



Rural Restructuring Agency

LIVESTOCK SECTOR DEVELOPMENT PROJECT IN THE REPUBLIC OF UZBEKISTAN

Environmental and Social Management Framework

February 2017

Content

LIST OF ABBREVIATIONS AND ACRONYMS	3
SUMMARY	4
1.INTRODUCTION	9
1.1. Project background	9
1.2. Project description	9
1.3. Project potential Environmental and Social impacts.....	12
1.4. Project environmental category and scope of the Environmental and Social Management Framework	13
1.5. Key beneficiaries and stakeholders of the project, their role and impacts on the project implementation.....	14
2.LEGAL CONTEXT	16
2.1 Uzbekistan National Environmental Legislation and Procedures	16
2.2 The World Bank Safeguards Policy and Environmental Assessment Requirements.....	20
2.3 The Comparison of National and World Bank Environment Assessment Requirements.....	27
2.4 Legislation of the Republic of Uzbekistan and World Bank procedures in the sphere of social assessment, land acquisition and resettlement.....	29
3.BASELINE ANALYSIS	35
3.1 Project Geographical location and administrative structure	35
3.2 Description of the project area	37
3.3 Social and economic situation	38
3.4 Agricultural and livestock sector	42
4.ASSESSMENT OF POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS AND PROPOSED MITIGATION MEASURES	43
5.ENVIRONMENTAL GUIDELINES	58
6.ENVIRONMENTAL AND SOCIAL SUPERVISION, MONITORING AND REPORTING	65
6.1. Basic requirements of environmental and social monitoring and reporting	65
6.2. Integration of the ESMF into project documents.....	65
7.GRIEVANCE REDRESS MECHANISM	67
7.1 Grievance Redress Mechanism.....	67
8. INSTITUTIONAL ISSUES AND IMPLEMENTATION ARRANGEMENTS	68
8.1 Major responsibilities with regard to project ESMF implementation.	68
8.2 Major responsibilities of Environmental Specialist.....	68
8.3 ESA capacity building	69
8.4 Requested Budget for ESMF Implementation.....	70
9. ESMF PUBLIC CONSULTATION	74
ANNEX 1. POTENTIAL PROJECT IMPACTS	75
ANNEX 2. PROPOSED MEASURES FOR MITIGATION OF ENVIRONMENTAL AND SOCIAL IMPACTS	87
ANNEX 3. International Best Practice in Safety of Research Laboratories	99
ANNEX 4. Environmental Management Plan Checklist	103
ANNEX 5. ENVIRONMENTAL SCREENING CHECKLIST FORMS FOR ACCESS TO CREDIT COMPONENT	109
ANNEX 6. TERMS OF REFERENCE FOR ENVIRONMENTAL IMPACT ASSESSMENT	118
ANNEX 7. Terms of Reference for RRA Environmental Specialist	119
ANNEX 8 Sample of screening form for assessment of resettlement and land acquisition impact	121
ANNEX 9. Grievance Redress Mechanism (GRM)	123
ANNEX 10. Forms of applications registration	130
ANNEX 11. Summary information on Public Consultation under the framework project on environment and social management	133

LIST OF ABBREVIATIONS AND ACRONYMS

ACM	Asbestos-containing materials
ES	Environmental Specialist
ESA	Environmental and Social Assessment
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMF	Environmental and Social Management Framework
FS	Feasibility Study
Glavgosexpertiza	Main Department of State Environmental Expertise
GRM	Grievance Redress Mechanism
MAWR	Ministry of Agriculture and Water Resources
OP	Operation Policy
NGO	Non-government organization
PAP	Project Affected Persons
PIU	Project Implementation Unit
PMP	Pest Management Plan
RAP	Resettlement Action Plan
PFI	Participating Financial Institution
RRA	Rural Restructuring Agency
RUz	Republic of Uzbekistan
SEE	State Environmental Expertise
TOR	Terms of Reference
WB	World Bank

LIST OF TABLES

Table 1 World Bank's Safeguard Policies and their relevance to project	21
Table 2 Types of projects under the World Bank's Categories A, B, and C	24
Table 3 Legal documents on the social issues, gender issues, resettlement and land acquisition issues of the Republic of Uzbekistan.....	29
Table 4 Demographic indicators of the development of the regions of Uzbekistan in 2015.....	39
Table 5 Average age of the population by regions, years, 2015	40
Table 6 Indicators of economic activity of the population of Uzbekistan, 2015.....	41
Table 7 Environmental impacts and proposed mitigation measures	45
Table 8 Screening of categories for proposed types of sub-projects and suggested EA instrument	61
Table 9 Environmental Eligibility Checklist for the Existing Enterprise and Screening Criteria for the Proposed Project.....	63
Table 10 Estimate budget for capacity building activities	71

LIST OF FIGURES

Figure 1 Environmental Assessment and the World Bank project cycle	27
--	----

SUMMARY

Project objective. The Project Development Objective (PDO) is to improve the performance of livestock sector value chains (as measured by productivity and commercialization on domestic and export markets) by strengthening the investment policy framework and facilitating access to animal health services, nutrition, finance and technology.

Project Components: Component 1 – Livestock Investment Framework and Services.

This component will aim at better understanding the livestock sector and developing a long term vision and investment plan, while addressing the core bottlenecks in the institutional and policy environment and the environment of animal health services. Activities will be structured around the following sub-components: **Sub-Component 1.1 – Investment Strategy and Policy Framework.** This Sub-Component will finance the following activities: conducting a comprehensive review of the livestock sector, analyzing prospects and future directions for development; regular surveys and targeted analytical works to properly monitor the effect of policy decisions and measure the impact of investments; studies and expertise to ensure certification, standardization and traceability required on targeted export market, including upgrading laboratories; and conducting market intelligence to identify prospective export markets. **Sub-Component 1.2 – Animal Health Services Improvement.** This Sub-Component will include investments to improve veterinary services and limited investments in food safety improvement. It will finance: (a) technical assistance to improve the legal framework and strategy for development of the veterinary services in Uzbekistan; and (b) technical assistance, training and equipment to selected public veterinary agencies to improve disease surveillance and reporting systems, veterinary diagnostics laboratories and standard operating procedures, vaccine storage and distribution facilities, public awareness, rapid response capacity; and (c) civil works for selected laboratories for improving laboratory facilities. The project will also finance technical assistance for studies on border control and quarantine, veterinary drug regulation and animal identification, registration and movement control.

Component 2 – Livestock Value Chain Modernization. This component which is at the core of the Project will support the elaboration and finance the execution of four main types of activities presented as sub-components): **Sub-Component 2.1 – Market-led Technology Generation and Dissemination.** This subcomponent will finance market-led technology generation and dissemination subprojects (covering livestock nutrition, husbandry and breeding) selected through regular calls for proposals which would include mostly consultants' services. **Sub-Component 2.2 – Smallholder Farming Entrepreneurship and Market Inclusion.** This subcomponent will support the transformation of the farming systems of smallholder farmers into a fully market-oriented farming entrepreneurship model by providing a package of support to farmers' groups. This might involve either grants to individuals within an informal group or grants to legally established groups as a full or partial matching grant with credit line co-financing, to improve the productivity of livestock and poultry production. The subcomponent will finance: (a) advisory services including farmer field schools on all aspects of animal health, husbandry and marketing including demonstrations on the use of improved seed and animal breeds; (b) farm infrastructure improvement including housing, handling and storage, waste management and biogas facilities. **Sub-Component 2.3 – Productive and Marketing Partnerships.** This Sub Component will help improve the competitiveness of livestock value chains by facilitating the establishment of productive partnerships between small farmers, processors, feed suppliers and other actors in the value chains. The project will finance sub-projects, which will include a comprehensive sets of investments to address all key constraints along each value chain, including: (a) technical assistance for the establishment,

supervision and monitoring of partnerships and preparation of sub-project proposals; (b) all types of farm level investments indicated under component 2.1; (c) works for construction or improvement of communally utilized storage and distribution infrastructure such as cooling tanks; (d) training and works for farm and agribusiness infrastructure/ equipment improvement to help ensure that farms and agribusinesses comply with food safety standards and to support the adoption of innovative technology; and, (e) technical assistance and studies to provide business and technical advice to agribusinesses and processors. Investments in Infrastructure and equipment, which are more of an individual and private nature, will be submitted for funding to commercial banks under subcomponent 2.4. **Sub-Component 2.4 – Private Investments.** This sub-component will finance: (i) a credit line to commercial banks for provision of working capital and investment finance to the livestock sector nationwide; (ii) training and advice for commercial banks on loan product development, loan appraisal and monitoring in the livestock sector; and (iii) conducting environmental assessment of subprojects. This subcomponent will deliver financial services to farmers and agro-processors to enable them to invest in equipment and infrastructure that are critical to enhance their productivity and competitiveness. This will include, *inter alia*, farming, processing, packing and marketing equipment and infrastructure, cold storage facilities and equipment, upgrading of existing infrastructure and equipment required to comply with food safety or market-specific requirements. The project will also support introduction of new financial products to support development of value chains in the sector. The Project will give priority to investments promoting climate resilience and emission reduction, such as (i) climate smart technologies and practices including sustainable land/ landscape management, waste management systems to minimize greenhouse gas emissions, pollution and dissemination of pathogens, and (ii) renewable energy supply (bio and solar energy) systems.

Component 3 – Project Coordination, Management and Monitoring and Evaluation. This sub-component will finance: (i) project management, including coordination and supervision of the implementation, financial management, procurement, monitoring and evaluation (including gender disaggregation of results), Grievance Redress Mechanism (GRM) and progress reporting; (ii) recruitment of a consulting firm to facilitate the identification, elaboration, selection and implementation of subprojects under component 2; (iii) studies required for in-depth impact assessment at mid-term review and at the end of the Project and feasibility studies for follow-operations.

Project Location. The project will be implemented countrywide.

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 and Social Assessment (ESA) with Environmental and Social Management Plan (ESMP) is required. As before project appraisal it is not possible to identify the subprojects will be financed the appropriate ESA instrument is an Environmental and Social Management Framework (ESMF) which would specify all rules and procedures for the subprojects Environmental Assessment (ESA).

Potential environmental impacts. The proposed project activities (upgrading/construction of veterinary analytical laboratories; investments in improving the animal herd; purchasing of inputs and machinery for feed and fodder production; animal shelter improvement; etc.) as well as subprojects to be financed under the second component (on cultivation and breeding, processing and storage of livestock products, including development of cattle, small cattle, poultry farming, fish breeding, as well as cultivation of forage crops, milk collection and purchasing cooling equipment; poultry activities, renewable energy activities, etc.) might generate a series of various environmental and social impacts. These impacts include but may not be limited to the following: (a) increased pollution with wastes, noise, dust, and air pollution,

health hazards and labor safety issues, etc., due to civil works; (b) increased ground and surface waters pollution due to use of agro-chemicals and silage production; (c) threats to human health and wildlife due to improper handling of treated seeds, fertilizers and pesticides, and due to inappropriate management and disposal of livestock vaccines and other drugs; etc. All of them are expected to be typical for agricultural production, small scale construction/rehabilitation works, or for various livestock processing activities, temporary by nature and site specific and can be easily mitigated by applying best construction and/or agro-processing practices and relevant mitigation measures. None of the project activity or subproject that would receive financing will cause significant environmental or social impacts which may fall under the Category A projects and for which a full EIA would be required (it was decided none of category A subprojects will be supported under the proposed credit line). However, the majority of them might cause some adverse environmental impacts and would fall under the Category B projects in accordance with the Bank OP/BP 4.01, for which the Bank requires a simple and/or a partial Environmental Assessment (EA) and/or preparing an Environmental and Social Management Plan (ESMP). At the same time improved livestock production, improved veterinary services and fodder production can contribute to various positive public goods including carbon sequestration, improved public nutrition and health. Social impacts may include improvement to livelihood of rural residence, new employment opportunities, higher incomes of farm workers and provision of a social safety net for rural communities.

Potential social and economic impacts. The project is expected to have both direct and indirect benefits. Direct benefits include: Increased livestock and agricultural production will create new jobs in the livestock and associated sub-sectors, and as a result improve employment opportunities and incomes for rural population; result in creation of new jobs and respectively, more employment, increased income and improved standard of living of rural poor and small farmers, who tend to be vulnerable:

- Reduced poverty in rural areas. Agriculture is the main source of livelihood in rural areas and rural poverty remains significant in Uzbekistan. Low-income population in rural areas will benefit from the project through trainings and expanded income generating activities;
- Improved welfare and social status of small-hold farmers. Cattle is considered as one of the most important types of property in rural areas of Uzbekistan, as well as the source of income, welfare and social status. Therefore, development of livestock production will benefit small hold farmers engaged in livestock rearing.
- Increased number of permanent and temporary employment in rural areas, especially for rural women, as they express interest in engaging in livestock.

The main project beneficiaries are leasehold and dehkan farms which already have land plots and are involved in livestock production.

The Project will aim to engage more women in its activities. In Uzbekistan rural men and women are involved in livestock production, however gender determination of various activities is still prevalent. Men, as a rule, own and manage cattle, such as cows, bulls and buffalos while women almost always bear responsibility for poultry farming and small cattle, for example, goats, sheep.

Involuntary resettlement issues. Resettlement or land acquisition impact is not envisaged within the project. The borrower (through the RRA, the designated PIU) indicated the following sources of land in cases additional land will be needed to successfully implement project activities: (i) farmers' own land already owned or leased and (ii) khokimiyats' reserve fund land.

Triggered WB OPs. The project will clearly trigger the OP 4.01 as would generate some adverse environmental and social impacts (see points above). In terms of OP 4.04 on Natural

Habitats project will not support any activities that would trigger this policy, this will be ensured during the subproject environmental screening at the initial stage of their selection. In this regard, the project indirect impact would be positive, reduction in number of animals and respectively reduction of the pressure on the pastures that would be beneficial in terms of improving status of NHs. The main source of lands for forage production will be reserve lands of khokimiyat. In addition, any infrastructure to be constructed/rehabilitated under the project will be: (a) located on the lands already owned by the project beneficiaries¹ or (b) on the public lands of the reserve fund of the khokimiyat. With regard to OP 4.09 on Pest Management, although the project will not support purchasing and use of mineral fertilizers and pesticides, the farmers routinely use them while producing animal fodder as well as acaricides to control ticks and other ectoparasites. To ensure their safe usage the ESMF will support project activities in this aspect, providing public awareness and training for farmers. Per WB EA disclosure policy the draft ESMF will be disclosed and consulted in the country prior to appraisal. None of other WB OPs would be triggered.

