibly under the community forest activities. The EMFs provides relevant advice on sub-projects screening to avoid conversion of natural habitats. In the case the areas with NHs will be involved in the proposed subprojects they will be rejected from project financing.
Forestry (OP/BP 4.36) This Policy is to ensure that forests are managed in a sustainable manner; significant areas of forest are not	**Yes.** This OP is triggered as the project might support re-vegetation and forest restoration and management of forests and their services.

Safeguard Policies	*Relevance*
encroached upon; the rights of communities to use their traditional forest areas in a sustainable manner are not compromised	
Pest Management (OP 4.09). This policy is to ensure pest management activities follow an Integrated Pest Management (IPM) approach, to minimize environmental and health hazards due to pesticide use, and to contribute to developing national capacity to implement IPM, and to regulate and monitor the distribution and use of pesticides	**Yes.** The project will not finance purchase of pesticides but it might generate a need for their increased usage, in particular in the case of agriculture activities and forestry nurseries development. No separate Pest Management Plan has been developed, but the EMF includes a section describing measures to ensure compliance with national laws and WB requirements relating to pesticide purchase and use, and to promote IPM approaches and safe pesticide handling and disposal practices to reduce human and environmental exposure.
Physical Cultural Resources (OP/BP 4.11) This policy is to ensure that: Physical Cultural Resources (PCR) are identified and protected in World Bank financed projects; national laws governing the protection of physical cultural property are complied with; PCR includes archaeological and historical sites, historic urban areas, sacred sites, graveyards, burial sites, unique natural values; implemented as an element of the Environmental Assessment	**No.** There will be no impact on physical cultural resources as all proposed activities will be implemented on existing agricultural lands.
Indigenous Peoples (OP/BP 4.10) IP – distinct, vulnerable, social and cultural group attached to geographically distinct habitats or historical territories, with separate culture than the project area, and usually different language. The Policy aims to foster full respect for human rights, economies, and cultures of IP, and to avoid adverse effects on IP during the project development.	**No.** This Policy is not applicable under the Program in the Central Asia countries
Involuntary Resettlement (OP/BP 4.12) This policy aims to minimize displacement; treat resettlement as a development program; provide affected people with opportunities for participation; assist displaced persons in their efforts to improve their incomes and standards of living, or at least to restore them; assist displaced people regardless of legality of tenure; pay compensation for affected assets at replacement cost; the OP Annexes include descriptions of Resettlement Plans and Resettlement Policy Frameworks	**No.** The project will not finance activities that result in involuntary resettlement impacts as per OP 4.12 and therefore the policy on involuntary resettlement is not triggered. This will be ensured during the sub-project screening.
Safety of Dams (OP/BP 4.37) This Policy is to ensure due consideration is given to the safety of dams in projects involving construction of new dams, or that may be affected by the safety or performance of an existing dam or dams under construction; important considerations are dam height & reservoir capacity	**No.** The program will not support subprojects that might affect the dam safety or be impacted by the safety of the existing dams.
Projects on International Waterways (OP/BP 7.50) The Policy aims to ensure that projects will neither affect the efficient utilization and protection of international waterways, nor adversely affect relations between the Bank and its Borrowers and between riparian states	**Yes.** The applicability of World Bank Operational Policy 7.50, "Projects on International Waterways" was reviewed with the Legal Department of the World Bank, and a waiver on notifying riparian states was granted. Sub-project investments would be limited to rehabilitation or modification of existing minor schemes in ways which would not increase the

Safeguard Policies	*Relevance*
	amount of water abstracted or have any other impact on the water source or local hydrological regime (e.g. replacing conventional irrigation with drip irrigation in an existing irrigation scheme would be still eligible). Creating a new scheme which will lead to increasing water abstraction from the rivers will not be financed under the project. This determination would be made in the screening process.
Disputed Areas (OP/BP 7.60) The Bank may support a project in a disputed area if governments concerned agree that, pending the settlement of the dispute, the project proposed for one country should go forward without prejudice to the claims of the other country	**No.** Project activities are not to be implemented in disputed areas.
Disclosure Policy (BP 17.50) Supports decision making by the borrower and Bank by allowing the public access to information on environmental and social aspects of projects and has specific requirements for disclosure	**Yes.** The EMFs have been disclosed and consulted in the participating countries before project appraisal and will be also disclosed in the WB Infoshop.

17. *World Bank Public Consultation and Disclosure requirements*. For all Category A and B projects proposed for WB financing, during the EA process, the borrower consults all involved parties, including project-affected groups and local nongovernmental organizations (NGOs) about the project's environmental aspects and takes their views into account. The borrower initiates such consultations as early as possible. For Category A projects, the borrower consults these groups at least twice: (a) shortly after environmental screening and before the terms of reference for the EA are finalized; and (b) once a draft EA report is prepared. In addition, the borrower consults with such groups throughout project implementation as necessary to address EA-related issues that affect them. For meaningful consultations between the borrower and project-affected groups and local NGOs, the borrower provides relevant material in a timely manner prior to consultation and in a form and language that are understandable and accessible to the groups being consulted. For a Category A project, the borrower provides for the initial consultation a summary of the proposed project's objectives, description, and potential impacts; for consultation after the draft EA report is prepared, the borrower provides a summary of the EA's conclusions. In addition, for a Category A project, the borrower makes the draft EA report available at a public place accessible to project-affected groups and local NGOs. Any Category B EIA report for a project proposed for WB financing is made available to project-affected groups and local NGOs. Public availability in the borrowing country and official receipt by the Bank of Category A reports for projects proposed for WB financing, and of any Category B EA report for projects proposed for WB funding, are prerequisites to Bank appraisal of these projects.

IV. Comparison of National Legislation and World Bank Environment Assessment requirements

18. *Overview*. While the basic provisions of the participating countries' EA rules and procedures are to some extent similar to the WB requirements, there are several important differences. These differences are related primarily to the following: (a) project environmental

screening categories; (b) Environmental Management Plan; (c) EA disclosure and public consultation; and (d) EA reviewing process.

19. *Differences in screening categories.* The national SEE laws and EIA Regulations stipulate all projects with a potential environmental impact should have in the project design an assessment of the potential impacts as well as a set of mitigation measures. Thus, as the project will support agro-forestry, agricultural and agro-processing activities which have some environmental impacts, many of supported subprojects would require EA and respectively - SEE. The projects which do not require an EA mainly correspond to those activities which will not have any or would generate only minor impacts on environment and therefore do not need to be passed through the formal procedures of EIA and SEE (subprojects that propose purchasing agricultural machinery, conducting small scale afforestation, soil improvements etc. - which correspond to WB Category C projects). The type of the project EA is decided in each concrete case by the SEE/Ecological Inspectors during the preliminary approval of the project location and of its technical specifications. In the case where World Bank and national categorization/EA requirements differ, the more stringent requirement will apply. This refers mostly in the case of deciding about Category C subprojects - the national EA legislation doesn't refer to small scale activities, including construction and rehabilitation of various buildings. In these cases it is proposed the clients will apply the WB criteria, qualifying them as Category B.

20. *Differences concerning EMP*. While the national legislation in all participating countries requires for all projects with potential environmental impacts to define relevant mitigation measures, it doesn't require a special EMP which should specify, along with the proposed mitigation activities a monitoring plan and reporting requirements, institutional arrangements for EMPs implementation as well as doesn't require needed capacity building activities and necessary expenses in this regard. Similarly, in the case of Category B subprojects, the beneficiaries will be required to apply WB rules and prepare not a list of mitigation measures, but EMPs.

21. *Differences with regard to disclosure and public consultation.* Conducted analysis shows there is no harmonization between World Bank and national requirements in this regard. According to national legislation, the EA disclosure and public consultation is mandatory only for large scale projects (of Category A). As specified above in point 17, in the case of World Bank EA policy, the Sub-borrower is responsible for conducting at least one public consultation for all Category B projects to discuss the issues to be addressed in the EMP or to discuss the draft EMP itself. Therefore, for the all Category B sub-projects to be supported, it will be required to disclose and to organize at least one public consultation of the EA documents to discuss the environmental issues of concern to the locally affected communities and include these issues in the content of the EMP. Documentation for the consultation should be submitted to the NCU/or PFIs as part of the sub-project file. National/Russian language version of the EMP and the record of the public consultation should be located at in public location near the project site and, if available - on the sub-borrower website. Also Category B EA sub-project would be made available to project-affected groups and local NGOs in an easily accessible NCU website.

22. *Detailed results of discrepancies between National and WB EA requirements.* The

countries' specific EMF presented in the Annexes to the document specify with more details these discrepancies along with the proposed actions in these cases.

V. Analysis of Potential environmental impacts and risks for the climate resilience investments

23. *Overall assessment.* As described in section 2 above the project will support a series of activities which might cause some adverse environmental impacts (small scale agro-industries; small scale civil works for rehabilitation of existing facilities, improving pastures and range management; plantation of new orchards and/or vineyards, small scale off-grid renewable, etc.) which might be qualified as Category B (mostly so called "low B"). It is also expected that many of supported subprojects will not have environmental impacts (Category C), especially those related to purchasing of weather forecasting information or TA activities specified under the Component 1 or purchasing agricultural machinery, conducting small scale afforestation, soil improvements etc. Furthermore, it is expected the selected subprojects will not be located in protected areas, critical habitats or culturally or socially sensitive areas, this will be ensured during the subprojects screening.

The potential adverse environmental impacts of proposed types of subprojects might be summarized as follows:

(i) *agricultural production*: soil erosion, loss of soil productive capacity, soil compaction, soil pollution, surface and underground water pollution, loss of biodiversity;
(ii) *on-farm water management*: contribution to surface water pollution, wastes generation, odor;
(iii) *pasture and rangeland management:* erosion and soil compaction, surface flows, loss of vegetation diversity
(iv) *sloping land horticulture:* change in physical structure of soil, surface erosion and ravine formation, loss of natural vegetation diversity
(v) *pest and disease management:* limited impacts
(vi) *participatory forestry and agro-forestry:* loss of forest diversity
(vii) *weather forecasting:* no impacts
(viii) *off-grid renewable:* reduction of downstream flows, erosion, loss of biological diversity, etc.
(ix) *small scale civil works:* dust, noise, solid waste management, labor safety.

24. *Potential social impacts.* The activities to be implemented under the project will generate a great number of both direct and indirect positive impacts. *Direct positive impacts* will be generated by increased production, products and goods which would result in creation of new jobs and respectively, more employment and increased income. *Indirect positive impacts* will relate to overall improving of business environment, increased production and secured enterprises domestic market position, introduction of advanced technologies and techniques, creating new opportunities for access to local (and foreign) markets, enhancement competitiveness of domestic production and products, contribution to poverty reduction and food safety, and improvement of country's socio-economic conditions.

25. *Cumulative impacts.* Cumulative impacts are not likely to be an issue as attention will have to be given to selection of activities based on local environmental conditions. The impacts of activities under the investment grant financing component of the project are expected to be prevented and mitigated through appropriate project design and good operational practices complying with the World Bank's and national environmental protection requirements. Cumulative impacts are not likely to be an issue as the proposed activities will be distributed more or less evenly throughout the participating countries.

The potential impacts and proposed measures to alleviate such impacts are discussed in Table 2.

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Table 2: Impacts and Mitigation of Proposed Grant Investment Activity Categories

Activity	*Aspects*	*Potential adverse and positive impacts to environment*	*Mitigation measures*
I. *Improving productivity of field and horticultural crops by adopting new and appropriate technologies* -crop diversification, - nurseries, -vineyards and orchards, -improved seeds, -providing of watering, - use of sheets for covering of green houses, -community revolving funds.	Use of fertilizers and agrochemicals (pesticides, herbicides and insecticides), soil treatment techniques, etc.	*Adverse Impacts* Water and soil pollution and eutrophication of water resources can be caused by improper application in quantity and type of organic and inorganic fertilizers and agrochemicals. Non-biodegradable Polyethylene sheets can pollute the soil surface. Poorly-managed over irrigation can cause erosion of soil, create ravines, rise in level of water table, salinity flooding and disruption of communication, inflow harmful elements from fertilizers and chemicals in to sub soil layers and pollute underground waters. *Positive Impacts* Rehabilitation and green cover with orchards and vineyards and plantation of areas. Keeping of bio balance and improvement of landscape. Improved productivity of land means better management of soil and water	1. Use of recommended norms of mineral fertilizers, wider introduction and adoption of crop rotation, 2. Pruning of twigs of tree crops and inter- row cultivation (to reduce weeds), use of composting. 3. Use of appropriate procedures for transport, mixing, application, and disposal of agrichemicals 4. Use only standard doses of agrichemicals (pesticides, herbicides and insecticides permitted by FAO Codex) and selection of agrichemicals based on prevailing soil and weather conditions. 5. Storage of agrochemicals in designated places and use containers only by recommended methods strictly following standard procedure and rules. 6. Use the IPM for control of pests, use biological methods and bio-pesticides. 7. Use recommended methods and rules for irrigation, properly maintain equipment dikes and infra structures. 8. Use conservation tillage, terraces, and raised ridges that follow land contour to reduce runoff 9. Selection of seeds with minimal level of pest and disease vulnerabilities. 10. Provide regular information and training to farming communities on all the aspects of protection of environment.
II. Improving on-farm irrigation and water management *-rehabilitation of existing canals and minor irrigation canals* -Stabilization of slopes of contour ditches and irrigation canals	Digging of trenches and borrow pits, along the canals, secondary effect of transportation of construction materials	*Adverse Impacts* During the construction formation of dust clouds, noise and solid waste, accumulation, and destruction of planted areas Flow of additional waters from the sprinkles Increased soil erosion leading to ravine formation, subsidence and erosion of top soil along the slops.	1. Moistening of the surface area and providing suitable cover during the transportation 2. Improve soil moisture retention by mulching, organic matter incorporation, soil cover, etc. 3. Suitable collection and transportation of garbage and solid wastes. 4. Restoration of soil surface and re –vegetation of banks with shrubs and grasses 5. Select crops compatible with water availability 6. Regulated flow diversion and maintenance of irrigation

-repairs and replacement of low powered irrigation pumps. -planting shelter belts -irrigation scheduling -alternate furrow irrigation		Rising of the water table level, flooding of farm areas. Possible increase in land salinization Possible downstream impacts on water users. *Positive Impacts* Better control of water flow greater all year round use of land Improvement of effective natural resources management, greener landscapes, and improvement of microclimate	infrastructure. 7. Provision of high reliability and system operation to ensure optimum use of water 8. The use of low saline quality water 9. Apply appropriate construction guidelines and standards 10. Provide farmers trainings in drip and similar irrigation techniques
III. Improving pasture and rangeland management: - improving production of fodders - Rising mobility of livestock (including repair of shelters in the selected rayons, at points of water- holes for cattle) - Pasture rotation and establishment of live fences, for example green fences - sustainable development of pastures	Proper use and improvement of pasture land and soil, reduction of weeds. Introduction of small construction works. Transportation and excavation of water holes, formation of small field roads, bridges, cause ways with pipes for animal passages.	*Adverse impacts* Soil erosion is possible before the establishment of grasses, especially on steep slopes. Trampling of soil surface may cause reduction of grass and bushes, removing of barks and sets. Reduction of pasture lands and their contraction, at the construction points. Disappearance of bushes used for fencing, before their establishment possibility because of water and soil erosion of land used for planting bushes. *Positive Impacts* Reduction of rate of erosion Improvement and maintenance of bio-structures of bushes. Decrease in the loss of productive layer on land, improving of microclimate.	1. Strict observance of trampling of pasture by livestock. 2. Regulation of livestock in accordance with the fodder capacity of pasture. 3. Selection of ways of incorporation of live green plantations and trees on grazing fields 4. Construction of storages, sheds, small roads, cause ways. 5. Creating of special nurseries for multiplication and supply of planting stocks for erosion control and fences.
IV. Sloping land horticulture on the steep lands - plantations of fruit and nut tree plants on steep lands along the contour line - Use micro terraced	Installation of mini-trenches/benches, rollers, embanking of soil against the slope, excavation of holes along the contour against the slopes, laying of pipes for spot irrigation,	*Adverse impacts* Change in physical structure of land use creating ravine erosion, landslides because of natural water course if not managed properly before vegetating. Use of salt water may cause salinization of soil. Irrigation can promote further sliding of soil and	1. Fast plantation of species, especially terraced rows by local types of plants. 2. For irrigation to use appropriated quality of water and the necessary quantity. 3. Provide high exploitation reliability of irrigation system. 4. Create good drainage system for removing of surface and underground water. 5. Provide training for sloping land horticulture, if necessary.