Purpose and contents of the Environmental and Social Management Framework (ESMF). Overall the main goal of the ESMF is to avoid, minimize or mitigate, potential negative environmental and related social impacts caused by implementation of the project. The ESMF provides the following: (a) the national and WB safeguards rules and procedures; (b) environmental and social impacts associated with the proposed investments and generic mitigation measures; (c) guidelines on conducting sub projects environmental screening, as well as EIA, including mitigation measures and monitoring activities for different types of activities; (d) roles and responsibilities in EA process and in supervision and reporting; (e) ESMP and ESMP Checklist to be applied within the EA process; and (f) capacity building activities to ensure an efficient ESMF implementation. The ESMF was prepared by a local consultant based on the following: (i) analysis of the existing national legal documents, regulations and guidelines; (ii) World Bank safeguard policies, as well as other WB guiding materials; (iii) existing ESMFs for similar World Bank projects; and (iv) results of consultations with the representatives of stakeholders and all interested parties. The ESMF also suggests a series of environmental issues to be included in the proposed project TA activities - training, preparing and disseminating guidebooks and implementing demonstrational activities on the following: (a) education of veterinary specialists on managing sector environmental and social impacts; (b); sound manure management; (c) practicing silage production and measures to ensure appropriate handling and disposal of the "silage liquor"; and (d) promoting Integrated Pest Management while producing fodder and safety issues during usage of acaricides in livestock production.

Implementing arrangements and institutional capacities to perform safeguards issues.

The Rural Restructuring Agency (RRA) will be responsible for project coordination, implementation, monitoring, reporting and management. The RRA has extensive prior experience in implementing Bank-financed projects. Similar to the previous projects, RRA will be responsible for project-related procurement activities, financial management as well as for the safeguards issues. The evaluation of EA institutional capacity and social management has shown that although RRA has basic capacities to perform its duties in this regard and enforcing the ESMF provisions, there is need for additional capacity building activities, especially for the new Environmental Specialist and Specialist on social issues to be hired as well as for commercial banks who will participate in the project implementation and provide sobloans to farmers. In this regard the Project will support additional training activities to ensure the environmental and social requirements and the ESMF provisions would be fully implemented.

¹ The project will affect leasehold / dehqan farms which already have own land plots, not irrigated/not cultivated areas subject to potential use for expansion and modernization of livestock production. Use of the irrigated lands under the crops is not provided.

Integration of the ESMPs into project documents. The ESMF and ESMPs provisions will form part of the documents for the project, and will be included in contracts for proposed activities and for selected sobloans.

ESMF disclosure and consultation. The RRA has disseminated the draft summary of the ESMF to the Ministry of Agriculture and Water Resources and other relevant ministries for their review and comments. Also, the Executive Summary of the document was posted on RRA website for its access to wide public. On _____, 2017, the RRA organized a public consultation on the Draft document. After the consultation, the draft ESMF was revised to consider inputs from consulted parties. The final version of the ESMF was posted on the RRA website on _____, 2017 and submitted to the World Bank Infoshop on _____, 2017.

1. INTRODUCTION

1.1. Project background

Agriculture is an important sector of Uzbekistan's economy, accounting for approximately 16.7 percent of GDP and employing about 26 percent of the labor force. Cotton and grain are the country's principal crops. Exports of agricultural products contributed approximately 15.9 percent to Uzbekistan's external earnings in 2015. The government hopes to increase agricultural productivity through the adoption of new technologies, and to further develop processing and packaging capabilities to add value to domestic and export products.

The increase in livestock sector output from 2003-2013 (71% for milk, 54% for beef, 101% for lamb and goat meat) appears to be largely due to the steady rise in the number of cattle and sheep/goats which increased by 63% and 60% respectively during this period. While data is lacking, milk and meat yields are reported to have increased only slightly during this period. Given that the livestock sector benefited from rises in real prices for livestock products from 2003-2013 and is not heavily regulated, higher output growth might have been expected, suggesting that fundamental constraints to improved livestock productivity remain.

Inadequate veterinary services affect not only animal productivity but also trade and human health. While information on disease prevalence is limited, the veterinary service recognizes the importance of improving disease prevention and control and has prioritized the control of several zoonotic and transboundary diseases.

1.2. Project description

Project Objective. The Project Development Objective (PDO) is to improve the performance of livestock sector value chains (as measured by productivity and commercialization on domestic and export markets) by strengthening the investment policy framework and facilitating access to animal health services, nutrition, finance and technology.

Project Components. The project will have three components:

Component 1 – Livestock Investment Framework and Services. This component will aim at better understanding the livestock sector and developing a long term vision and investment plan, while addressing the core bottlenecks in the institutional and policy environment and the environment of animal health services. Activities will be structured around the following sub-components:

Sub-Component 1.1 – Investment Strategy and Policy Framework. This Sub-Component will help the Government conduct a comprehensive review of the livestock sector, analyse prospects and future directions for development. It will help elaborate a long-term sector modernization strategy and a medium-term investment program. The Project will work with the International Livestock Research Institute and will rely on the Livestock Sector Investment and Policy Toolkit. This review will be the opportunity to foster a policy dialogue between the Government, farmers, private operators and donors on key policy and institutional issues in the sector. As such, the Project will strengthen the capacity of MAWR staff to carry out its core responsibilities in terms of sector analysis, production and dissemination of up-to-date statistics, policy recommendation and formulation, overall sector coordination and subsectors monitoring and evaluation. The regular production of statistics and analyses on the sector

evolutions and performances is critical to facilitate policy decision making and to orient public and private investments. The Project will finance regular surveys and targeted analytical works to properly monitor the effect of policy decisions and measure the impact of investments. This subcomponent will also contribute to improve the regulatory framework and facilitate its alignment to international standards. It will finance studies and expertise to ensure certification, standardization and traceability required on targeted export market, including upgrading laboratories. It will also help the different stakeholders of the livestock sector to conduct market intelligence to identify prospective export markets where Uzbekistan may have a comparative advantage, to analyse the domestic market demand and its evolution and to establish a market information system.

Sub-Component 1.2 – Animal Health Services Improvement. This Sub-Component will include investments to improve veterinary services and limited investments in food safety improvement. It will strengthen the capacity of the public veterinary services under MAWR to prevent and control zoonotic, trans-boundary and production diseases, which variously constrain productivity and cross-border trade and are a risk to human health. It will rely on an assessment of veterinary services conducted by the *Organisation Internationale des Épizooties*² (OIE) conducted as part of Project preparation. It will finance: (a) technical assistance to improve the legal framework and strategy for development of the veterinary services in Uzbekistan; and (b) technical assistance, training and equipment to selected public veterinary agencies to improve disease surveillance and reporting systems, veterinary diagnostics laboratories and standard operating procedures, vaccine storage and distribution facilities, public awareness, rapid response capacity; and (c) civil works for selected laboratories for improving laboratory facilities. The project will also finance technical assistance for studies on border control and quarantine, veterinary drug regulation and animal identification, registration and movement control.

Component 2 – Livestock Value Chain. The specific objective of this component is to improve the competitiveness and performance of livestock value chains by stimulating collaboration and coordination among value chain stakeholders, by supporting the transformation of the farming system of smallholder farmers and their connection with markets, by providing access to finance and by facilitating access to technology innovations. Project's interventions will rely on a sound market-led approach, where soft and hard investments will be identified around specific commercial opportunities. It will also rely on comprehensive approach to identify and address value chain constraints and key bottlenecks from farmers to markets. This component which is at the core of the Project will support the elaboration and finance the execution of four main categories of subprojects (presented below as the Project's sub-components): (i) Market-led Technology Generation and Dissemination; (ii) Smallholder Farming Entrepreneurship and Market Inclusion; (iii) Productive and Marketing Partnerships; and, (iv) Private Investments. The Project will help combine grant and credit depending on the respective level of public and private good dimensions.

Sub-Component 2.1 – Market-led Technology Generation and Dissemination. This subcomponent will finance market-led technology generation and dissemination subprojects (covering livestock nutrition, husbandry and breeding) selected through regular calls for proposals. Research needs will be identified jointly by research institutions and value chain stakeholders to ensure subprojects contribute to address some of the core bottlenecks or immediate innovation needs. New technologies or innovations, new fodder crop varieties and more performant husbandry practices have been developed by research institutions in Uzbekistan and are available for dissemination. Research institutions will work with stakeholders in developing dissemination programs that will be financed by the Project. The Project will also support research institutions in anticipating future needs by strengthening their

² World Animal Health Organization

capacities, preparing the next generation of researchers and developing forward looking research programs. All research and dissemination subprojects should directly contribute to improve the performance and competitiveness of targeted value chains by delivering quick technical answers and forward-thinking innovations required by all stakeholders along the value chains. The selection criteria will also stress the importance of developing technologies that qualify as climate smart agriculture, meaning ensuring environmental sustainability, while ensuring farming system resilience and contributing to emission reduction. The approach will rely on a proper need assessment made with beneficiaries, a prioritization process with respect to the Project's regional and subsector targeting strategy.

Sub-Component 2.2 – Smallholder Farming Entrepreneurship and Market Inclusion. This subcomponent will support the transformation of the farming systems of smallholder farmers into a fully market-oriented farming entrepreneurship model. It will also facilitate their connection to markets and their inclusion in modern value chains. The Project will contribute to organize smallholder farmers to achieve economies of scale, efficient aggregation and compliance with market requirements. The Project will consider different models of aggregation of smallholder farmers' production through clusters of private actors or private farms and agro-processors acting as aggregators and leaders of productive and marketing partnerships (proposed under subcomponent 2.3). The Project will provide a package of support to farmers' groups. This might involve either grants to individuals within an informal group or grants to legally established groups as a full or partial matching grant with credit line co-financing, to improve the productivity of livestock and poultry production. The subcomponent will finance: (a) advisory services including farmer field schools on all aspects of animal health, husbandry and marketing including demonstrations on the use of improved seed and animal breeds; (b) farm infrastructure improvement including housing, handling and storage, waste management and biogas facilities.

The Project will also help smallholder farmers prepare for and take advantage of the on-going land reallocation process progressively undertaken by the Government. In 2015, 170,000ha of cotton/wheat land have been converted to other crop productions and a new resolution is under preparation to specifically reallocate land to fodder production. Preliminary analysis and empirical evidence from the field show that transforming the smallholder farming system will imply improving animal nutrition and thus access to fodder. Producing on-farm fodder is therefore be critical, as smallholders cannot rely on purchasing animal feed only. Accessing land will thus be a critical element for smallholders to develop a new business model.

Sub-Component 2.3 – Productive and Marketing Partnerships. This Sub Component will help improve the competitiveness of livestock value chains by facilitating the establishment of productive partnerships between small farmers, processors, feed suppliers and other actors in the value chains. Productive partnerships will in most cases be built around a processor wishing to participate in the Project to improve the consistency and quality of its supplies from farmers. The project will finance sub-projects, which will include a comprehensive sets of investments to address all key constraints along each value chain, including: (a) technical assistance for the establishment, supervision and monitoring of partnerships and preparation of sub-project proposals; (b) all types of farm level investments indicated under component 2.1; (c) works for construction or improvement of communally utilized storage and distribution infrastructure such as cooling tanks; (d) training and works for farm and agribusiness infrastructure/ equipment improvement to help ensure that farms and agribusinesses comply with food safety standards and to support the adoption of innovative technology; and, technical assistance and studies to provide business and technical advice to agribusinesses and processors. Investments in Infrastructure and equipment, which are more of an individual and private nature, will be submitted for funding to commercial banks under subcomponent 2.4.

Sub-Component 2.4 – Private Investments. This sub-component will finance: (i) a credit line to commercial banks for provision of working capital and investment finance to the livestock sector nationwide; (ii) training and advice for commercial banks on loan product development, loan appraisal and monitoring in the livestock sector; and (iii) conducting environmental assessment of subprojects. This subcomponent will deliver financial services to farmers and agro-processors to enable them to invest in equipment and infrastructure that are critical to enhance their productivity and competitiveness. This will include, *inter alia*, farming, processing, packing and marketing equipment and infrastructure, cold storage facilities and equipment, upgrading of existing infrastructure and equipment required to comply with food safety or market-specific requirements. The project will also support introduction of new financial products to support development of value chains in the sector.

The Project will work closely with commercial banks to identify investment subprojects that are critical to enhance the competitiveness of the sector, to stimulate value chain organization and collaboration among stakeholders, to facilitate the connection of smallholder farmers to markets and their inclusion into modern value chains. The credit line will therefore finance sub-projects presented by individual agro-processors that meet the above criteria, as well as investments prepared by producer groups under component 2.1 and by productive and marketing partnerships under component 2.2.

The Project will give priority to investments promoting climate resilience and emission reduction, such as (i) climate smart technologies and practices including sustainable land/landscape management, waste management systems to minimize greenhouse gas emissions, pollution and dissemination of pathogens, and (ii) renewable energy supply (bio and solar energy) systems.

Component 3 – Project Coordination, Management and Monitoring and Evaluation. This sub-component will finance: (i) project management, including coordination and supervision of the implementation, financial management, procurement, monitoring and evaluation (including gender disaggregation of results), Grievance Redress Mechanism (GRM) and progress reporting; (ii) recruitment of a consulting firm to facilitate the identification, elaboration, selection and implementation of subprojects under component 2; (iii) studies required for in-depth impact assessment at mid-term review and at the end of the Project and feasibility studies for follow-operations.

The project will be implemented countrywide.

1.3. Project potential Environmental and Social impacts

The proposed project activities (upgrading/construction of a veterinary analytical laboratories; investments in improving the animal herd; purchasing of inputs and machinery for feed and fodder production; animal shelter improvement; agro- and livestock processing, purchasing milk collection and cooling equipment; etc.), as well as subprojects to be financed under the second component (on cultivation and breeding, processing and storage of livestock products, including development of cattle, small cattle, poultry farming, fish breeding, as well as cultivation of forage crops, milk collection and purchasing cooling equipment; poultry activities, renewable energy activities, etc.) might generate a series of various environmental impacts. These impacts would be associated with noise, dust, air and water pollution, health hazards and labor safety issues, etc. All of them are expected to be typical for small scale construction/rehabilitation works or for various agricultural processing activities, temporary by nature and site specific and can be easily mitigated by applying best construction and/or agro-processing practices and relevant mitigation measures. Improved livestock production, and improved veterinary services can contribute to various positive public goods including improved public nutrition and health and provision of a social safety net for rural communities.

Adverse social impacts include:

- Reduction in production of various crops, including forage due to allocation of land for livestock production. Consequently, decrease in crop production can result in increase of forage and livestock management costs (insufficient and unbalanced feeding of animals).
- Decrease in quality of livestock as a result of insufficient and unbalanced feeding of animals, which in turn can lead to decline in their value.
- Improper assessment of costs of production livestock products (in particular, meat, milk) and their purchasing costs. This factor can lead to emergence of insolvency risks on the credits obtained for development of livestock production.
- Additional financial burden on farmers involved in livestock production due to continued increase in prices for forages, veterinary medicines, electric power and fuels and lubricants.
- Additional financial challenges on farmers due to unforeseen or added costs for transport, especially for farms located in remote areas.
- Further marginalization and exclusion of women from livestock sector due to poor and insufficient engagement of women in project activities.

The subprojects should be screened to ascertain that they will not cause any resettlement impact.

1.4. Project environmental category and scope of the Environmental and Social Management Framework

Project Environmental Category. Taking into account potential project environmental and social impacts and 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 and Social Assessment (ESA) with Environmental and Social Management Plan (ESMP) is required. As before project appraisal it is not possible to identify which subproject will be financed the appropriate ESA instrument is the Environmental and Social Management Framework (ESMF) which would specify all rules and procedures for the subprojects.

Scope of Environmental and Social Management Framework. The purpose of the ESMF is to provide the World Bank's and national rules and procedures for project Environmental and Social Impact Assessment (ESIA), identify the significant environmental and social impacts of the project (both positive and negative), to outline rules and procedure for the sub-projects environmental screening and to specify appropriate preventive actions and mitigation measures (including appropriate monitoring activities) to prevent, eliminate or minimize any anticipated adverse impacts on environment. The document was prepared by a local consultant based on the following: (i) analysis of the existing national legal documents, regulations and guidelines; (ii) World Bank safeguard policies, as well as other WB guiding materials; (iii) existing ESMFs for similar World Bank projects; and (iv) the results of consultations with the representatives of stakeholders and all interested parties.

The ESMF provides the following: (a) the national and WB safeguards rules and procedures; (b) environmental and social impacts associated with the proposed investments and generic mitigation measures; (c) guidelines on conducting sub projects environmental screening, as well as ESIA, including mitigation measures and monitoring activities for different types of activities; (d) roles and responsibilities in ESA process and in supervision and reporting; (e) ESMP and ESMP Checklist to be applied within the ESA process; and (f) capacity building activities to ensure an efficient ESMF implementation. The ESMF also suggests a series of

environmental issues to be included in the proposed project TA activities - training, preparing and disseminating guidebooks and implementing demonstrational activities on the following: (a) education of veterinary specialists on managing sector environmental and social impacts; (b); sound manure management; (c) practicing silage production and measures to ensure appropriate handling and disposal of the "silage liquor"; and (d) promoting Integrated Pest Management while producing fodder and safety issues during usage of acaricides in livestock production.

1.5. Key beneficiaries and stakeholders of the project, their role and impacts on the project implementation

The key institutions involved in project implementation are Ministry of agriculture and melioration, Rural Restructuring Agency (RRA) functioning as implementation agency (IA), Project implementation unit (PIU), WB Safeguard Team, Project Consultants (PC), Provincial (Province) and District (District) and municipal towns / district authorities (khokimiyat), Goskomzemgeodezcadastre (State Committee on Land Resources, Geodesy, Cartography and State Cadaster (SCLRGCS) at regional or district level.

Ministry of Agriculture and Water Resources (MAWR) will be responsible for all the aspects of project implementation, especially:

- Implementation of unitary agro technical policy directed on modernization and stable development of agriculture;
- Improvement and adoption of up-to-date agro technologies in agricultural production;
- Taking into account the market principles and mechanisms, coordination of sectors, sections and structures servicing the agricultural producers;
- Coordination of the works on improvement the economic reforms in agricultural sector, wide development of lease relationships, family contracts, leasehold farmers;
- Implementation of state policy in selection and seed growing / farming, Pedigree breeding, veterinary medicine, quarantine of plants and protection of products of livestock, poultry and fish farming;
- Participation in development of investment policy in agriculture, water and forestry management and other.

Rural Restructuring Agency (RRA) will be responsible for the ESMF implementation. PIU under RRA will be responsible for the day to day management of the ESMF implementation, including cross-agency coordination, and via the Safeguard Team (ST) for the ESMF implementation.

The Safeguard Team (ST) under PIU will be directly involved in all ESMF related planning, implementation, inter-agency coordination, monitoring and reporting. They will receive supports from the Project Consultants (PC) on project assessment and benefit from inputs from the Design Institute (DI), district/municipal executive powers and SCLRGCS as appropriate. The Safeguard Team in collaboration with the DI will review report.

Regional / District Government

Local government agencies involved in the ESMF review and implementation are Province and District Executive Authorities who will be responsible for the ESMF implementation at local level. Implementation of the ESMF will require close coordination with the local Mahalla and khokimiat. This coordination will help RRA in the following:

- Dissemination information related with ESMF;
- Obtaining any on the grievances upon the project;

- Verifying as to whether the Vulnerable HHs were identified according to requirement laid down in the WB operational policy; and
- Obtaining information regarding any unexpected impacts, if any, impacted negatively the residents of the project area.

Key project beneficiaries: Project provides the opportunities to participate in the project to leasehold farmers and dekhkan farmers who have their land plots and involved in livestock production. Expansion of the land plots ³ and other project benefits allow them improving and increasing their livestock production by the expansion of pastures lands, access to the qualitative veterinary services and improving of quality and availability of the fodder.

Close cooperation the main stakeholders of the project with the project beneficiaries by an established feedback, public consultation, appeals will allow involving the residents of the project area into project implementation, explaining the objectives, principles and benefits of the project.

³ Owing to the land plots of reserve fund of khokimiat, which are public lands and not in use.

2. LEGAL CONTEXT

2.1 Uzbekistan National Environmental Legislation and Procedures

Since the country had obtained the independence, Republic of Uzbekistan developed, reviewed and enhanced the national nature protection legislation, adopted new laws and regulations, developed programs and action plans for the solution of environmental issues, and has been promoting rational use of natural resources. Uzbekistan adopted several auxiliary laws and legal acts on environmental management, and is member of several international and regional nature protection agreements, and conventions. Nature protection policy and the implementing measures in the areas of rational use of the natural resources and environment protection are based on the following main principles:

- ✓ Integration of economic and ecological policy aimed at conservation and restoration of the environment as the essential condition for improvement of the living standards of the population;
- ✓ Transition from protection of individual natural elements to the general and integrated protection of ecosystems;
- ✓ Responsibility of all members of society for environment protection and conservation of biodiversity.

2.1.1 Environmental Legislation and Policy

Relevant to EA laws and regulations include:

Law "On Environmental Protection" (1992), establishing a legal, economic and organizational framework for environment protection, ensuring sustainable development and defining principles including State Ecological Expertise (SEE);

Law "On Ecological Expertise" (2001) provides for mandatory expert assessment of impacts on the environment and human health, as well as a legal basis for conducting expert assessments;

Law "On Ecological control" (2013) regulates relations in the field of environmental control. The main objectives of environmental control are prevention, detection and suppression of violations of environmental regulations; monitoring of environmental situations that may lead to environmental pollution, unsustainable use of natural resources, endangering the life and health of citizens.

Law "On Water and Water Use" (1993), ensuring rational water use, protection of water resources, prevention and mitigation of negative impacts and compliance with national legislation;

"On Land Code" (1998) provides basic norms and rules for land use and stipulates the land rights;

"Law on protection and use of fauna" (1997), governs the relations in the sphere of protection, use, restoration and reproduction of fauna for providing conditions of its existence, preservation of diversity, integrity of natural species and habitats.

"Law on breeding livestock production" (1995), provides creation, preservation, reproduction and rational use of breeding resources for improvement of breeding and productive features of animals; ensuring reliability of the consideration of the origin, productivity, assessment by type

and other features of the breeding resources used in selection process; carrying out testing of producers on the quality of progeny; breeding of animals with new useful genetic features; effective use in selection of the most valuable world gene pool; increase in breeding and productive features and the accelerated reproduction of highly productive animals in commercial herds; increase in cost efficiency and competitiveness of the whole industry of livestock production.

"Law on veterinary" (2015), regulates state policy in the sphere of veterinary; developments and implementation of actions in the sphere of veterinary; state regulation in the sphere of veterinary; implementation of the state veterinary supervision; development of international cooperation in the field of veterinary

Law "On Wastes" (2002) addresses waste management, exclusive of emissions and air and water pollution, and confers authority to the Goskompriroda concerning inspections, coordination, ecological expertise and establishing certain parameters with regard to the locations where waste may be processed.

Nature Protection Normative Documents. Relevant nature protection normative documents issued by government include:

- ❖ "Procedure for elaboration and execution of draft standards on maximum permissible emission of contaminants discharged to water bodies including drainage water" (RD 118.0027719.5-91);
- ❖ "Procedure for granting permission for special water use" (RD 118.0027714.6-92);
- ❖ "Instruction for determining of damage caused to the national economy by underground water contamination" (RD 118.0027714.47-95);
- ❖ "Temporary recommendation on control of underground water protection of the Republic of Uzbekistan". State Nature Committee and Uzbekgidrogeologiya of the Republic of Uzbekistan, Tashkent, 1991;
- ❖ "Procedure for elaboration and principal requirements of recommendations to use waste water for crop irrigation" (RD 118.0027714.41-94);
- ❖ "Regulation on the disposal procedure of pesticides and other toxic substances, as well as the protection and maintenance of special polygons" (registered by the Ministry of Justice, #2438 dated 20.03.2013).

International Cooperation and Global and Regional Agreements: In the context of the global environment, the Republic of Uzbekistan is a Party to three Rio Conventions: the Convention on Climate Change, Convention on Biological Diversity, and Convention to Combat Desertification, together with a number of other international Conventions, Protocols, Agreements, and Memoranda of Understanding in the areas of environmental conservation and sustainable development. Other global agreements to which Uzbekistan is party include:

- Convention on Prohibition of Military or Any Aggressive Destructive Actions to the Environment (26.05.1993);
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (22.12.1995);
- Convention on Protection of the World Cultural and Natural Heritage (22.12.1995);
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (01.07.1997);
- Bonn Convention on Conservation of Migrating Species of Wild Animals (01.05.1998).

2.1.2 EIA rules and procedures

State Environmental Expertise (SEE), i.e. preparation of or the review and approval (or rejection) of developments on environmental grounds, is regulated Law on Ecological Expertise

(2000) and by Decree of the Cabinet of Ministers No 491.31.12.2001: “On approval of the Regulation of the State Environmental Expertise”.

According to the article 3 of the abovementioned law Ecological expertise is carried out in order to determine:

- ❖ compliance of projected economic and other activities with environmental requirements in the stages preceding decision making on its implementation;
- ❖ level of ecological danger planned or carried out business and other activities, which may have or had a negative impact on the condition of the environment and public health;
- ❖ adequacy and reasonableness of the measures provided for the protection of the environment and rational use of natural resources.

The main responsible organization for state environmental review is the Main Directorate for State Ecological Expertise (*Glavgosecoexpertiza*) of Goskompriroda. The Regulation stipulates 4 categories for development:

Category I – Corresponds to World Bank category A;
Category II – Corresponds to World Bank category B;
Category III – Corresponds to World Bank category B or C;
Category IV – Corresponds to World Bank category C.

All other projects not specified in the list of various categories, are considered as the projects with no impact on the environment, and there is no need to pass them through the State Environmental Examination and to receive any ecological licenses.

According to the paragraph 11 of the Regulation, evaluation stages of the environmental impact should include the following basic issues (depending on the type and nature of work):

a) Stage 1: Draft statement on environmental impacts (DSEI) is implemented at the stage of planning of the envisaged project prior to allocation of funds on development. Draft Statement on Environmental Impacts should provide the following details:

- environmental conditions prior to the implementation of the planned activities, population of the territory, land development, analysis of the environment's features;
- situational plan showing existing recreational areas, settlements, irrigation, reclamation facilities, farmland, power lines, transport communications, water, gas pipelines and other information about the area;
- envisaged major and minor objects, used technique, technology, natural resources, materials, raw materials, fuel, analysis of their impacts on the environment, environmental hazards of their products;
- expected emissions, discharges, wastes, their negative impact on the environment and ways of neutralization;
- warehousing, storage and disposal of wastes;
- analysis of the alternatives of the proposed or existing activity and technological solutions from the perspective of environmental protection, taking into account the achievements of science, technology and best practices;
- organizational, technical, technological solutions and activities, excluding the negative environmental impacts and mitigating the impact of the expertising object on the environment;
- analysis of emergency situations (with an estimate of probability and scenario of the prevention of their negative impacts);

- forecast environmental changes and environmental impacts as a result of the implementation of the expertising object;

b) Stage 2: It is necessary to draw the **Statement on environmental impact (SEI)**, where Galvgosekoexpertiza should specify at the Stage 1 that additional researches or analyses are required. The Statement should be submitted to the Glavgoosekoexpertiza prior to approval of the Feasibility Study for the Project, and, consequently, prior to construction. The Statement should contain the following:

- assessment of environmental problems of the chosen site on the results of engineering-geological investigations, modeling and other necessary researches;
- environmental analysis of technology applied to the issues identified on the site;
- the results of the public hearings (if necessary);
- reasoned investigations of the nature-conservative measures to prevent the negative consequences of the expertising object;

c) Stage 3: Statement on Environmental Consequences (SEC) provides final stage in the process of SEE and should be carried out prior to the project commencement. The report details:

- correction of the design decisions and other taken measures on the consideration of the DSEI by the bodies of Goskompriroda, as well as on the proposals made at the public hearings;
- environmental regulations governing the activities of the expertising object;
- requirements for the organization of work and the implementation of measures for environmental guiding of the operation of the object;
- main conclusions about the possibility of business activities.

2.1.3 State Organizations Responsible for Environmental Assessment and Management

The State Committee for Nature Protection (Goskompriroda) is the primary environmental regulatory agency. It reports directly to the Oliy Majlis (Parliament), and is responsible, at central, region and district levels, for coordinating the environmental and natural resources actions of other national government bodies. The mandate of Goskompriroda is based on the Regulation "On the State Environmental Committee of the Republic of Uzbekistan" as approved by the Parliament on 26 April 1996.

Goskompriroda is responsible for environmental and natural systems protection. It oversees the national system of protected areas, can initiate liability/damage actions, and administers an Environmental Fund which receives pollution fees and penalties and supports pollution mitigation measures. There are also several scientific institutes attached to the Goskompriroda which conduct analysis on environmental and natural resources problems and measures to address these in support of Goskompriroda's work.