fruit gardens (ring- and basin shaped and hydrographic systems) - gardens with drip/ spot irrigation, mulching of land surface - use of live embankment (live bushes. Planting of perennial Grass-hedges along the contour		cause erosion. Disappearance of bio differences on cultivated areas. *Positive impacts* Greening of watersheds with growing of economically viable trees/ plants. Protection of rainfed cultivable lands and more sustainable use of fragile land protected from further degradation.	6. Strengthen of standards for terracing and provide budget on maintenance.
V. Pest and disease control - biological control - Integrated measures for pest control (with the use of bio pesticides)	Collection and transportation of biological controls and plants, preparing bio-pesticides and solutions.	*Adverse impacts* Limited adverse impacts provided there is effort to ensure correct preparation and proper use of bio pesticides *Positive impacts* Ecologically clean and safe technology.	1. Correct preparation and proper use of bio pesticides (choose the suitable varieties of bio-pesticide depending on pest target and choose appropriate formulations) 2. Provide training as needed on IPM methods
VI. Participatory forestry and agro-forestry management	Planting and maintenance works	*Adverse impacts* During soil preparation there could be potential for soil erosion and landslides and degradation of biodiversity *Positive impacts* Major potential benefits are identified as soil water erosion reduction, nitrate leaching reduction, carbon sequestration enhancing and landscape diversity improvements	1. Training in species selection and management practices 2. Careful selection of species and good management of trees and crops are needed to optimize the production and positive impacts and to minimize negative impacts 3. Ensure gender sensitivity and role of women in such systems
VII. Improving farmers' access to weather forecasting information for decision making		*Adverse impacts* None *Positive impacts* Improved farmer understanding of relationship	1. Training on weather forecasting and linkage to disease and pest management, fertilizer and pesticide application etc.

		between weather conditions on disease and pest conditions can lead to better management of such outbreaks and proper application of pesticides and other disease control chemicals	
VIII. Alternative off-grid source of energy and effective use of energy supply for remote communities -micro hydro power stations -bio-gas utilities -solar energy -micro Wind mills (to harness wind power)	Digging of trenches and pits, along the canals, transportation of materials Improper site selection and operation facilities	*Adverse impacts* Possible damage to reservoir and diversion canals, land erosion etc. Possible exposure to accidents and burning by helium during installations. Change in seasonal water-flow with potential impacts on downstream water users, fish, and aquatic organisms. Water table fluctuations Noise during operations *Positive impacts* Support to preservation of forests and biodiversity on account of dependency on cleaner sources of energy General improvement of ecological situation Reduced indoor air pollution	1. Observance of design conditions, during construction and utilization of the constructed objects. 2. Avoid construction of micro-hydro facilities in sensitive aquatic habitats 3. Choose run of the river rather than impoundment and dams. 4. Moistening of the of the surface and use of suitable cover during transportation 5. Work only during the day time in the dwelling areas 6. Suitable collection and transportation of garbage, solid wastes 7. Restoration of the top spoil and replanting. 8. Mitigate noise and vibrations during operations.

VI. Environmental Guidelines

26. *Purpose of Environmental Guidelines.* The Environmental Guidelines section of the EMF would serve as a guiding document for conducting Climate Resilience Investments (referred to as "Investments") EA. EA and monitoring procedures for the Investments are designed to ensure consistency with national environmental requirements as well as World Bank policy.

27. *Description of the EA process.* While the EA rules and procedures of participating countries have few differences, overall the key steps in the EA process are quite similar and include the following[3]:

Step 1: Environmental Screening: will involve a review of the Investments technical proposal. Typically the proposal would include an environmental section describing the key environmental features of the project site, whether critical natural habitats, forests, or rare and endangered species are likely to be impacted, whether major water courses or groundwater sources will be affected, the type of natural resource abstraction and use the project will entail, waste materials and polluting substances likely to be generated during construction and operation, whether the project will involve pest management, etc.[4] Depending on the nature and scale of the impacts, the Environment Officer of the NCU[5] or the representative from the PFIs will inform the project proponents about the decision concerning further environmental documentation required for the subproject. Three possibilities exist: (i) World Bank environmental category C. No further environmental action is required; (ii) World Bank environmental category B. A limited EIA and/or a simple EMP or an EMP Checklist would be required in most cases; and (iii) World Bank environmental category A Proposal, which is considered as ineligible and will be not financed under the project.

The NCU or PFI (in the case the Investments will be provided in the form of the loans – the cases for Tajikistan and Uzbekistan) will screen applications and assign the environmental category. Given the nature of eligible investments, many Investments are likely to fall under Category C, requiring no further EA action beyond that. In case questions regarding environmental impact or appropriate category, the local reviewing authority will contact the NCU Environment Officer or PFI for advice and guidance. If mitigation measures are needed, these will be agreed with the grant applicant and reflected in the Investment Agreement. The results of the environmental screening are recorded in the application and maintained with the NCU Grant/Loan Investment file.

During the screening of the Investments, for those classified as Category B, the NCU Environment Officer/PFI will review the screening documents (and follow-up with a visit to the Investment location, if necessitated) and identify appropriate mitigation measures. If a site visit is necessitated, the NCU Environment Officer/PFI will complete the field visit check list. The applicant will reflect the recommended mitigation measures proposed by the NCU Environment Officer/PFI in the application package. When the NCU Environment Officer/PFI visit or screening reveals a high or significant risk, the Investment applicant will hire a local consultant to conduct an EIA and prepare an EMP. The cost of the EIA can be included in the Investment

[3] The details of the EA process in each participating country are presented in the Annexes of the document which also include all form necessary to be filled up by sub-project beneficiary or by the NCU/PFI (screening checklists; site visit checklist; TORs for the EIA study; format of the EMP; EMP Checklist format).

[4] The project Operational Manual will include the format and content of the environmental section of the community proposals.

[5] The arrangement for each country screening and environmental approval process will be determined by the institutional arrangements for project implementation established in the respective country

amount. If the projects are of small scale and require simple EMPs (and are not subject of SEE) then the NCU Environment Specialist/PFI will review and approve the EMPs or simple EIAs.

In cases, when possible significant adverse impacts are discovered during the Field Site Visit or Environmental Screening, the Environmental Screening and Field Site Visit Checklists are submitted to the National Environment Competent Authority such as CEP in Tajikistan and Uzbekistan or State Agency for Environmental Protection and Forestry in Kyrgyz Republic via the SEE, which issues a preliminary environmental statement listing potential environmental concerns and mitigation measures and determines whether technical expertise is required, either from the national competent authority or other source. If permits from the CEP/SEE are needed, these are to be obtained by the Investment applicant and submitted to the NCU Environment Officer/PFI with the Investment proposal. The CEP/SEE National Competent Authority, as relevant shall issue environmental permits, if required. Only after the NCU/PFI receives official approval from CEP/SEE for Investments that have significant adverse impacts, will the Investment be considered eligible for financial support under the project.