Goskompriroda also issues permits for pollution discharge emissions and may prohibit projects and construction works that do not comply with (international) legislation. Fees are collected at the regional level for the use of resources, for licences to discharge polluting material, and for waste disposal.

The structure of Goskompriroda takes the form of a central body in Tashkent, with regional and local (district) branches and agencies for scientific and technical support. Regional level organisations have the same structure as those at national level. Different departments take responsibility for environmental standards, environmental law, international relations, environmental funding, economics, publicity, and governmental ecological review.

2.1.4 Public Involvement

The National EIA Regulation prescribes the project beneficiary is responsible for conducting at least one public consultation(s) for category I and II projects and no requirements for public consultation or EIA disclosure for Category III and IV projects. These responsibilities include:

- a) public notification;
- b) conducting the consultation;
- c) recording the significant findings, conclusions, recommendations and next steps.

The purpose of public consultation(s) is (are) to solicit views of groups or individuals who may be affected by the Sub-project regarding their environmental concerns.

Affected groups or people should identify the environmental issues they believe to be significant. Any significant issues, established during the public consultation, should be incorporated into the EA document.

2.2 The World Bank Safeguards Policy and Environmental Assessment Requirements

2.2.1 Main provisions of the Environmental Assessment

Per the WB safeguards policies Environmental Assessment (EA) is a process of the pre-implementation stage which evaluates a project's potential environmental risks and impacts in its area of influence; examines project alternatives; identifies ways of improving project selection, siting, planning, design, and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts; and includes the process of mitigating and managing adverse environmental impacts throughout project implementation. EA is mandatory for projects, which may potentially have negative impacts. Furthermore, a well-organized public participation is mandatory in all the stages of the process. In the case when the projects activities to be financed are not identified at the design stage, the Bank applies an Environmental and Social Management Framework (ESMF) which should: provide details on procedures, criteria and responsibilities for subproject screening, preparing, implementing and monitoring of subproject specific EIAs. The EMF should also include Environmental Guidelines for proposed subprojects, containing an assessment of potential impacts and generic mitigation measures to be undertaken for identified subprojects in all stages - from identification and selection, through the design and implementation phase, to the monitoring and evaluation of results.

2.2.2 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's Safeguard Policies and their relevance to the project are presented in the *Table 1* below.

Table 1 World Bank's Safeguard Policies and their relevance to project

Safeguard Policies	Triggering	Relevance
<p>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.</p>	<p>Yes</p>	<p>This OP is triggered as a series of proposed project activities as well as of the potential types of subprojects to be financed under the second component (upgrading/construction of the veterinary laboratories; investments in improving the animal herd; agricultural equipment; farm infrastructure improvement including animal housing, waste management, handling and storage, including demonstration infrastructure in this regard; purchasing of inputs and machinery for feed and fodder production; animal shelter improvement; cultivation and breeding, processing and storage of livestock products, including development of cattle, small cattle, poultry farming, fish breeding, as well as cultivation of forage crops, milk collection and cooling equipment; silage production; etc.) might generate a series of various environmental and social impacts. These impacts would be associated with noise, dust, air and water pollution, health hazards and labor safety issues, etc.). In the case of silage production this might generate soil and ground water pollution. All these impacts are expected to be typical for agriculture production, and small scale construction/rehabilitation works or for various agricultural/livestock processing activities, temporary by nature and site specific and can be easily mitigated by applying best construction and/or agro-processing practices and relevant mitigation measures. To address these impacts the client prepared an Environmental and Social Management Framework (ESMF) aimed at specifying the set of mitigation, monitoring, and institutional responsibility measures to be taken during the project implementation to eliminate adverse environmental and social impacts, offset, or reduce them to acceptable levels. The ESMF also suggests a series of environmental issues to be included in the proposed project TA activities which would include training, preparing and disseminating guidebooks and implementing demonstration activities on the following: (a) education of veterinary specialists on managing sector environmental and social impacts; (b) sound manure management; (c) practicing large and/or small scale silage production and measures to ensure appropriate handling and disposal of the "silage liquor", preventing soil and ground water pollution; and (d) promoting Integrated Pest Management while</p>

		producing fodder and safety issues while using of acaricides in livestock production.
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.	No	The project will not support any activities that would trigger this policy, this will be ensured during the subprojects initial environmental screening. Its indirect impact would be reduction in number of animals and respectively reduction of the pressure on the pastures that would be beneficial in terms of improving status of NHs.
Forestry (OP/BP 4.36) This Policy is to ensure that forests are managed in a sustainable manner; significant areas of forest are not encroached upon; the rights of communities to use their traditional forest areas in a sustainable manner are not compromised.	No	The project will be implemented in non-afforested areas and thus no impacts on the forests status are expected.
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	Although the project will not support purchasing and use of mineral fertilizers and pesticides, the farmers routinely use them while producing animal fodder as well as acaricides to control ticks and other ectoparasites. To ensure their safe usage the ESMF will support TA activities in this aspect, providing public awareness and training for farmers.
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	The veterinary laboratories selected for rehabilitation will be not included in the list of national or local lists of PCR. This will be ensured during the initial subproject screening.
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	There are no known IPs in the project area.
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	No resettlement impact is envisioned. When additional land is needed, the following sources of land will be used: (i) farmers' own land plots and (ii) hokimiyats reserve land fund. Construction and renovation of laboratories will be done on state owned land or within already existing floorplans.

Safety of Dams(OP/BP4.37) 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 project does not support any activities which can impact safety of dams.
Projects on International Waterways (OP/BP7.50) 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	No	The project will not finance irrigation subprojects which can impact the international waterways, as well as any projects which can discharge sewage directly to the international waterways. The fish breeding subprojects that might be financed by the project will be located exclusively on internal lakes, ponds and water courses, - this is one condition for their eligibility under the credit line.
Disputed Areas(OP/BP7.60) 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	The project will not support any activities in disputed areas.
Disclosure Policy (BP17.50) 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 ESMF will be disclosed and consulted in the country before project appraisal and will be also disclosed in the WB Infoshop.

2.2.3 World Bank Screening Categories and Environmental Assessment Procedures

Environmental Screening is a Mandatory Procedure for the Environmental Assessment 4.01 OP/BP. 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 the Environmental Assessment to be conducted. 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. These four Categories are A, B, C, and FI.

Category A projects are likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may be sensitive, irreversible, and diverse, with attributes such direct pollutant discharges large enough to cause degradation of air, water, or soil; large-scale physical disturbances of the site and/or surroundings; extraction, consumption, or conversion of substantial amounts of forest and other natural resources; measurable modifications of hydrological cycles; hazardous materials in more than incidental quantities; and involuntary displacement of people and other significant social disturbances. The impacts are likely to be comprehensive, broad, sector-wide, or precedent-setting. Impacts generally result from a major component of the project and affect the area as a whole or an entire sector. They may affect an area broader than the sites or facilities subject to physical works. The EA for a Category A project examines the project's potential negative and positive environmental impacts, compares them with those of feasible alternatives (including the "without project" scenario), and recommends any measures needed to prevent, minimize,

mitigate, or compensate for adverse impacts and improve environmental performance. For a Category A project, the borrower is responsible for preparing a report, normally a full Environmental Impact Assessment (or a suitably comprehensive regional or sectoral EA).

Category B projects has potential adverse environmental impacts on human populations or environmentally important areas - including wetlands, forests, grasslands, and other natural habitats - which are less adverse than those of Category A projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigation measures can be designed more readily than for Category A projects. The scope of EA for a Category B project may vary from project to project, but it is narrower than that of Category A assessment. Like Category A, a Category B environmental assessment examines the project's potential negative and positive environmental impacts and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance.

Category C. An EIA or environmental analysis is normally not required for Category C projects because the project is unlikely to have adverse impacts; normally, they have negligible or minimal direct disturbances on the physical setting. Professional judgment finds the project to have negligible, insignificant, or minimal environmental impacts. Beyond screening, no further EA action is required.

Category FI. A Category FI project involves investment of Bank funds through a financial intermediary, in subprojects that may result in adverse environmental impacts.

The Bank reviews the findings and recommendations of the EA to determine whether they provide an adequate basis for processing the project for Bank financing. When the borrower has completed or partially completed EA work prior to the Bank's involvement in a project, the Bank reviews the EA to ensure its consistency with this policy. The Bank may, if appropriate, require additional EA work, including public consultation and disclosure.

General examples of projects that fall under Categories A, B, and C are provided in the Table 2 below. However, this list is just a good starting point and framework for the screening decision. Because of other factors involved such as project sitting, the nature of impacts, and the need for the EA process to be flexible enough to accommodate them, the lists should not be used as the sole basis for screening.

Table 2 Types of projects under the World Bank's Categories A, B, and C

Category A Projects (projects/project components which may have diverse and significant impacts – normally require a full EIA)	Category B Projects (projects / project components which may have diverse and significant impacts – more limited environmental assessment is appropriate)	Category C Projects (projects which are unlikely to have direct adverse impacts – no EIA is required)
<ul style="list-style-type: none"> ❖ Dams and reservoirs; ❖ Forestry production projects; ❖ Irrigation, drainage and flood control (large scale); ❖ Industrial plants (large scale*) and industrial estates, including major expansion, rehabilitation, or modification; 	<ul style="list-style-type: none"> ❖ Agro-industries (small scale); ❖ Electrical; transmission; ❖ Irrigation and drainage (small scale); ❖ Renewable energy; ❖ Rural electrification; ❖ Tourism; Rural water supply and sanitation; 	<ul style="list-style-type: none"> ❖ Family planning; ❖ Nutrition; ❖ Institutional development; ❖ Technical assistance; ❖ Most human resource projects

<ul style="list-style-type: none"> ❖ Aquaculture and mariculture (large scale); ❖ Land clearance and leveling; ❖ Mineral development ❖ Port and harbor development; ❖ Reclamation and new land development; ❖ Resettlement and all projects with potentially major impacts on people; ❖ River basin development; ❖ Thermal and hydropower development; ❖ Manufacture, transportation, and use of pesticides or other hazardous and/or toxic materials 	<ul style="list-style-type: none"> ❖ Watershed projects (management or rehabilitation); ❖ Rehabilitation, maintenance, and upgrading projects (small-scale); ❖ Protected areas and biodiversity conservation; ❖ Rehabilitation or modification of existing industrial facilities (small scale); ❖ Rehabilitation of highways or rural roads; ❖ Energy efficiency and energy conservation 	
--	--	--

*Note: *Large scale here is defined as enterprises with annual sales of US\$ 3 million or more equivalent*

Screening criteria. The selection of the category should be based on professional judgment and information available at the time of project identification. If the project is modified or new information becomes available, Bank EA policy permits to reclassify a project. For example, a Category B project might become Category A if new information reveals that it may have diverse and significant environmental impacts when they were originally thought to be limited to one aspect of the environment. Conversely, a Category A project might be reclassified as B if a component with significant impacts is dropped or altered. The option to reclassify projects relieves some of the pressure to make the initial decision the correct and final one.

Projects in Category B often differ from A projects of the same type only in scale. In fact, large irrigation and drainage projects are usually Category A, however, small-scale projects of the same type may fall into Category B, the same relates to aquaculture projects and many others. Projects entailing rehabilitation, maintenance or upgrading rather than new construction will usually be in Category B. A project with any of these characteristics may have impacts, but they are less likely to be “significant”. However, each case must be judged on its own merits. Many rehabilitation, maintenance and upgrading projects as well as privatization projects may require attention to existing environmental problems at the site rather than potential new impacts. Therefore, environmental audit may be more useful than impact assessment in fulfilling the EA needs for such projects.

The selection of screening category often depends also substantially on the project setting, while the “significance” of potential impacts is partly a function of the natural and socio-cultural surroundings. There is number of locations which should cause to consider “A” classification:

- ❖ in or near sensitive and valuable ecosystems - wetlands, natural areas, habitat of endangered species
- ❖ in or near areas with archaeological and/or historical sites or existing cultural and social institutions;
- ❖ in densely populated areas, where resettlement may be required or potential pollution impacts and other disturbances may significantly affect communities;
- ❖ 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;

- ❖ on lands and in waters containing valuable natural resources (such as fish, minerals, medicinal plants; agricultural soils).

The World Bank's experience has shown that precise identification of the project's geographical setting at the screening stage greatly enhances the quality of the screening decision and helps focus the EA on the important environmental issues.

2.2.4 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,
- 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.

Figure 1 presents the different steps in the project cycle and shows how the various EA phases fit in the project preparation process. The main EA phases concern screening, scoping, EA, and environmental management plan during and after implementation of the project - covering mitigation, monitoring and evaluation.

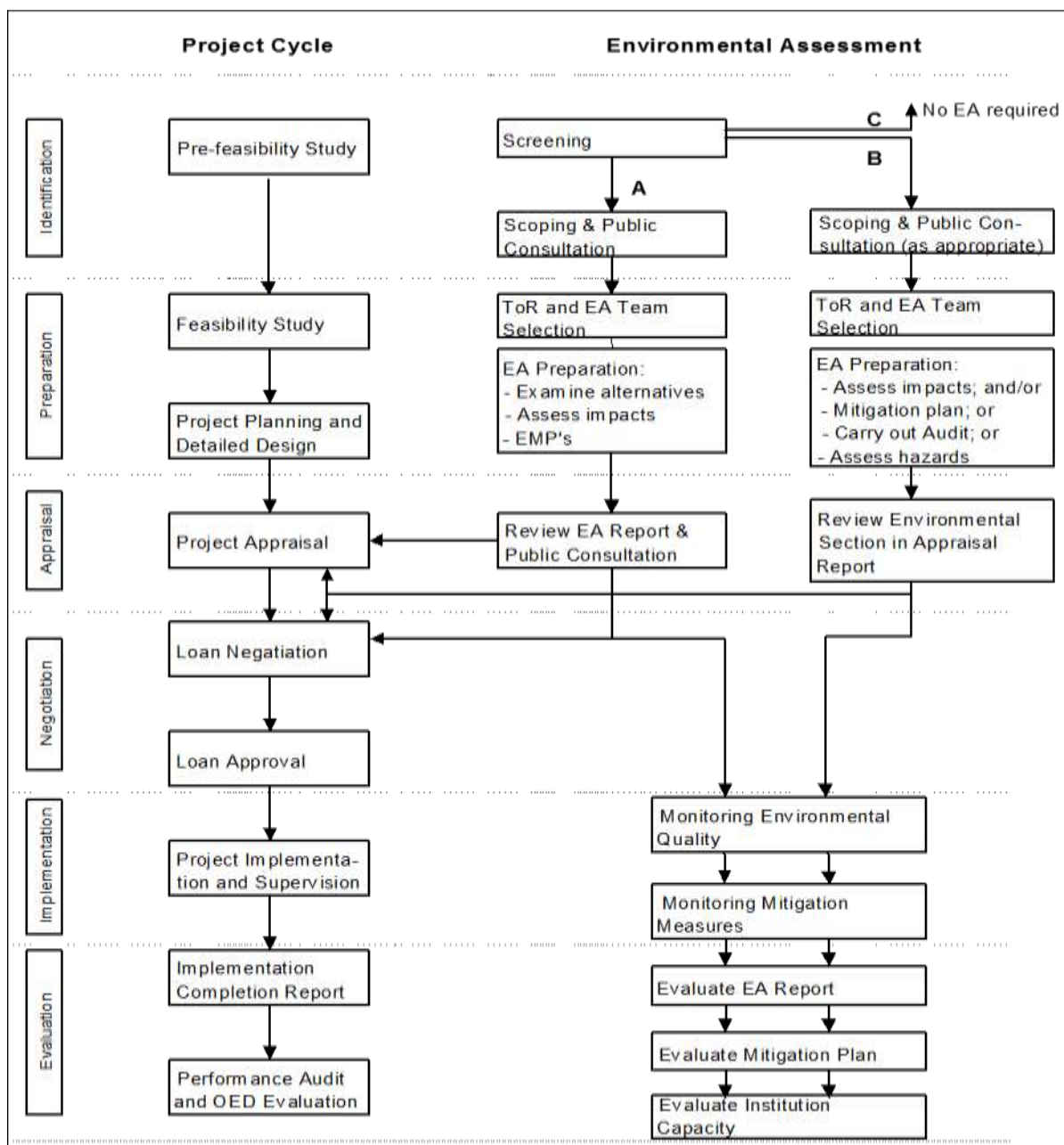


Figure 1 Environmental Assessment and the World Bank project cycle

2.3 The Comparison of National and World Bank Environment Assessment Requirements

2.3.1 Overview

While the basic provisions of the National 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:

- project environmental screening categories;
- Environmental and Social Management Plan (ESMP);
- EA disclosure and public consultation.

2.3.2 Differences in screening categories

In Uzbekistan the EIA systems are based on the SEE developed in Soviet times. SEE is regulated by Law (No 73-II.25.05.2000) on Ecological Expertise and by Decree of the Cabinet of Ministers (No 491.31.12.2001) on approval of the Regulation of the State Environmental Expertise. The Regulation stipulates 4 categories for development: Category I (High Risk), Category II (Middle Risk), Category III (Low Risk), and Category IV (Local Impact). 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, the client will apply the WB criteria.

- (i) Category A (World Bank) - Category I (Uzbekistan)
- (ii) Category B (World Bank) - Category II (Uzbekistan)
- (iii) Category B (World Bank) - Category III (Uzbekistan)
- (iv) Category C (World Bank) - Category III (Uzbekistan)
- (v) Category C (World Bank) - Category IV (Uzbekistan)

2.3.3 Differences concerning ESMP

While the national legislation requires for all projects with potential environmental impacts relevant mitigation measures, it doesn't require special ESMP which should specify, along with the proposed mitigation activities a monitoring plan and reporting requirements, institutional arrangements for ESMPs implementation as well as doesn't require needed capacity building activities and necessary expenses in this regard. However, for sub-projects that are to be financed under the Credit component, ESMPs will be required to be prepared by the borrower to comply with World Bank requirements.

2.3.4 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 category I and II. At the same time, according to the SEE law the public environmental review can be carried out on the initiative of NGOs and citizens in any field and for all types of project categories, which needs to be environmentally justified. Public environmental review can be carried out regardless of the state ecological expertise. Conclusion of public environmental review has recommendatory nature. 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 Sub- project, the RRA will review any documentation of the public consultation conducted in the preparation of any Uzbek EA documentation to determine if it is consistent with the World Bank requirements. If the Uzbek public consultation is satisfactory, there would be no further consultation requirement. However, if no public consultation was conducted or the RRA determines that the Uzbek public consultation documentation is not adequate, the Sub-borrower will be required to perform at least one public consultation 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 RRA as part of the Sub-project file. Uzbek language and/or local language versions of the EMP and the record of the public consultation should be placed at a public location near the project site and on the Sub-borrower website. Category B EA sub-project would be made available to project-affected groups and local NGOs in an easily accessible PFI and/or RRA website.

2.4 Legislation of the Republic of Uzbekistan and World Bank procedures in the sphere of social assessment, land acquisition and resettlement

2.4.1 National legislation in the sphere of social assessment, gender issues, land acquisition and resettlement

The regulating base of the legal acts and normative documents of the Republic of Uzbekistan concerning social issues, gender issues and vulnerable groups of population, as well as the issues of land acquisition and resettlement⁴ includes the following documents:

Table 3 Legal documents on the social issues, gender issues, resettlement and land acquisition issues of the Republic of Uzbekistan⁵

Name	Date of adoption and amendments	Description
Constitution of the Republic of Uzbekistan	Adopted on 8 December 1992.	The main legislative document determining and regulating social and economic rights, acts as the guarantor of equality of men and women (respect for equality of the gender rights), provides guarantees of observance of these rights, social protection of citizens, especially socially vulnerable groups of the population.
Land Code of the Republic of Uzbekistan	The Code was adopted by the Law of Republic of Uzbekistan dated April 30, 1998, with amendments dated August 30, 2003 and December 3, 2004.	The Code regulates issues of acquisition and allocation of land plots for non-agricultural purposes and compensation for loss of agricultural production.
Civil Code of the Republic of Uzbekistan	The Code was adopted by the Laws of the Republic of Uzbekistan N 163-I dated December 21, 1995 and N 256-I dated August 29, 1996 in accordance with last amendments entered by the law ZRU-260 dated September 22, 2010.	The Code provides the definition of property, the basic concepts of proprietary subject matters, the basis for termination of property rights and the right for compensation payments owing to the right of property damage.

⁴At this stage the project does not provide resettlement or land acquisition. It is impossible to estimate potential impact on land resources required for implementation of the project as there is no final project documentation which will allow to estimate this impact.

⁵Land acquisition and resettlement issues are considered within this framework document as potentially possible as a result of the project implementation.

Housing Code of the Republic of Uzbekistan	Law of the RUz dated April 30, 1998 No. 604-I according to the last act on the amendment No. 391, dated August 20, 2015.	The Code stipulates that withdrawal of land for public use will be made only after provision of another equivalent land plot with compensation of the market value; it also includes a transition period, giving the right to own property, the period of appraisal of buildings and structures.
Labor Code of the Republic of Uzbekistan	Law was adopted in 1996, with amendments and additions in 2016.	The Code provides guarantees of interests of employees, employers, government, provides effective functioning of the labor market, fair and safe working conditions, protection of labor rights and health of employees, promotes growth of labour efficiency, improvement of labour quality, on this basis rising of material and cultural living standards of the whole population.
Law of the Republic of Uzbekistan «On social protection of disabled people in the Republic of Uzbekistan»	Law was adopted on 18 November 1991 at No.422-XII and new edition was adopted according to the Law of the Republic of Uzbekistan No.ZRU-162 dated 11 July 2008.	The law determines state policy concerning disabled people for the purpose of providing them equal opportunities in implementation of the rights and freedoms, elimination of restrictions in their activity, creating of favorable conditions allowing to live full-fledged life, to participate actively in economic and political life of society, as well as to perform their civil obligations.
Law of the Republic of Uzbekistan "On protection of citizens' health"	Law was adopted on 29 August 1996, No.265-I.	The law regulates legal relations in the field of protection of public health, providing guarantees of the rights of citizens to health protection by the government, availability of medical care to all groups of the population, priority of preventive measures, social security of citizens in case of loss of health.
Laws of the Republic of Uzbekistan "On Employment"	Law was adopted on 13 January 1992, No.510-XII	The Law determines organizational, legal and social and economic guarantees of human rights for getting job in the conditions of market economy and equality of various forms of ownership. It is developed to create the conditions providing employment of the population taking into account regulations of the Constitution of the Republic of Uzbekistan and international law.

Resolution of the RUz Cabinet of Ministers No. 146	May 25, 2011	"On measures to improve the procedure of land allocation for urban construction activities and for other non-agricultural purposes".
Resolution of the RUz Cabinet of Ministers No. 97	May 29, 2006	"On the procedure for compensation of damages to citizens and legal entities due to acquisition of lands for state and public needs".

These documents contain guarantees of the rights of the persons affected by the project, and the order of payment of the compensations to these persons in case of loss of property and other objects of property.

As a rule, these standard legal documents provide general basis for land acquisition for the state and public needs and compensation to owners of land according to the registered use of land.

According to the Land Code (Art. 8) agricultural lands are subdivided into the irrigated and non-irrigated (dry) lands, arable lands, lands occupied with hayfields, *pastures*, perennial fruit plantings and vineyards. According to the Art. 43, agricultural lands are subject to special protection. Transfer of agricultural lands to other categories of lands for nonagricultural needs is allowed in exceptional cases according to the present Code and other legal acts.

If it is necessary to allocate additional farmlands for expansion of pastures and further development of livestock production, according to the Land Code of the Republic of Uzbekistan, such lands will be allocated from the fund of agricultural lands which are not irrigated lands occupied with agricultural crops / plantings (Art. 44-46).

*Use of the irrigated lands with agricultural crops as pastures is not allowed. Therefore, within the project, expansion of the available lands under pastures is allowed only from lands not used for the irrigated agriculture.*⁶

The project provides for allocation of additional lands under pastures in the territory of mountainous and foothill areas of the project territories. These lands are public and are in reserve fund of khokimiyat.

Obligations of land owners, land users and tenants on the use of agricultural lands will be complex reconstruction of melioratively unfavourable irrigated lands, flood and improvement of hayfields and pastures.

According to the Art. 55⁷, homestead land plot for dehkan farming with the size of not more than 0,35 hectares on irrigated and not more than 0,5 hectares on non-irrigated (dry) lands, and *in the steppe and desert zone not more than 1 hectare of non-irrigated pastures*, is provided to the citizens with the family and living in the rural area within at least three years in the life inherited tenancy. The requirement to live in the rural area for at least three years is not applied to the areas of lands of new irrigation. The specific sizes of the land plots provided for dehkan farming are determined considering the availability of land resources.

⁶Irrigated lands provided to the leasehold farms for rent, lease or long-term use, occupied

⁷ This is description of what size and type of the land plots are given to the certain persons according to the law. This is regulation for how many lands can be got according to the law.

Mechanism of transfer and receiving of the land plot for rent (Land Code of the Republic of Uzbekistan):

Land plots for haymaking and grazing of cattle can be provided to the citizens living in the rural area and owning cattle, for temporary use.

According to the Art. 24 Rent of the land plot is term, paid ownership and use of the land plot under the conditions of the lease contract. The land plot is provided to citizens and legal entities of the Republic of Uzbekistan for lease on contractual basis by the Khokims of the districts and cities.

The citizens, who need a land plot for dehkan farming submit an application to the khokim of the district (city) at the place of residence.

The khokim of the district (city) makes the decision on allocation of land plots for dehkan farming based on the report of the commission ⁸. In case an application is denied, the khokim needs to provide the reasons. Provision of the leased land plot or its part for the sublease is forbidden, except as specified by the law.

The leased land plots cannot be subject to purchase and sale, pledge, granting, exchange. For receiving of the credits the right of lease of the land plot can be pledged. The lessee has the right to pledge his/her leasehold rights to the land plot without consent of the lessor only in cases when it is provided by the law or the lease contract.

Conditions and terms of lease of the land plots are determined by the agreement of the parties and are fixed in the contract. The lands intended for agricultural purposes can be provided in lease for the period of up to fifty years, but not less than for thirty years. The lessee has the priority right of renewal of the lease contract for the land plots after the termination of the period of its validity under otherwise equal conditions.

The order of payment for the lease of the land plots and its amount are determined in the lease contract according to the legislation.

Early termination of the lease contract for the land plots is made by the agreement of the parties, and in case of non-achievement of such agreement – under the court decision.

The order of provision of the land plots for lease is determined by the Cabinet of Ministers of the Republic of Uzbekistan.

According to the Art. 28., lease of lands is paid in the Republic of Uzbekistan. At transfer of the land plots to lease, the payment for land is levied in form of the rent. The rent is equated to the land tax. The persons received the land plots in lease, pay the rent for land to the budget according to the order established for the payers of the land tax.

The right to use the land plot according to the Art. 33 is determined as follows: The documents certifying the right to the land plot are the lease contract or the agreement of term use of the land plot. These documents specify the right based on which the land plot is provided, purpose of its use, terms of development and other information.

Article 35. State registration of the rights to the land plots: The rights of legal entities and physical persons to the land plots are subject to the state registration. The state registration of the rights to the land plots is performed in the location of the land plot. The following is entered to the state register:

⁸ Commission is created under the khokimiyat and consists of the representatives of the khokimiyat, land services, committee for architecture and construction, etc.

- 1) information on the person acquired the right to the land plot;
- 2) descriptions of the land plot (category of lands, purpose of use, types of lands, area, share in joint tenancy or use, borders, cadastral number and other characteristics);
- 3) information on the conditions of the contract for provision of the land plot, encumbrances and servitudes;
- 4) decisions of the authorized bodies on inclusion of the land plot in exclusion zone for the state or public needs;
- 5) other information established by the legislation.

The state registration of the rights of legal entities and physical persons to the land plots is performed by the relevant authorized body in ten-day period from the moment of receiving of the application with enclosure of necessary documents on the rights to the land plots, except as specified by the legislation.

The certificate about the state registration of the rights to the land plots with indication of dates and number of the registration record in it, is issued.

The reasons for refusal in the state registration of the rights to the land plot are:

- the document testifying to the dispute on accessory of this land plot at the state registration body;
- information on withdrawal of this land plot in the order established by the law at the state registration body. (Section in edition of the Law of the Republic of Uzbekistan dated 30.08.2003 No. 535-II)

The order of the state registration of the rights to the land plots is established by the legislation.

The termination of the rights to the land plots is performed in compliance with the Art. 36.