During the project implementation, the NCU/PFI should ensure that the environmental mitigation measures are implemented. In the case of non-compliance, the NCU environmental officer/PFI as needed will investigate the nature and reason(s) for noncompliance, and a decision is taken about what is needed to bring an Investment into compliance, or whether financing should be suspended.

Sub-project Categories: The following environmental categorization for potential types of Investments are presented as follows:

*Investments assessed as Category A, (high environmental risks).*The project will not finance any Category-A Investments.

Usually the following Investments are considered as having "significant" impacts and respectively should be qualified as category A projects: (a) significantly affect human populations or alter environmentally important areas, including wetlands, native forests, grasslands, and other major natural habitats; (b) "significant" potential impacts might be also considered the following: direct pollutant discharges that are large enough to cause significant degradation of air, water or soil; (c) large-scale physical disturbance of the site and/or surroundings; (c) extraction, consumption, or conversion of substantial amounts of forest and other natural resources; (d) measurable modification of hydrologic cycle; (e) hazardous materials in more than incidental quantities; (f) and significant involuntary displacement of people and other significant social disturbances. It is expected that the Investments will not fall into the above mentioned circumstances and therefore will not have significant environmental impacts. In the case a Investment that is presented for financing falls under a Category A project, it will be rejected.

There are a number of locations which should be considered while deciding to qualify the project as category "A": (a) in or near sensitive and valuable ecosystems — wetlands, wild lands, and habitat of endangered species; (b) in or near areas with archaeological and/or historical sites or existing cultural and social institutions; (c) in densely populated areas, where resettlement may be required or potential pollution impact and other disturbances may significantly affect communities; (d) in regions subject to heavy development activities or where there are conflicts in natural resource allocation; along watercourses, in aquifer recharge areas or in reservoir catchments used for potable water supply; and on lands or waters containing valuable resources (such as fisheries, minerals, medicinal plants, prime agricultural soils); and (e) in or near areas with a history of industrial activity that utilizes or generates hazardous materials (i.e. potential

significant legacy pollution issues). Similarly as above, the project will not support any Investments located in the proximity of mentioned areas

Investments assessed as Category B, (moderate environmental risks) are expected to require a basic EA and mitigation and monitoring arrangements. Based on the results of the screening, the environmental requirements would be one of the following: (a) simple EMP Checklists for projects with minor impacts, particularly those falling under Category B that are typical for different small scale agricultural and horticultural activities and on-farm management and small scale construction and rehabilitation Investments; (b) simple EA and EMP for Category B projects which are located in areas near natural habitats or larger scale agriculture and horticulture, pasture management investments, as well as participatory forestry and agro-forestry investments; and (c) regular EIA and EMP, - for more complex projects, including off-grid renewable micro-hydro and similar investments. The first two category B Grant Investments for each country will be subject to prior review and then – post review by the World Bank.

The table 3 below provides the types of different subprojects that might be supported under the project and their environmental category.

Table 3. Sub-projects classified as Categories A, B or C

Category A Sub-Projects	*Category B Sub-Projects*	*Category C Sub- Projects*
Agriculture and Rangeland (large scale) - Agriculture, horticulture, rangeland, vineyards and orchards (medium scale intensive operations >500 ha)[6] - Re-cultivation of resting land (greater than 1000 hectares); - Utilization of agricultural land (over 50 hectares) for non-agricultural (commercial or industrial) purposes *Irrigation (large scale)* - River basin development; - Thermal and hydropower development; *Off-grid energy (large scale)* *Other Considerations* - Activities located in protected areas and other nationally recognized sensitive and wetlands	*Agriculture and Rangeland (medium scale)* - Agriculture, horticulture, rangeland, vineyards and orchards (medium scale intensive operations 50 -500 ha)[1] - Re-cultivation of resting land (up to 1000 hectares); - Utilization of agricultural land (30 to 50 hectares) for non-agricultural commercial purposes - Utilization of virgin soils and unbroken expanses for intensive agriculture - Construction of buildings to store agriculture goods and agricultural products - Construction of warehouses for chemical pesticides and mineral fertilizers *Irrigation (medium scale)* - Watershed projects (management or rehabilitation); - Rehabilitation, maintenance, and upgrading projects (small-scale); *Off-grid energy (large scale)* - Micro-hydro schemes *Participatory Forestry* - Medium scale (over 500 ha) *Civil works* involving major rehabilitation activities of existing facilities (replacement of walls	*Agriculture and Rangeland (small scale)* - Agriculture, horticulture, rangeland, vineyards and orchards (small scale <50ha) - Construction of glass-houses or polytunnels - Utilization of agricultural land (20 to 30 hectares) for non-agricultural purposes - Acquisition of tractors and other farm equipment *Irrigation (medium scale)* -drip and plastic tube irrigation (small scale) -Irrigation scheduling -alternate furrow irrigation *Off-grid energy (large scale)* - small scale micro-hydro rehabilitation *Participatory Forestry* - Small scale (less than 500 ha) Civil works - For refurbishing existing premises

[6]There is no specific requirements for EA of agricultural, horticultural or orchard and vineyard activities under the local Law, so the HDP will specify >50ha and less than 500 ha category B and <50ha as Category C.

	and/or roofs; connection to water supply and sanitation systems; replacement of boilers)	

As mentioned above in the case the sub-project is qualified as *Category C* no further EA actions are needed. Such types of subproject usually includes small scale agricultural activities, agroforestry and irrigation micro projects, refurbishing of existing premises, etc.

Step 2: Conducting the EIA and preparation of the EMP: In those cases where such documentation is required (Category B subprojects), the project proponents will prepare the relevant EA documents for submission within the time indicated by the reviewing authority. Depending on the project's environmental impacts, the environmental documentation could either be presented as a section of the overall project document submitted for appraisal to the approving authority, or require a separate report.

Step 3: Environmental Review and Disclosure of EIA&EMP: The decision on the environmental aspects of the project, and any additional measures or changes required to the proposed EMP will be conveyed at this stage. If the projects are of small scale and require simple EMPs (and are not subject of SEE of the State Committees for Environmental Protection/State Agency for Environmental Protection and Forestry) then the NCU Environment Safeguard Officer/PFI will review and approve the EMPs or simple EIAs. In cases, when possible significant adverse impacts are likely (based on the determination made by the SEE) then the SEE reviews and approves the EIA and EMP. If approval of the SEE is needed, these are to be obtained by the Investment applicant and submitted to the NCU Environment Officer/PFI with the Investment proposal. Only after the NCU/PFI receives official approval from CEP/SEE for Investments that have significant adverse impacts, will the Investment be considered eligible for financial support under the project. As may be the case as described above, the NCU/PFI will specifically look for the implementation capacity and monitoring arrangements for the proposed mitigation measures and ensure that the costs of environmental management are accounted for in the project costs. The EA documentation for the first three Category B subprojects from each NCU/PFI will be subject to prior review and approval by the World Bank.

In case of Category B Investments which involve new constructions, pasture improvement activities and/or alternative energy activities it is necessary to disclose the EIA/EMP document and to conduct public consultations with key stakeholders, including local population. The purpose of the public consultation is to inform locally affected groups about the Investment activities and offer them the opportunity to voice their views of any adverse environmental issues they feel may develop during subproject implementation. Any legitimate issue raised at the public consultation should be included in the EMP. In this way, the concerns of the people will be taken into consideration and reflected in the Investment implementation. In the case of rehabilitation of existing facilities, although there might be no need for a special public hearing the project beneficiary should provide information to all interested parties about the construction by installing a notice plate placed at the rehabilitation. Additionally all Investments specific information will be also publicly available on-line on the NCU/PFI website. Documentation of the public consultation outcome is critical and is included in the EMP. Such documentation should contain the (i) date and location of the consultations; (ii) list of individuals consulted; (iii) key issues raised during the consultations; and (iv) the manner in which project design address such issues raised.

Step 4: Supervision, Monitoring and Reporting: Once project implementation starts, the NCU/PFI will supervise the implementation of the EMP through the course of construction and

operation and specify corrective measures as necessary. The reporting of progress of implementation of the EMP would be the responsibility of the investment grant recipient and such reports would be submitted to the NCU/PFI and/or CEP/SEE, as relevant bi-annually. Monitoring reports during project implementation would provide information about key environmental aspects of the project activities, particularly on the environmental impacts and effectiveness of mitigation measures. The monitoring section of the Investment EMPs would provide: (a) details, of monitoring measures, including the parameters to be measured, methods to be used, sampling locations, frequency of measurements; and, (b) monitoring and reporting procedures to (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation. The NCU/PFI will present short information about the EMF implementation and Investments environmental performances as part of the Progress Reports to be presented to the WB by the client on a semi-annual basis.

VII. Integrated Pest Management

28. *Overview*. The objective of EMF in this regard is to encourage adoption of Integrated Pest Management (IPM) approach and increase beneficiaries' awareness of pesticide-related hazards and good practices for safe pesticides use and handling as well as to provide relevant training and information dissemination activities. While, the project will not fund the use of pesticides and other chemicals, it is likely that investment grant recipients in agriculture, rangeland and horticulture activities would use pesticides. The issues of pest management can be potentially raised by the project may relate to possible indirect effect of stimulating greater use of agro-chemicals associated with more intensive cultivation and/or higher crop value.

29. *Principles of the Integrated Pest Management*[7]. The primary aim of pest management is to manage pests and diseases that may negatively affect production of crops so that they remain at a level that is under an economically damaging threshold. Pesticides should be managed to reduce human exposure and health hazards, to avoid their migration into off-site land or water environments and to avoid ecological impacts such as destruction of beneficial species and the development of pesticide resistance. Integrated Pest Management consists of the judicious use of both chemical and nonchemical control techniques to achieve effective and economically efficient pest management with minimal environmental contamination. IPM therefore may include the use of:

a) Mechanical and physical control;
b) Cultural control;
c) Biological control, and
d) Rational chemical control.

30. *IPM technics.* Integrated Pest Management is the use of multiple techniques to prevent or suppress pests in a given situation. Although IPM emphasizes the use of nonchemical strategies, chemical control may be an option used in conjunction with other methods. Integrated pest management strategies depend on surveillance to establish the need for control and to monitor the effectiveness of management efforts. World Bank Group in the Environmental, Health, and Safety Guidelines prepared in 2007 provides the following stages should be considered when designing and implementing an Integrated Pest Management Strategy, giving preference to alternative pest management strategies, with the use of synthetic chemical pesticides as a last option. As a first essential step, those who make pest management decisions should be provided

[7] This section is based on the World Bank Group in the Environmental, Health, and Safety Guidelines prepared in 2007.

with training in identification of pests and beneficial (e.g. natural enemy) species, identification of weeds, and field scouting methods to evaluate which pests are present and whether they have reached an economic control threshold (the density at which they begin to cause economically significant losses).

31. *IMP approaches.* The World Bank refers to IPM as a mix of farmer-driven, ecologically based pest control practices that seek to reduce reliance on synthetic chemical pesticides. It involves (a) managing pests (keeping them below economically damaging levels) rather than seeking to eradicate them; (b) relying, to the extent possible, on non-chemical measures to keep pest populations low; and (c) selecting and applying pesticides, when they have to be used, in a way that minimizes adverse effects on beneficial organisms, humans, and the environment. In general, IPM combines the following measures: pest monitoring (e.g., pest detection, pest population build-up monitoring to apply economic thresholds for pesticide application) and prediction based models (eg., degree-day calculations, software solutions), cultural methods (e.g., resistant varieties, crop rotation, cultivation of alternate hosts, selection of planting sites, crop specific traps, adjusting the timing of planting or harvest, crop residue destruction or incorporation, pruning), mechanical methods (collection, hand weeding, barrier exclusion, trapping), physical methods (e.g., heat, cold, humidity, traps, sound), and biological methods (e.g., introduction of imported natural enemies and protection of indigenous natural pest enemies, dissemination and establishment of microbial control agents). IPM can also include the use of natural chemical methods (e.g., attractants, repellents, sterilants and growth inhibitors), plant extracts (e.g., neem oil extracts, pyrethrum extracts from Chrysanthemum flowers), genetic methods (e.g., release of sterile or genetically incompatible pests that disrupt natural mating), and regulatory means (e.g., plant and animal quarantines, suppression and eradication programs). These measures must allow the safe integration of pesticides as the last control resort within farmers' traditional cropping and pest management systems. Pesticide resistance management strategies include minimizing pesticide use, shunning tank mixes, avoiding persistent chemicals, and using long-term rotations of pesticides. These should involve alternating among pesticide classes with different modes of action to delay or mitigate onset of the existing resistance by pests.

32. *Alternatives to pesticide application.* Where feasible, an effective IPM strategy will attempt to use alternatives to pesticides. This might include a range of biological, mechanical and physical, and cultural alternatives or approaches. It might also involve a more rational use of chemicals, when it is appropriate or as a last resort. Some possible considerations of alternatives to pesticide use are:

- Rotate crops to reduce the presence of pests and weeds in the soil ecosystem;
- Use pest-resistant crop varieties;
- Use mechanical weed control and/or thermal weeding;
- Support and use beneficial organisms, such as insects, birds, mites, and microbial agents, to perform biological control of pests;
- Protect natural enemies of pests by providing a favorable habitat, such as bushes for nesting sites and other original vegetation that can house pest predators and by avoiding the use of broad-spectrum pesticides;
- Use animals to graze areas and manage plant coverage;
- Use mechanical controls such as manual removal, traps, barriers, light, and sound to kill, relocate, or repel pests.

33. *Conservation of Pollinators*. Pollinators provide an essential ecosystem service, namely pollination. While, approximately 80 percent of all flowering plant species are pollinated by animals, including vertebrates and mammals, the main pollinators are insects. Maintaining and

increasing yields in horticultural crops, seeds and pastures through better conservation and management of pollinators is critically important to obtain better farm incomes for horticulture farmers.

The main threats to losing pollinators' services stem from the following driving forces:

- Habitats required by many pollinators are being lost through changing land-use patterns such as increasing agricultural intensification. Pollinators require a range of resources from their environment for foraging, nesting, reproduction and shelter. The loss of any one of these requirements can cause pollinators to become locally extinct.
- Excessive use or inappropriate application of pesticides and other agro-chemicals is known to have negative impacts on a range of pollinators.
- Climate change may potentially be one of the most severe threats to pollinator biodiversity. Substantial distribution changes are predicted for groups such as butterflies.
- Invasive species are globally recognised to have major negative impacts across a wide range of taxa.

In order to protect the decline in populations of pollinators, horticulture farmers will be advised to take measures for pollinator conservation that are directly linked to their farming practices. Practices that promote high diversity on-farm, and can form the basis for a more sustainable path of horticulture growth. The deliberate conservation of pollinators- and its synergy with integrated pest control- offers ways to maintain yields while reducing purchased inputs. Many of the measures that promote pollinators can also promote other ecosystem services such as soil improvement by cover cropping, increasing the abundance of diverse soil functional groups; habitat management of natural enemies for pest management; breaking cycles of damaging pests through greater crop diversity, or erosion control through contour plantings and hedgerows. However, the knowledge base for promoting such pollinator-friendly practices into farming systems is very scarce, and the project will support improved knowledge networks that can promote the exchange of such information across regions and crops.