The ownership right or the right to permanent or term use of the whole land plot or its part, as well as the lease of the land plot, terminates in cases of:

- 1) voluntary refusal of the land plot;
- 2) end of the term the land plot was provided for;
- 3) liquidation of the legal entity;
- 4) termination of employment under which the service allotment was provided, unless otherwise stipulated by the legislation;
- 5) inappropriate use of the land plot;
- 6) irrational use of the land plot which is expressed in the level of productivity below the standard one during three years, for agricultural lands (by cadastral evaluation);
- 7) use of the land plot by the methods leading to decrease in fertility of soils, their chemical and radioactive pollution, deterioration in environmental situation;
- 8) systematic non-payment of the land tax within the terms established by the legislation, as well as the rent within the terms established by the lease contract;
- 9) non-use of the land plot provided for agricultural needs within one year, and two-three years - for nonagricultural needs;
- 10) non-use of the land plot within two years after acquiring of the right to use the land plot;
- 11) withdrawal of the land plot in the order provided by the Land Code.

Legislation also provides for other cases of the termination of ownership right and the right to the permanent use and lease of the land plot.

Within the implementation of this project the order of payment of compensations to these persons in case of loss of property and other objects of property, is also regulated by the following standard and legal documents:

- i. Law of the Republic of Uzbekistan "On Evaluation Activity" as for 19.08.1999. No. 811-I;
- ii. Decree of the President of the Republic of Uzbekistan "On further improvement of activity of evaluation companies and increases of their responsibility for the quality of rendered services" (No. PP-843 as for 24.04.2008);
- iii. Law of the Republic of Uzbekistan No.269-II "On protection and use of objects of archaeological heritage" as for August 30, 2001;
- iv. Law of the Republic of Uzbekistan "On guarantees of the freedom of entrepreneurial activity" dated 25 May 2000, No. 69-II with amendments dated 02 May 2012, No. 328.

2.4.2 World Bank rules and procedures for resettlement

As the project does not require involuntary resettlement, there is no need to trigger Operational policy of the World Bank on involuntary resettlement OP 4.12.

3. BASELINE ANALYSIS

3.1 Project Geographical location and administrative structure

The Republic of Uzbekistan, one of the newly independent states of Central Asia, lies between the Syr Darya and Amu Darya Rivers. The total territory of the republic is 458,000 square km, of which agricultural lands constitute 272,000; in size it is second among the republics of Central Asia. Structurally, it consists of 12 Provinces and the Republic of Karakalpakstan: the provinces are Andijan, Bukhara, Jizzak, Kashkadarya, Navoi, Namangan, Samarkand, Syrdarya, Surkhandarya, Tashkent, Fergana, and Khorezm. The capital is Tashkent. Uzbekistan is located in the centre of the Region and is bordered on the northeast by the Republic of Kazakhstan, on the east and southeast by Kyrgyzstan, Tajikistan and Afghanistan and on the west by Turkmenistan. The natural features of Uzbekistan are varied and terrains include a mixture of large valleys, foothills and mountain regions. The northwest and the west of the Republic are desert, while the south and southwest consist of foothills and mountains.

Regions	Brief description
Tashkent region	Tashkent region is located in the northeast part of Uzbekistan between the western slopes of the mountain ridge Tien Shan and Syrdarya river. Total area of Tashkent region is 15 300 square kilometers. The climate is sharply continental, with mild wet winters, and hot dry summers. Population of the region makes 4 450 000 people and average population density is 147 people per 1 sq.km. The region consists of 15 administrative districts. The administrative center of the region is Tashkent with the population of more than 2 million. The region consists of 16 cities. The biggest cities - Angren, Almalyk, Akhangaran, Bekabad, Chirchiq, Yangiabad and Yangiyul. There are also 17 small cities and settlements. Tashkent region is rich with coal, copper, molybdenum, zinc, gold, silver, rare metals, etc.
Republic of Karakalpakstan	The Republic of Karakalpakstan is located in the Southwest part of Uzbekistan, occupies Northwest part of Kyzylkum Desert, and Amudarya delta. The total area of the republic - 165 600 sq.km. The climate is sharply continental, with very hot summer and cold winter without snow. The population of Karakalpakstan - 1,4 million people, mainly Uzbeks (32,8%) and Karakalpaks (32,1%). About 48% of the population live in the settlements while 52% live in the cities. Republic is divided into 15 administrative regions, 12 cities and 16 settlements. Administrative center of the Republic of Karakalpakstan - Nukus with the population of 236 700 people. Other main cities are Khojeyli, Kungrad and Chimboy.
Andijan region	Andijan region is located in east part of Fergana Valley. The area makes 4 200 sq.km. Climate is sharply continental with sharp differences in winter and summer temperatures. The population of the region makes 1 899 000 people; average population density is 499 people per sq.km. The region is divided into 14 administrative districts. The administrative center of the region is Andijan city with 303 000 inhabitants. Other main centers of the region are Asaka, Shakhrikhan, Khanabad, and Karasu. Natural resources of the region are oil, ozocerite and other mineral resources. For the present, 85 joint ventures are registered in the region.
Bukhara region	Bukhara region is located in southwest part of Uzbekistan. Kyzylkum desert occupies the most part of the territory. The total area of the region makes 39 400 sq.km. Climate of the region is sharply continental,

	dry. The population of Bukhara region makes 1 384 700 people, about 68% of the population live in the settlements while 32% - in the cities. The region is divided into 11 administrative districts. The administrative center of the region is Bukhara city with the population of 263 400 people. Other important cities are Gijduvan, Romitan and Kagan.
Jizzak region	Jizzak region is in the central part of the Republic of Uzbekistan. Total area makes 20 500 sq.km. The climate is sharply continental, with dry hot summer, and relatively mild winter. The population makes 910 500 people, and average density is 108 people per sq.km. The region is divided into 11 administrative districts. Jizzak city is the administrative center of the region. The population of the capital makes 127 200 inhabitants. Other important cities are Gagarin, Galliaral, Pakhtakor, Dustlik and Marjanbulok. In Jizzak region 34 joint ventures are established. The region is mainly agrarian. The most important products are cotton and wheat. Tens of thousands of hectares of uncultivated lands will be used for agricultural purposes.
Fergana region	Fergana region is located in the southern part of Fergana Valley. Total area makes 6 800 sq.km. The climate is sharply continental, with mild winter and very hot summer. The population of Fergana region - 2 597 000 people. About 70,7% of the population live in rural areas. The region is divided into 15 administrative districts. Administrative center - Fergana city with the population of 214 000 people. Other main cities are Kokand, Kuva, Kuvasay, Margilan and Rishtan.
Kashkadarya region	Kashkadarya region is in the southern part of Uzbekistan. Kashkadarya region is located in Kashkadarya river basin on the western slope of Pamir, the Alay mountains. The area of the region is 28 400 sq.km. The climate is continental, dry, in some places - subtropical. The population of the region makes 2 029 000 people, more than 73% live outside the city. Kashkadarya region is divided into 14 administrative districts, with the center in Qarshi city. The population of the city makes 177 000 people. Other main cities are Shakhrisabz, Kitab, Kasan, Mubarak, Yakkabog, Guzar and Kamashi.
Khorezm region	Khorezm region is located in the northwest of Uzbekistan. Total area - 6 300 sq.km. The climate is continental, with cold winter and dry hot summer. The population of the region - 1 200 000 people, 80% of which live in the rural areas. The region is divided into 10 administrative districts, the main one is Urgench. The population of Urgench makes 135 000 people. Other large cities: Khiva and Juma.
Namangan region	Namangan region is in the northeast part of Fergana Valley. The territory of Namangan region is 7 900 sq.km. The climate is continental, with dry summer, and mild humid winter. The population of the region - 1 862 000 people, 62,3% of which live in the rural areas. The region is divided into 11 administrative districts. Namangan is the main city of the region with the population of 341 000 people, other large cities: Kasansay, Pap, Uchkurgan and Chust.
Navoi region	Navoi region is located in the southwest of Uzbekistan, in the middle of Kyzylkum Desert. The territory of the region is 110 800 sq.km. The climate is continental, dry. The population makes about 767 500 people, more than 59,4% live in the rural areas. The region is divided into 8 administrative districts. Navoi city is the administrative center with the population of 128 000 people. Other main cities: Uchkuduk and Zarafshan.
Samarkand region	Samarkand region is located in the center of Uzbekistan. The total area

	of Samarkand region is 16 400 sq.km. Climate is continental and dry. The population makes 2 322 000 people, more than 65% live in rural areas. The region consists of 16 administrative districts, population density - 149 people per 1 sq.km. The administrative center of the region is Samarkand city with the population of 368 000 people. Other main cities: Kattakurgan, Nurata, Urgut, Juma and Aktash.
Surkhandarya region	Surkhandarya region is located in the southern part of Uzbekistan, borders on Afghanistan. The total area of the region makes 20 800 sq.km. Climate is continental with mild winter and hot summer. The population of the region makes about 1 676 000 people with rural people (79,8%) living outside the city. The region consists of 14 administrative districts. Termez city is the administrative center. The population of Termez city - 95 000 people. Other main cities: Denau, Baysun, Sherabad, Shurchi and Sariosiyo.
Syrdarya region	Syrdarya region is located in the center of Uzbekistan on the left side of Syrdarya River. The total area of the region is 5 100 sq.km with continental climate and drought. The population of the region makes 648 100 people. Syrdarya region consists of 9 administrative districts with the center in Gulistan city. The population of Gulistan city makes 54 000. Other main cities: Bakht, Syrdarya, Shirin and Yangiyer.

3.2 Description of the project area

Soils. Diversity of soil forming rocks, ecological regimes, vegetation, extreme continental climate, and vastness of the territory contribute to great diversity and complexity of soil cover in the republic. The expansion of a particular soil type in Uzbekistan is attributed to natural-zonal features. Thus, on most plains with continental climate a desert type of soil prevails, while on contemporary river plains with their favourable soil moisture, there are as a rule hydromorphic soils - meadow-desert, meadow-swamp, swamp and solonchak soils. Of course, there are also numerous transitional forms of soil formation.

Topography. The geomorphology of Uzbekistan is varied: most of the country is occupied by vast plains of different relief and age, and the rest by mountains with heavily dissected relief. The mountain region is in the eastern and south-eastern parts and links with mountains in Kyrgyzstan and Tajikistan (the Tien Shan and the Altay Ranges) with hilly foothills and foothill slopes.

Climate. Uzbekistan's geographical position in the centre of a large land mass, far from oceans, contributes to the dryness and continentality of its climate. Intrinsic to its climate are long, dry hot summers, cool and wet autumns, and cold winters with thaws. The continentality of the climate can be readily seen in the considerable and sudden changes of meteorological elements during the year and variations by years, etc. The peculiarity of the climate is also shown by the contrast when one season changes to another: in the cold six months the air masses of temperate latitudes prevail, while in the summer period there is a dominance of warm continental tropical air. Having some features in common with the continental climates of neighbouring countries such as Iran and Afghanistan, Uzbekistan's climate has differences attributable to the peculiarities of relief; cold air masses of temperate and cold latitudes do not meet any obstacles to their penetration into its territory, while in the above-named countries air masses have to surmount a mountain barrier. In winter this contributes to a stronger influence of cold air masses on the republic's weather and the mountain barriers in the south and east ensure that these air masses are slow to move.

Agro-ecological zones. Agro-ecologically, Uzbekistan is divided into eight regions: Ustyurt, Low Amudarya and Kyzylkum regions in the plains, the other five regions, Middle Syrdarya, Fergana, Zarafshan, Kashkadarya and Surkhandarya, are in foothills and mountains.

Irrigated fodder. As already mentioned, dairy cattle are concentrated in the irrigated zone, mainly in the suburbs of large cities and industrial centres; whereas beef production is largely in the foothill and mountainous zones of rain fed cultivation and in the floodplain of the lower Amudarya. Sheep production (Karakuls for astrakhan pelts) is found in the arid zone, whereas meat and wool sheep and goat-rearing are found in the foothill and mountainous areas of Fergana Valley. Poultry and pig breeding is mainly concentrated near large cities and industrial centres.

Fodder for dairy stock is grown in irrigated areas. Dairy rations are composed of *Medicago sativa* for hay, haylage, green feed, *Zea mays* as silage, roots, as well as pulse crops (*Pisum sativa*, *Glycine hispida*, *Vicia* spp., *Vicia sativa*, as catch crops and repeated sowing. Intensive technologies for making *Medicago* hay (up to 15-18 t/ha), *Zea mays* for silage yielding up to 40-45 t/ha and *Beta vulgaris* yielding 80-100 t/ha, have been developed.

With considerable expansion of the cereal (wheat, barley) areas a decrease of the areas of the main fodder crops in irrigated areas has been observed. Now the required bulk fodder is provided by straw and other residues of cereals as well as coarse and rich fodder (barley, brassicas, oats, triticale and, in summer, sorghum) grown after harvesting cereals.

3.3 Social and economic situation

Population. Uzbekistan is the most densely populated country in Central Asia: the average population density is 67.9 people per km², which is significantly higher than in neighbouring countries (6 per km² in Kazakhstan, 59 per km² in Tajikistan). Ethnically, the population of Uzbekistan is comprised of Uzbeks (83.1 per cent), Russians (2.6 per cent), Tajiks (4.8 per cent), Kazakhs (2.6 per cent), Karakalpaks (2.2 per cent), Tatars (0.7 per cent), and other (4.0 per cent).

Demographic indicators of development of the regions of Uzbekistan by each region are given in the table below.

Considering the indicators of resident population, the area of the regions and population density, the most densely populated is the capital of Uzbekistan –Tashkent city (7099,6 people per 1 sq.m). Among the regions of Uzbekistan, the most densely populated regions are Andijan and Fergana regions. The least densely populated region is Navoi region (8,2 people per 1 sq.m).

Among the regions of Uzbekistan, the prevailing share of rural people (more than 60%) is typical for Bukhara, Samarkand, Surkhandarya and Khorezm regions.

The ratio of women and men in the regions of Uzbekistan varies slightly – within +/-1%. Therefore, practical equality of shares of men and women among resident population is observed in the regions of the republic.