34. *Pesticide application.* In the event the use of pesticides is warranted, as a last resort option, users are recommended to take the specific actions to ensure a more safe and sound application of pesticides, a more rational use of chemicals, as well as to reduce and control any potential negative impacts on health and safety, and damage to the environment. If pesticide application is warranted, users are recommended take the following actions:

- Train personnel to apply pesticides and ensure that personnel have received applicable certifications or equivalent training where such certifications are not required;
- Review and follow the manufacturer's directions on maximum recommended dosage or treatment as well as published reports on using the reduced rate of pesticide application without loss of effect, and apply the minimum effective dose;
- Avoid routine "calendar-based" application, and apply pesticides only when needed and useful based on criteria such as field observations, weather data (e.g., appropriate temperature, low wind, etc.);
- Avoid the use of highly hazardous pesticides, particularly by uncertified, untrained or inadequately equipped users. This includes: (a) Pesticides that fall under the World Health Organization Recommended Classification of Pesticides by Hazard Classes 1a and 1b should be avoided in almost all cases, to be used only when no practical alternatives are available and where the handling and use of the products will be done in accordance with national laws by certified personnel in conjunction with health and environmental exposure monitoring; and (b) Pesticides that fall under the World Health Organization Recommended Classification of Pesticides by Hazard Class II should be

avoided if the project host country lacks restrictions on distribution and use of these chemicals, or if they are likely to be accessible to personnel without proper training, equipment, and facilities to handle, store, apply, and dispose of these products properly;

- Avoid the use of pesticides listed in Annexes A and B of the Stockholm Convention, except under the conditions noted in the convention and those subject to international bans or phase outs;
- Use only pesticides that are manufactured under license and registered and approved by the appropriate authority and in accordance with the Food and Agriculture Organization's (FAO's) International Code of Conduct on the Distribution and Use of Pesticides;
- Use only pesticides that are labeled in accordance with international standards and norms, such as the FAO's Revised Guidelines for Good Labeling Practice for Pesticides;
- Select application technologies and practices designed to reduce unintentional drift or runoff only as indicated in an IPM program, and under controlled conditions;
- Maintain and calibrate pesticide application equipment in accordance with manufacturer's recommendations. Use application equipment that is registered in the country of use;
- Establish untreated buffer zones or strips along water sources, rivers, streams, ponds, lakes, and ditches to help protect water resources;
- Avoid use of pesticides that have been linked to localized environmental problems and threats.

35. *Pesticide handling and storage.* Contamination of soils, groundwater, or surface water resources, due to accidental spills during transfer, mixing, and storage of pesticides should be prevented by following the hazardous materials storage and handling recommendations. These are the following:

- Store pesticides in their original packaging, in a dedicated, dry, cool, frost-free, and well aerated location that can be locked and properly identified with signs, with access limited to authorized people. No human or animal food may be stored in this location. The store room should also be designed with spill containment measures and sited in consideration of potential for contamination of soil and water resources;
- Mixing and transfer of pesticides should be undertaken by trained personnel in ventilated and well lit areas, using containers designed and dedicated for this purpose;
- Containers should not be used for any other purpose (e.g. drinking water). Contaminated containers should be handled as hazardous waste, and should be disposed in specially designated for hazardous wastes sites. Ideally, disposal of containers contaminated with pesticides should be done in a manner consistent with FAO guidelines and with manufacturer's directions;
- Purchase and store no more pesticide than needed and rotate stock using a "first-in, first-out" principle so that pesticides do not become obsolete. Additionally, the use of obsolete pesticides should be avoided under all circumstances; A management plan that includes measures for the containment, storage and ultimate destruction of all obsolete stocks should be prepared in accordance to guidelines by FAO and consistent with country commitments under the Stockholm, Rotterdam and Basel Conventions;
- Collect rinse water from equipment cleaning for reuse (such as for the dilution of identical pesticides to concentrations used for application);
- Ensure that protective clothing worn during pesticide application is either cleaned or disposed of in an environmentally responsible manner;
- Maintain records of pesticide use and effectiveness.

36. *Pesticide Disposal.* Excess pesticides that are still usable and not deteriorated in quality should be disposed according to directions on the label. If it cannot be used, some manufacturing

companies will accept the pesticide for reprocessing. If the above options are not available, check with the local solid waste management authority, environment or health agency whether there are options available for the disposal of the unwanted chemicals. Pesticide containers also pose an environment problem if they are not carefully disposed or cleaned. Some recommendations for disposal of pesticides and pesticide containers are provided in Table 5.

37. *Health and Safety Issues.* By definition, pesticides are poisons, but the toxicity and hazards of different pesticide compounds vary greatly and might be different from organism to organism. Pesticide hazard depends not only on the toxicity, but also on the chance of exposure to toxic amounts of the pesticide. Pesticides can enter the body through oral ingestion, through skin, or through inhalation. There are a number of safety precautions that should be taken when manufacturing, transport, application, storage and handling of pesticides (refer Table 4).

38. *Typical hazards associated with chemical use and remedial measures.* Similarly as in the case of the usage of pesticides, fertilizer usage may provide important benefits to horticulture development, but they also pose certain risks associated with accidental exposure of environment and of farmers during their inappropriate handling and usage. To ensure minimization of hazards associated with inappropriate handling, storage and usage of mineral fertilizers, a number of measures can be employed. Table 3 provides information about typical hazard scenarios that that may arise in conjunction with the procurement, handling and storage of pesticides/fertilizers as well as the recommended measures to control the potential risks.

Table 4. Pesticide/Fertilizer Control Strategy

Likely Hazard Scenario	*Recommended Control Strategy*
Spillage	Ensure all storage areas and/or facilities are secure and appropriate. Ensure all fertilizer products can be contained within the storage area and/or facility selected Provide appropriate equipment and materials to clean up a spillage
Transportation and delivery of goods	Cover any loads of fertilizer products whilst in transit Ensure that deliveries of fertilizer products are made at appropriate times Do not accept any containers of fertilizer products that are damaged and/or leaking. Ensure that any spillages that occur during delivery are cleaned up appropriately.
Drift of dust from storage areas and/or facilities	Keep fertilizer products covered and/or sealed Clean up spillages promptly Keep “in use” stocks to the minimum required Staff responsible for storage areas and/or facilities to will ensure that the drift of dust beyond the perimeter is kept to a minimum.
Storage areas - Floors	Keep floor surfaces swept clean of fertilizer to prevent tracking by people and/or vehicles beyond the perimeter. Sweep up and dispose of spillages in a timely and appropriate manner
Cross contamination of product	Keep each fertilizer product will in a separate storage container and/or position within the facility and/or area.
Confusion of Product	Maintain an accurate storage manifest/register. Keep products and blends are segregated at all times. Ensure all storage bays and bins are clearly labelled. Ensure all storage, loading and blending plant and equipment is cleaned from all residues when changing from one product to another. Do not store product in bags that are not correctly stamped
Occupational Health and Safety	Contact between fertilizer products, people and livestock will be minimized.
Risk Assessments	Risk Assessments are required to be conducted on the procurement, storage and handling of fertilizer products.
Contact with people and livestock	Managers will develop, implement and monitor the effectiveness of hazard management procedures All persons using fertilizer products are to adhere to the hazard management

	procedures and adopt safe working practice and ensure that direct contact with fertilizer and the inhalation of fertilizer dust is minimized. Managers are to ensure that staff is made aware of any national and industry regulations which have to be observed.
Personal Protective Equipment	Staff must be provided with appropriate PPE when using fertilizer products.
Lack of appropriate warning safety signage and information	Managers must ensure that appropriate safety warning signs and/or information is displayed/ available regarding nature of hazards and risk control measures.
Poor housekeeping and/or routine maintenance	All staff is responsible for implementing sound housekeeping practices in storage areas and arranging regular routine maintenance for all equipment used.
Defective &/or unserviceable plant & equipment	Conduct regular inspection & testing of equipment and infrastructure to identify what maintenance requirements
Incorrect or inappropriate mixtures of product	Fertilizer blends to be prepared using the right raw materials in the appropriate proportions. All products will be loaded into spreaders etc., in the right condition to the right weight.
No training	Staff will undertake appropriate training.
Lack of appropriate records &/or documentation	All relevant records and documentation to be kept and maintained egg. training records, risk assessments, maintenance schedules, recipes for fertilizer blends, MSDS's etc.

39. *Pest Management Plan.* The entity which will be dealing with pest management within the projects to be supported under the project has to be guided by the Pest Management Plan (PMP). The content of the PMP should apply to all the activities and individuals working. It should be emphasized also that non-chemical control efforts will be used to the maximum extent possible before pesticides are used. The Pest Management Plan should be a framework through which pest management is defined and accomplished. The Plan should identify elements of the program to include health and environmental safety, pest identification, and pest management, as well as pesticide storage, transportation, use and disposal. Management plan is to be used as a tool to reduce reliance on pesticides, to enhance environmental protection, and to maximize the use of integrated pest management techniques. The PMP shall contain pest management requirements, outlines the resources necessary for surveillance and control, and describes the administrative, safety and environmental requirements. The Plan should provide guidance for operating and maintaining an effective pest management program/ activities. Pests considering in the Plan may be weeds and other unwanted vegetation, crawling insects and other vertebrate pests. Without control, these pests provoke plants' deceases. Adherence to the Plan will ensure effective, economical and environmentally acceptable pest management and will maintain compliance with pertinent laws and regulations.

40. *Pest Management Operational Plan:* The objective of the Pest Management in the project is to promote environmentally friendly (hygienic, cultural, and biological or natural) control mechanisms and the judicious use of chemicals in pest control and effectively monitor pesticide use. Implementation of pest management activities under the Project would entail education, training and communication that is defined in a Pest Management Operational Plan. The pest management operational plan defines a broad menu of options for managing and monitoring pest control and pesticide usage under the project. The NCUs/PFIs will be responsible for communicating the content of the Pest Management Operational Plan to farmers and Investment recipients. They will create awareness among project farmers of the importance of pest and pesticide management in the framework of this Pest Management Operational Plan and avenues created or available for obtaining appropriate pesticides among other things. Each country will prepare a Pest Operational Plan (based on the outline of a Pest Operational Plan provided in Table 5). The plan will also ensure that all farmers have access to information on relevant crop pests and diseases, potential IPM strategies regarding pest control, current list of registered and

banned pesticides and information kits would be developed (in local understood languages) on methods for safe use, handling, storage and disposal of pesticides and the consequent environmental and health related impacts of improper use of these pesticides.

Impact issue/pest and pesticide threat and risk	*Desirable Mitigation Measures*	*Potential Implementation tools*	*Indicative Expected result*	*Indicative Monitoring indicators*	*Responsibility / Key implementing actors*
Pollution of water resources and aquatic life	Control, manage and supervise pesticide use by farmers	Awareness of proper application and disposal of pesticides and oversight	Farmers trained in sound application and disposal methods	Number of farmers trained, Training records	
	Proper disposal of pesticide containers by resellers/farmers	Pesticide container collection and disposal plan/arrangements in place by farmers	Pesticide container disposal plan being implemented by farmer	Number of farmers/ resellers aware of pesticide container disposal needs	
Improper use of pesticides by farmers and farm workers	Educate farmers and farm workers on proper use of pesticides and pesticide use hazards	Pesticide hazards and use guide leaflet for the project (include simple pictorial presentations)	Proper use of pesticides by farmers and farm workers	Number of cases of pesticide poisoning occurring under the project	
	Control and supervision of pesticide use on farms by farmers	Awareness of proper application and disposal of pesticides and oversight	Farmers trained in application and disposal of pesticides	Number of farmers trained, Training records	
Poisoning from improper disposal of pesticide containers	Educate farmers, farm workers and local communities on health hazards associated with use of pesticide containers	Pesticide hazards and use guide leaflet for the project	Farmers, farm workers, local communities educated on pesticide use	Number of cases of pesticide poisoning through use of pesticide containers; Number of farmers returning empty pesticide containers at collection points; Number of farmers, resellers trained in proper cleaning of pesticide containers	
	Properly dispose pesticide containers	Pesticide container disposal procedures known by farmers	Pesticide container cleaning and disposal being properly implemented		
Impact on post-harvest losses due to pests	Framers have adequate and proper storage facilities	Post-harvest loss reduction based on IPM techniques under implementation	Post- harvest losses avoided or minimized Applied pesticides registered in conformity with IPM principles	Number of farmers trained in IPM techniques for post-harvest storage; Number and condition of storage facilities in use	
	Farmers monitor incidence of post- harvest pests	Post-harvest loss reduction plan based on IPM techniques in place		Number of cases of post-harvest pests	
	Confirm status and integrity of pesticides at storage gate prior to use	Inspection of pesticides at farm/storage gate prior to use on random basis		Records of pesticides applied kept by farmers	
Abuses in pesticide use	Ensure status and integrity of pesticides purchased and used under project	All pesticides kept in the original well labeled pesticide containers prior to use No decanting of pesticides under this project by farmers Random inspection of pesticides at farm gate prior to use	Only approved and registered pesticides used under project Banned pesticides avoided Expired pesticides avoided Integrity of pesticide guaranteed at farm gate level	List of pesticides used in line with Uzbekistan list of registered and approved pesticides Cases of pesticides found in non-original containers Inspection records for	

				pesticides at farm gate prior to use	
General health and safety of farmers/crops and environmental hazards	Farmers educated to adopt Good Agricultural Practices (GAP) based upon IPM techniques; and do not use chemical pesticides unless advised by Government regulations	IPM techniques with emphasis on cultural and biological forms of pest control	Compliance with best Pest/ pesticide management	Number of farmers trained in IPM techniques; Number of farmers implementing IPM on their farms Frequency of chemical pesticides usage	
	Provide PPEs to Farmers/ farm using personal protection equipment (PPE)	Health and safety policy for farm work	Farmers and accompanying dependents (children) protected against pesticide exposure in the fields	Quantities and types of PPEs are easily available under the project	
	Educate farmers/ farm workers in the proper use of pesticides	Pesticide hazards and use leaflet for the project (include simple pictorial presentations)	Farmers know and use pesticides properly; pesticide hazards and use guide leaflet or flyers produced	Number of farmers trained in pesticide use; Number of farmers having copies of the pesticide hazard and use guide flyers;	
	Train farmers to properly dispose obsolete and unused pesticides	Obsolete and unused pesticide disposal arrangements made by farmer,	obsolete and unused pesticide disposal arrangements implemented	Relationship between pesticide supply and usage	
	Educate farmers to obtain or purchase quantities of pesticides required at a given time and to avoid long term storage of pesticides	Pesticide use farmer plan	Only pesticides needed are purchased; long term storage of pesticides by farmers avoided	Relationship between pesticide supply and usage	
	Farmers trained and aware of emergency response to pesticide accidents and poisoning	Framer emergency response plan in place	Pesticide accidents and emergencies managed under the project	Number of pesticide accidents and emergencies	

Table 5: Pest Management Operational Plan

VIII. EMF Institutional Arrangements and capacity building

41. *Role of the NCU.* National Coordination Units, in each participating country, operating under the supervision of the national focal point and TWG (technical working group), will be responsible for ensuring awareness raising and outreach of investment opportunities, providing training for investment proposal preparation, and in the case of Tajikistan and Uzbekistan, jointly with the PFIs will be responsible for screening proposals, submitting investment proposals to the Climate Change Secretariat for Central Asia (CCSCA), based on TWG and focal point recommendations, monitoring investment implementation, and ensuring compliance with Bank safeguards. The NCUs and PFIs will receive capacity building in environmental management as well as financial administration, procurement, and implementation of projects. Within the NCUs a specially hired Environmental/Safeguards Officer would be overall responsible for projects safeguards issues.