Table 4 Demographic indicators of the development of the regions of Uzbekistan in 2015

Indicator	Republic of Uzbekistan	Republic of Karakalpakstan	Andijan region	Bukhara region	Jizzakh region	Kashkadarya region	Navoi region	Namangan region	Samarqand region	Surkhandarya region	Syrdarya region	Tashkent region	Fergana region	Khorezm region	Tashkent city
Total area of the region, thousand km ²															
Area of the region	448,97	166,59	4,3	40,32	21,12	28,57	110,99	7,44	16,77	20,10	4,28	15,25	6,76	6,05	0,34
Total number of resident population, thousand people															
Number of resident population	31022,5	1763,1	2857,3	1785,4	1250,1	2958,9	913,2	2554,2	3514,8	2358,3	777,1	2758,3	3444,9	1715,6	2371,3
Population density, number of citizens per 1 m ²															
Population density	69,1	10,6	664,5	44,3	58,9	103,6	8,2	343,3	209,6	117,3	181,6	180,9	509,6	283,6	7099,6
Gender characteristics of the population, thousand people															
Women	15470,3	879,6	1415,5	894,1	622,9	1467,4	450	1260,5	1753,2	1170,1	386,6	1381,3	1713,1	859,2	1216,8
Men	15552,2	883,5	1441,8	891,3	627,2	1491,5	463,2	1293,7	1761,6	1188,2	390,5	1377	1731,8	856,4	1154,5
Urban and rural population, thousand people															
Urban area	15748	873	1500	678,4	589,6	1274,5	448,5	1618,8	1337	845,2	336,6	1350,2	1965,9	559	2371,3
Rural area	15274,5	890,1	1357,3	1107	660,5	1684,4	464,7	935,4	2177,8	1513,1	440,5	1408,1	1479	1156	-

Average age of the population across the Uzbekistan made 28,1 years in 2015. At the same time average age of men (27,5 years) is lower, than average age of women (28,7 years) in the republic.

The population in Bukhara and Tashkent regions is characterized by average age of more than 29 years. The highest rates of average age of the population are typical for the population in Tashkent city.

Table 5 Average age of the population by regions, years, 2015

	Republic of Uzbekistan	Republic of Karakalpakstan	Andijan region	Bukhara region	Jizzakh region	Kashkadarya region	Navoi region	Namangan region	Samarkand region	Surkhandarya region	Syrdarya region	Tashkent region	Fergana region	Khorezm region	Tashkent city
Both genders	28,1	27,2	28,2	29	27	26,5	28,5	27,8	27,1	26,4	26,8	29,4	28,6	27,3	32,5
Women	28,7	27,7	28,7	29,5	27,7	27	28,9	28,2	27,8	26,8	27,4	30,2	29,2	27,9	34
Men	27,5	26,7	27,7	28,5	26,4	26,1	28,2	27,3	26,5	26	26,3	28,5	28	26,8	30,9

In 2015 economically active population of Uzbekistan made 44% of the total number of resident population of the country. Level of economic activity of the population makes 71,9%.

95% of economically active population are employed population. The share of unemployed population makes 5% across the whole republic.

Nearly a third of all economically occupied population of Uzbekistan is engaged in agriculture (27,7%)⁹. More than 10% of the occupied population refer to such sectors of economy as industry, trade and public catering, as well as science and education.

The most popular sectors of employment of women is health care and social security sector (71% of the occupied women) and sector of education, culture and science (more than 60% of the occupied women). The share of women in agriculture makes only 20%.

⁹ The share of women occupied in agriculture makes 45,5%, the share of men – 54,5% respectively. Statistical data do not allow to outline types of activity in agriculture where men and women are occupied.

Table 6 Indicators of economic activity of the population of Uzbekistan, 2015

Main indicators of labour market									
Economically active population (thousand people)	Level of economic activity of the population (%)	Average annual number of occupied in economy (thousand people)	Employment rate (%)	Unemployed population (thousand people)	Unemployment rate (%)	Economically inactive population (thousand people)	Economic inactivity rate (%)		
13767,7	71,9	13058,3	68,2	709,4	5,2	4508,4	23,5		
Number of employed population by sectors of economy, %									
Industry	Agriculture and forestry	Construction	Transport and communications	Trade and public catering, material and technical supply and sale, work materials	Housing and communal services, non-production types of domestic servicing of the population	Healthcare, physical training and social provision	Education, culture, arts, science and scientific servicing	Finances, credit, insurance	Other sectors
12,8	27,7	9,6	5,4	11,3	3,7	7,1	12,6	0,5	9,3
Share of women in total number of employees by sectors of economy, %									
Industry	Agriculture and forestry	Construction	Transport and communications	Trade and public catering, material and technical supply and sale, work materials	Housing and communal services, non-production types of domestic servicing of the population	Healthcare, physical training and social provision	Education, culture, arts, science and scientific servicing	Finances, credit, insurance	Other sectors
25,8	20,3	8,9	17,7	26	25,6	75	66,2	41	29,7

The average cumulative income per capita in Uzbekistan in 2015 made 3928,8 thousand UZS. The highest rates of cumulative income per capita in 2015 were the share of Tashkent city (the capital of the republic) and Navoi region (free economic zone which includes foreign enterprises).

Lower indicators of cumulative income relative to average indicator for the republic are typical for the population of the Republic of Karakalpakstan, Jizzakh and Namangan regions.

3.4 Agricultural and livestock sector

Livestock occupies a special place in the sustainable development of Uzbekistan's economy and improving living standards and food security. As a result of the new (2016) agricultural policy, 400,000 hectares of irrigated lands have been transferred to 2.5 million families as homestead lands, the cotton monoculture was limited, areas for grain crops were increased in the first years of independence. Farmers - the new enterprising class of owners – received the opportunity to fully meet the demand for grain, flour, meat, milk, fruits and vegetables, and thus have turned the importer of meat, grain and other products into the exporter.

In the last five years alone, the number of cattle increased by 21%, including cows - by 7%, sheep and goats - by 20%, poultry - 1.5 times. This is largely the result of the industry's transition to the private sector. Today, almost 95% of cattle are grown in private farms and farmer households. They produce 94.7% of meat, milk - 95.7%, 54.8% of eggs with the steady annual growth.

Nearly 52,000 heads of pedigree cattle have been imported in recent years. This has triggered the establishment of breeding farms that shape the future of the gene pool of the domestic livestock.

To date, the number of breeding farms has reached 412, and they currently raise 99,200 heads of livestock. In 2016, these farms produced more than 7,700 heads of cattle, which were sold to farms and private households. The cows at these farms produce five times more milk. The epizootic situation has been in spotlight. As part of preventive measures against dangerous diseases, the livestock farms were provided services exceeding ten billion soums last year, with a 25 percent growth (currency rates of CB RU from 10.07.2015 1\$= 2560.42 soums). Specialized companies produce 182 kinds of veterinary drugs, five of which have substituted the imported vaccines and diagnostic tools.

4. ASSESSMENT OF POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS¹⁰ AND PROPOSED MITIGATION MEASURES

The proposed project activities and in particular those under the Component 1 (upgrading/construction of veterinary analytical laboratories; improving the animal herd; purchasing of inputs and machinery for feed and fodder production; animal shelter improvement; silage production; agro-processing and milk collection and cooling equipment; etc.), and also within the Component 2 which will finance various subprojects in the field of livestock development might generate a series of various environmental and social impacts. These impacts would be associated with the following:

- a) increased pollution with wastes, noise, dust, and air pollution, health hazards and labor safety issues, etc., due to civil works;
- b) increased ground and surface waters pollution due to use of agro-chemicals and silage production;
- c) threats to human health and wildlife due to improper handling of treated seeds, fertilizers and pesticides, and due to inappropriate management and disposal of livestock vaccines and other medicines.

All of them are expected to be typical for small scale construction/rehabilitation works or for various agricultural production and livestock processing activities, temporary by nature and site specific and can be easily mitigated by applying best construction and/or agro- and livestock processing practices and relevant mitigation measures.

The project will generate also a great number of both direct and indirect positive impacts. Direct positive impacts will be generated by increased livestock production, which would result in creation of new jobs and respectively, and increased income. There will be generated also a series of beneficial environmental impacts associated with the reduced pressure on the pastures, improving veterinary waste management, better agro-chemicals usage, better silage production, improved farmer skills from training in technologies, seed breeding, etc. Indirect positive impacts will relate also to overall improving of business environment in rural areas, introduction of advanced dairy technologies and techniques, contribution to poverty reduction and food safety.

4.1 Involuntary resettlement issues

The project will not finance any activities that might trigger involuntary resettlement issues. The sources of land for project activities will include:

- (a) Farm's own land
- (b) Khokimiyat's reserve land fund;

Construction or rehabilitation of laboratories will take place on state-owned land and within existing floorplans.

Sub-projects submitted for a credit line will be screened to ensure they result in involuntary resettlement (see Annex 8). Hence the project will not support sub-projects on land that is acquired involuntarily or triggers the policy in any other way.

4.2 Risk for the socially vulnerable groups

¹⁰ Assessment of potential social impacts is provided in Chapter 7 of the present report.

The main risk for the socially vulnerable groups as the project beneficiaries is a difficulty of obtaining credit for the production development and reduction of the opportunity to directly participate in the project, accordingly. These groups are not solvent and cannot provide pledged assets for the credit. In many cases such HH do not own big land plots and have no possibility to purchase and breed cattle. The surety guarantees from the local government and neighborhood committees can be considered as a guarantee of solvency and obtaining the credit by the low-income family. However, risks of low solvency and other economic and agricultural risks of loss of income / profit may result in big losses of income and failure to pay the credit. Thus, the most effective impact of the project on socially vulnerable groups of the population is opportunity of getting job places.

The potential project impacts are summarized in the *Table 7* below while their detailed description – in the Annex 1. The table below provide also the proposed mitigation measures, which are based on the recognized international practices in the involved sectors. The whole range of necessary measures to mitigate adverse project impacts and/or to maximize the positive ones are presented in details in Annex 2.

Table 7 Environmental impacts and proposed mitigation measures

Proposed activities	Expected environmental and social impacts (positive and adverse)	Measures to prevent/mitigate negative impacts
1	2	3
1. Purchasing seeds, other inputs, equipment	<p><u>Positive</u>. Better seed breeding, reduction pressure on pastures; increased agricultural production; increased rural income; improvement of rural economy; contribution to country's food security, etc.</p> <p><u>Adverse</u>. Threats to human health and wildlife due to improper handling of treated seeds, fertilizers and pesticides; risk for introduction of genetically modified plant seeds: transfer of introduced genes to other species (possibly weedy or invasive), unanticipated impact on beneficial insects, or increased pest resistance.</p> <p>Another concern related to the introduction or export of plants and plant products is the potential for introduction of pests. Consequences can be genetic drift into other areas where GMOs are not wanted.</p>	<ul style="list-style-type: none"> ❖ Use certified crop seeds that do not contain seeds from invasive alien species; ❖ The introduction of GMO crops should be assessed for compliance with the existing host country regulatory framework for such introductions; ❖ Proper storage of seeds.
2. Climate Smart Agriculture Technologies (droughts, frosts, floods) (frost busters; water condensation techniques; production ventures	Positive: Improving biodiversity and ensuring sustainable use of natural resources; increasing soil fertility and productivity of agricultural and pasture lands; reducing fragmentation and vulnerability of local ecosystems; preventing and combating desertification and natural disasters	<ul style="list-style-type: none"> ❖ Provide trainings to farmers on good agricultural practices and techniques; organize promotional events, field sessions, demo plots etc.

of perennial grass seed; energy-smart technology investment)		
3. On-farm water-harvesting structure	<p><u>Positive:</u> Adaptation and reducing of vulnerability of farms; minimizing, combating and preventing water-deficit risks; promotion of good practices and benefits of on-farm water harvesting and water saving</p> <p>Advers impacts: Increasing risk of water logging in places of storage reservoirs; health hazards and labor safety issues during the civil works</p>	❖ Prepare proper technical design; select and install adequate equipment; implement good maintenance practices; ensure rational use of water resources
4. Conservation agriculture technology for fodder production to address soil erosion and drought impacts in perennial plantations; restoration of degraded soils through integrated soil fertility management (ISFM); and equipment for no-till conservative agriculture	<p><u>Positive:</u> Improving biodiversity and ensuring sustainable use of soils; increasing soil fertility and productivity of agricultural lands; reducing fragmentation and vulnerability of local ecosystems; reducing soil erosion risks; saving energy and labor costs</p> <p>Adverse: Increased dependence on herbicides; slow soil warming on poorly drained soils; increased moisture levels in the soil may lead to an increased risk of fungal crop diseases; risk of pollution of soils and waters due to increased use of farm chemicals</p>	❖ Provide trainings to farmers on no-till techniques and good agricultural practices, incl. IPM; ensure soil quality monitoring; implementing best IPM techniques and minimizing use of chemicals; proper handling of farm chemicals and fertilizers if any
5. Demonstration farms/household high quality fodder production, hay	<u>Positive:</u> Reduced pressure on pastures, introduction of advances agricultural techniques, increased mammalian livestock production; creating new jobs, contribution to ensuring of food security, contribution to poverty reduction in rural area	❖ Introduction of advances agricultural techniques for fodder production and hay preparation, feeding practices; ❖ Proper storage of hay and fodder.

preparation, feeding practices	<p>and generally, to improvement of socio-economic conditions in rural areas, etc.</p> <p><u>Adverse.</u> increased ground and surface waters pollution due to improper use of agro-chemicals</p>	
6. Establishment of sites for silage production	<p><u>Positive.</u> Better silage production, introduction of advances agricultural techniques, increased mammalian livestock; creating new jobs, contribution to ensuring of food security, contribution to poverty reduction in rural area and generally, to improvement of socio-economic conditions in rural areas, etc.</p> <p><u>Adverse.</u> In the case the silage is located on uninsulated basis there is a possibility for soil and ground water contamination</p>	<p>To avoid the negative impact and to protect the soil and underground waters, it is extremely important to meet a few requirements:</p> <ul style="list-style-type: none"> (i) Proper Location of silos. Trenches/furrows for filling and storing silage must be built on areas protected from accumulation of precipitations, especially floods; (ii) Silos' sealing. The trenches must be well sealed, both its foundation as well as the walls, with concrete walls and/or thick polyethylene film; (iii) Proper renovation and cleaning of silos; <p>Additional more detailed instructions on management of sites for silage production can be seen in the text.</p>
7. Vaccinations of animals	<p><u>Positive.</u> Prevention of inadvertent spread of the animal diseases, better diseases control, less threats to human health and wildlife; improvement of animal health, reductions in livestock mortality and improved livestock performance; increased mammalian livestock production; contribution to ensuring of food security, contribution to poverty reduction in rural area and generally, to improvement of socio-economic conditions in rural areas, etc.</p> <p><u>Adverse.</u> Increased ground and surface waters pollution due to inappropriate management and disposal of livestock vaccines and other drugs</p>	<ul style="list-style-type: none"> ❖ Proper handling, application and storage of vaccines; ❖ Use of permitted approved vaccines and recommended application rates, scheduling and mode of application.
8. Use of insecticide/acaricide livestock dips	<p><u>Positive.</u> Reduced risk for human health and wildlife; improvement of animal health; prevention of inadvertent spread of the animal diseases, better diseases control; reductions in livestock mortality and improved livestock</p>	<ul style="list-style-type: none"> ❖ Proper handling, application and storage of insecticides/acaricides; ❖ Use of permitted/ approved insecticides/acaricides and recommended application rates, scheduling and mode of application.