42. *Major NCUs' EA responsibilities.* The NCUs will ensure that the project activities are being assessed from environmental point of view and that the EMPs are adequately implemented. In this regard this body will be responsible for:

(b) coordination of environmental and EA related issues;
(c) monitoring of the environmental impacts within the overall monitoring of the Investments implementation;
(d) communication with the national EIA competent authority; and,
(e) ensuring the links between an EIA and Investments i.e. to support the proper implementation of the conditions given by an EIA within the Investments realization.

43. *Cooperation between the NCUs and PFIs*. In terms of investment subprojects the NCUs in cooperation with the PFIs will conduct the following:

(a) Investment environmental screening;
(b) carry out the evaluation of the Investment's eligibility from the environmental point of view;
(c) provide necessary information on the environmental issues to the Investments applicants (especially inform them about the environmental criteria to be used, explain all obligations regarding the EIA procedure etc.).

44. *EA supervision.* Additionally the NCUs and PFIs will be also responsible for supervising independently or jointly with the National Environmental Agencies the mitigation and environmental protection measures stipulated in EMPs.

45. *Capacity Building.* In order to build the relevant capacities the project will provide necessary TA.

Training for the NCU Safeguards Specialists. Prior to commencement of the investment program, the Climate Change Secretariat for Central Asia under ICSD would organize environmental and social safeguards training for all participating countries to ensure that the respective country environmental safeguard specialists are trained and capable of managing the environmental safeguard review and approval process for the grant programs. The training would be conducted by a selected environmental NGO or a design institute with EA experience. The training will broadly consists of the following topics: (i) Concept of EIA with relation to sustainable development framework; (ii) theory and practice of EIA; (iii) purpose benefits and justification of EIA in the context of development; (iv) EIA in project cycle; (v) introduction to

EIA process, including screening, scoping, preparation of TORs and work plans, EIA study and reporting; impact analysis and prediction, etc. (vi) EIA review process and decision making process; (vii) post EIA monitoring, supervision and reporting, etc. The contract for the training will also include the preparation of an Environmental Impact Training Resource Manual that could be used by the respective NCU and PFI safeguards specialists for in-country training.

Training for participating PFIs. As specified above, the implementation of Investment Programs in Tajikistan and Uzbekistan will be done in the form of sub-loans by several participating IFIs. These countries also decided to use for this purpose the on-going schemes under the Rural Enterprise Support Project in Uzbekistan and Agriculture Commercialization Project in Tajikistan. Respectively all the preparatory work in this regard, along with needed capacity building activities will be done within these projects.

Training for grantee. Another critical group to be exposed to the importance of the environment concerns includes entrepreneurs from agricultural, energy and other sectors receiving investments should be provided advices on use better available techniques to prevent/ mitigate impact and promote sustainable agriculture, rangeland and alternative energy technologies. The workshops for this group would include environmental awareness and a practical exercise to observe and learn about sustainable agricultural and rangeland management practices, alternative energy and best available techniques in integrated pest management.

The individual country NCU will develop the requirements for staffing, capacity building and training needs specifically for each country to ensure an efficient management of safeguards responsibilities.

46. *Budget for TA activities.* In order to ensure successful EMF implementation, a series of capacity building activities are necessary for which the project has to provide adequate funding. A tentative budget for proposed capacity building activities and trainings for an individual is presented in the Table 6 below. A more detailed budget to cover all EMF related activities (training, capacity building, awareness, independent review and monitoring of EMF implementation) will be developed by each country.

Table 6: Estimated tentative individual country budget for capacity building activities

Target Group	*Purpose of Training*	*Number of Workshops/Activities*	*Costs of Workshop/Activity in USD*
A. Environment Management			
1. NCU staff, and investment approval entities	To ensure that NCU and other relevant investment approving entities are aware about importance of the environment and know how to recognize the impacts that various funded activities may have on the environment.	2 workshops (YR1 and YR4)	5,000/workshop
2. NCU Safeguards Specialist	To provide NCU safeguards specialist with knowledge on the screening of the projects, EIA process and possibly an EIA review/study tour	2 overseas (in Central Asia) regional training tours (YR1 and YR4)	5,000/study tour
3. Sub-borrowers/project beneficiaries	Environmental awareness and a practical exercise to observe and learn about sustainable agricultural practices and best available techniques in industry and agriculture	3 workshops (YR1, YR3 and YR5)	4,000/workshop
4. Farmers/farmer groups	To provide farmers with knowledge on environmental issues and environmental	two-day in-country regional workshop	4,000/workshop

	management techniques and procedures		
5. Regional/Local Government Officers overseeing investment grants	Training on use of environmental guidelines, how to identify sub projects that may fall into one of the Bank's environmental categories, and in which case will require a full and/or a partial EIA, and, to identify activities that may affect the environment and in organizing the subprojects EIAs	2 Training workshops (YR1 and YR3 and YR5)	5,000/workshop
B. Pest Management			
6. NCU and agriculture staff	To ensure that NCU and sector staff are aware about environmental and health related concerns of pesticide us and the value of promoting integrated pest management	2 Training workshops (YR1 and YR4)	10,000/workshop
7. Sub-borrowers/project beneficiaries	Awareness and a practical exercise to observe and learn about IPM practices and best available techniques for horticulture and safe use of pesticides	3 Training workshops (YR1, YR3 and YR5)	4,000/workshop
8.Farmers/farmer groups	Awareness of safe pesticide usage, storage, handling and transport procedures and environmental and health concerns which pesticides pose	two-day awareness workshop in each region of the country	4,000/workshop
9. NCU staff	Study visits to knowledge of IPM approaches practiced in neighboring countries or oversees	1 study tours of 3-4 persons/study visit	10,000/study visit
10. International consultant	Review and identification of IPM best practice and approaches for key horticulture crops in each country	1 workshop + 2 months fees (YR2)	40,000/workshop

IX. Environmental Supervision and reporting

47. *EA Supervision and monitoring activities.* During subproject implementation NCU/PFIs will have overall supervision responsibility for assuring that the measures indicated in the EMPs are being properly performed. Independently, or in collaboration with the national environmental authorities will perform the Investment environmental supervision during both construction and operation phases as specified in the monitoring plan of the EMP.

48. *Reporting.* Regular Grant Investment progress reports should include a section entitled "Environmental Management". The section should be as brief as possible: providing a condensed description of the monitoring activities, any issues identified and how they were or are planned to be resolved.

49. *Contractors' responsibilities*. The actual investment implementation will be carried out by its beneficiary or contractors selected on its behalf. They have to operate in full compliance with national environmental legislation and with the EMP requirements. Further, the investment beneficiaries are obliged to follow regulative requirements of the national law related to occupational health and safety; environmental protection. They will also be requested to designate a person in charge of environmental and safety issues and for implementing the EMP.

X. EMF disclosure and consultation

50. *EMF disclosure and consultations in participating countries.* The EMF have been be disclosed in all participating countries and at the World Bank Infoshop. Once, the individual country EMFs have been developed, the NCUs/implementing agencies have disseminated their respective draft EMFs in Russian to the CEP, SEE and other relevant ministries for their review and comments. The EMFs have been also posted in the websites of the NCUs for its access to wide public (in Kyrgyz Republic at: http://nature.gov.kg; in Tajikistan at: http://www.hifzitabiat.tj; and in Uzbek Republic at: http://www.rra.uz. After that the

NCUs/implementing agencies have organized consultations on Draft EMF with all key stakeholders and interested parties. After the consultation, the draft EMF documents have been revised considering inputs from consulted parties. Then the final EMFs have been posted on the website of the NCUs/implementing agencies and submitted to the World Bank for their disclosure in Infoshop. All details on EMFs disclosure and public consultations, including timing, list of participants, raised issues and responses are well documented and presented in all countries' files.