	<p>performance; increased mammalian livestock production; contribution to ensuring of food security, contribution to poverty reduction in rural area and generally, to improvement of socio-economic conditions in rural areas, etc.</p> <p><u>Adverse.</u> Threats to human health and wildlife due to inappropriate management and disposal of livestock vaccines and other drugs</p>	
9. Upgrading the regional veterinary laboratories	<p><u>Positive.</u> Increased disease control, capacity building of veterinary services; reductions in livestock mortality and improved livestock performance.</p> <p><u>Adverse.</u> Increased pollution with wastes, noise, dust, and air pollution, health hazards and labor safety issues, etc., due to civil works.</p>	<ul style="list-style-type: none"> ❖ During interior demolition use debris-chutes above the first floor; ❖ Keep demolition debris in controlled area and spray with water mist to reduce debris dust; ❖ Suppress dust during pneumatic drilling/wall destruction by ongoing water spraying and/or installing dust screen enclosures at site; ❖ Keep surrounding environment (side-walks, roads) free of debris to minimize dust; ❖ There will be no open burning of construction / waste material at the site; ❖ There will be no excessive idling of construction vehicles at sites; ❖ Construction noise will be limited to restricted times agreed to in the permit; ❖ During operations the engine covers of generators, air compressors and other powered mechanical equipment should be closed, and equipment placed as far away from residential areas as possible; ❖ The site will establish appropriate erosion and sediment control measures such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers. ❖ Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities. ❖ Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers. ❖ Construction waste will be collected and disposed properly by licensed collectors

		<ul style="list-style-type: none"> ❖ The records of waste disposal will be maintained as proof for proper management as designed. ❖ Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos). ❖ Construction will take place within the existing floor plans or on the state-owned land. No private businesses, legal or illegal economic activity takes place on that land. There are no temporary or permanent residences on that land.
10. Veterinary laboratory operation - bio-safety and waste management	<p><u>Positive.</u> Improving veterinary waste management, contribution to ensuring of food security.</p> <p><u>Adverse.</u> Inadvertent spread of the animal diseases due to improper handling of samples, violation of analytical protocols and safety measures and etc.; improper management of waste generated in up-graded laboratory; lack of staff skills (qualifications) and etc.</p>	<ul style="list-style-type: none"> ❖ A complete and functioning laboratory bio-risk management system will help ensure that the laboratory is in compliance with applicable local, national, regional, and international standards and requirements for biosafety and laboratory biosecurity. ❖ Management of waste generated in upgraded laboratory facilities using existing national guidelines that are consistent with international good practice; ❖ Trainings for staff on advanced laboratory methods and etc.
11. Training of farmers in sound manure management, and animal husbandry practices	<p><u>Positive.</u> Improved farmer skills from training in technologies, manure management, introduction of new technologies & quality standards at enterprises, contribute to improvement of socio-economic conditions urban and rural areas, etc.</p>	No
12. Biogas production	<p><u>Positive.</u> Additional income may come through reduced purchases from electric and gas suppliers because of substitution of fossil fuels and sale of high quality fertilizer. Implementation of the project will promote production of on-farm energy, contribute to development of local infrastructure; improvement of human health due to reduced impact posed by inadequate handling of manure, increased employment due to creation of new jobs, increased income of local people due to selling of increased yields from improved soils. Additional</p>	<ul style="list-style-type: none"> ❖ To select properly location of facility: this should be quite close to the livestock farm where the waste is produced (it is an advantage if the waste from the pen can be washed out with water and then run with gravity directly into the inlet of the biodigester) but away from human quarters; ❖ A storage structure must also have sufficient capacity to ensure that manure can be stored long enough so that manure is not applied over the winter months; ❖ Proper location of manure storage and gas collection facilities (at a distant

	<p>income could be also possible through production and further sale of high quality fertilizer. Use of biogas can reduce also the consumption of natural gas, coal, propane, or power from commercial sources thereby reducing the running costs of operation of the power generation facility.</p> <p><u>Adverse.</u> Possible leakage of gas from the plant will be detrimental to human health and can also cause serious accidents. The most severe impacts on environment may arise from improperly maintained manure storage and processing facilities, and biogas system infrastructure.</p>	<p>from populated areas, human quarters, working areas, etc.);</p> <ul style="list-style-type: none"> ❖ To maximize the use of biogas, the plant should be leak-proof and there should not be escape of gas from any part of a biogas plant. Therefore, it is necessary to test the leakage of gas from the plant periodically by using various prescribed methods; ❖ Planting of greenery around the plant, if appropriate (rapidly-growing pyramidal poplar which are good air pollutants capturers can be used as main absorber of air pollutants); ❖ Engineering controls should be implemented to minimize gas release risk; ❖ Gas leak monitoring equipment should be installed in the boiler house; ❖ Biogas pipelines should be inspected for leaks and corrosion regularly; ❖ Exhaust gas analyzer has to be properly maintained; ❖ Flow meters are to be appropriately maintained and regulated in accordance with national standards.
13. Use of pesticides and fertilizers for improving fodder production	<p><u>Positive.</u> Better agro-chemicals usage; improved soil quality, increased agricultural production; increased rural income; rural economy improved; contribution to country's food security, etc.</p> <p><u>Adverse.</u> Increased ground and surface waters pollution due to use of agro-chemicals; threats to human health and wildlife due to improper handling, application and storage of pesticides; Consumption of crops with high levels of pesticide residues; soil degradation/ Reduction in soil organic content.</p> <p>Soil contamination by residual pesticides in soil leads to loss of soil productivity; long term loss / altered soil micro-fauna important to soil / plant relationships.</p> <p>Loss of biodiversity due to pesticide ingestion by fauna and then loss of fauna.</p> <p>Ground and surface water contamination and therefore threats to health of local and downstream water consumers; increased health costs; lost work time; lost family income, damage to</p>	<p><u>For pesticides application</u></p> <ul style="list-style-type: none"> ❖ Proper handling and use of pesticides; ❖ Proper storage of pesticides; ❖ Use only approved pesticides; ❖ Sanitary measures (proper cleaning, washing, etc.) ❖ Use of approved pesticides and recommended application rates, scheduling and mode of application. <p><u>For Fertilizers application</u></p> <ul style="list-style-type: none"> ❖ Apply organic matter, such as manure, to replace chemical fertilizers to the extent practical; ❖ Incorporate manure into the soil or apply between growing crops to improve plant utilization of nutrients and thereby reduce nutrient loss, etc. ❖ Where feasible, use biofuels instead of fossil energy to reduce net GHG emissions; ❖ Adopt reduced tillage options to increase the carbon storage capacity of soils;

	<p>aquatic ecosystems, loss of biodiversity.</p> <p>Air pollution -emissions of greenhouse gases from chemical fertilizers which contribute to global warming resulting in climate change.</p> <p>Water pollution - nutrient enrichment of water bodies from fertilizer runoff leads to Eutrophication of water bodies.</p> <p>Modified aquatic ecosystems.</p>	<ul style="list-style-type: none"> ❖ Time the application of crop nutrients using meteorological information to avoid, where feasible, application during or close to precipitation events; ❖ Use appropriate technical equipment for spraying manure; ❖ Establish buffer zones, strips, or other “no-treatment” areas along water sources, rivers, streams, ponds, lakes, and ditches to act as a filter to catch potential runoff from the land; ❖ Develop application rates and best land husbandry and crop rotation plans; <p>Develop and implement the most appropriate to the area land and crop practices.</p>
14. Investments in improving the animal health and shelter	<p><u>Positive</u>. Fewer animals required for the same production volume and less pressure on pastures; improved quality of production and respective products for markets, including foreign ones; increased farm incomes; improved rural economic situation, etc.; increased production in milk production due to animal health improvement, which would result in creation of new jobs and respectively, and increased income. Indirect positive impacts will relate to overall improving of business environment, contribution to poverty reduction and food safety</p> <p><u>Adverse</u>. Potential expansion of livestock and inadequate manure management</p>	<ul style="list-style-type: none"> ❖ Prevent animals' access to surface water bodies using fences, buffer strips or other physical barriers; ❖ Prevent overgrazing of pastureland through use of: <ul style="list-style-type: none"> • Rotational grazing systems based on seasonal and local ecosystem resilience (e.g. riparian zones); • through properly evaluated pasture capacities, which are from 0,3 conv. cattle capita per ha on degraded lands to 1,5 conv. cattle capita on good lands; ❖ Use of stabling; ❖ Not to pasture in early spring and late autumn; ❖ Use of livestock trails to reduce soil trampling and gully formation; ❖ Ensure minimum disturbance to surrounding areas when managing livestock; ❖ Control farm animals, equipment, personnel, and wild or domestic animals entering the facility; ❖ Vehicles that go from farm to farm should be subject to special precautions such as limiting their operation, etc. ❖ Sanitize animal housing areas; ❖ Identify and segregate sick animals and develop procedures for adequate removal and disposal of dead animals.
15. Poultry	<p><u>Positive</u>. Poultry farming is the most available and profitable sector of livestock production. Benefits of house poultry farming: good results on the end product; low expenses on</p>	<p><i>Accumulation and storage of brood</i></p> <ul style="list-style-type: none"> ❖ To equip brood collector and structures for storage of the brood (such as: pits under the cages with poultry, tanks, open places for storage of brood)

	<p>keeping and breeding of hens in comparison with, for example, cattle breeding; opportunity to maintain and control reproduction of poultry population; relatively low costs of manual work. Poultry keeping does not require big investments. As a rule, the farmer can build the structures for poultry himself. Poultry eats all types of grain crops, some plants, vegetables and fruit.</p> <p><u>Adverse.</u> Nutrients and trace elements in animal manure can accumulate in the soil and become toxic to plants. Poultry facilities are a source of odour and attract flies, rodents and other pests that create local nuisances and carry disease. Odour emissions from poultry farms adversely affect the life of people living in the vicinity. Poultry slaughterhouses release large amounts of waste into the environment, polluting land and surface waters as well as posing a serious human-health risk. The most significant environmental issue resulting from slaughterhouse operations is the discharge of wastewater into the environment.</p>	<p>with waterproof layer (concrete floor and walls, cement coating) for prevention of pollution of the ground and surface waters.</p> <ul style="list-style-type: none"> ❖ To place dry brood in the places with cement coating under the canopy, or to keep covered ❖ Not to apply the brood as fertilizers at the distance less than 10 m from the watercourse, and in the radius of 50 m from water intaking wells <p><i>Carcasses of poultry</i></p> <ul style="list-style-type: none"> ❖ Reduction of death rate of poultry due to the correct keeping and prevention of diseases, including observance of technology of feeding, consideration of nutritiousness of high quality forages, periodical ventilation of the premises where poultry is kept, for reduction of the content of ammonia in the air, maintenance of optimum humidity in the hen house, timely cleaning, regular disinfection of places of poultry keeping, etc. ❖ In cases of lack of the authorized places for disposal of carcasses of poultry, it is possible to use the waterproof concrete burial grounds established near the entity in places with the lowest risk of floods ❖ Smells, ammonia, dust ❖ To ventilate regularly the internal premises ❖ To apply regularly water dispersion ❖ Use of the medicines neutralizing ammonia smell.
16. Purchasing of inputs and machinery for feed and fodder production	<p><u>Positive.</u> Introduction of new technologies & quality standards at enterprises, use of advanced machinery & equipment, providing additional value to produced agricultural production, providing more food thus ensuring country's food safely; creating new jobs and increased incomes, contribute to improvement of socio-economic conditions urban and rural areas, etc. Reduced labor burden for rural employees; improved farms' efficiency; increased production volume, improved soil preparation, improved rural economic conditions, etc.; reduction of transportation costs and fuel consumption,</p>	<ul style="list-style-type: none"> ❖ Good practices to be carried out by equipment operators; ❖ Awareness to operators to refuel under safe conditions; ❖ Agricultural machinery should be kept in good conditions; ❖ Fuels and lubricants are to be stored and handled in devoted areas, etc. ❖ To ensure that all machinery engines are efficient and well maintained; ❖ Tillage on the contour; ❖ Ensure equipment of a size that suitable for soil conditions.

	<p>etc.</p> <p><u>Adverse.</u> Soil and water pollution due to contamination from machine fuels and lubricants and then loss of soil productivity, decrease of crop production and deterioration of potable water quality;</p> <p>Air pollution due to CO₂ releases which contribute to greenhouse gasses and global warming.</p> <p>Soil erosion because of tillage against the contour and causing increasing of surface runoff and contributing to increased surface water bodies alluviation, reduced soil percolation capacity, etc.</p> <p>Soil compaction due to use of heavy machinery and leading to soil erosion and alluviation of water bodies, poor water permeability of the soil profile/ decrease of soil moisture, etc.</p>	
17. Fishery (only within internal water reservoirs and courses)	<p><u>Positive.</u> Fish-breeding industry (aquaculture) produces healthy food for the consumer providing supply of the products in the region.</p> <p><u>Adverse.</u> Threats to biodiversity are mainly associated with conversion of natural habitats during construction; potential release of alien species into the natural environment during operations; potential loss of genetic resources due to collection of larvae, fry, or juveniles for aquaculture production; potential release of artificially propagated seed into the wild (e.g. there are more farmed than wild Atlantic salmon in existence); sustainability of fish meal and fish oil ingredients for fish and crustacean feeds; and development of antibiotic resistance in pathogenic bacteria that can then spread from farms to wild</p>	<ul style="list-style-type: none"> ❖ Vaccination should be adopted where possible as a way of limiting the use of antibiotics; ❖ Where appropriate, aquaculture facilities should fallow sites on an annual basis as part of a strategy to manage pathogens in pen production units. The minimum fallow period should be four weeks at the end of each cycle; ❖ Facilities involved in aquaculture production should use a veterinary service on a frequent basis to review and assess the health of the stock and employees' competence and training. ❖ Correct storage and processing of wastes are part of the process of environmental protection; ❖ If necessary, for reduction of dust from forages in water their sifting before feeding is recommended. In addition, reduction of forage losses during the feeding requires observance of the following conditions: keeping of feeding regimen depending on the body weight and water temperature,

	stock.	<p>correct choice of the place for cages, use of modern feeding troughs and technology of forage distribution, observance of the rules of forages storage;</p> <ul style="list-style-type: none"> ❖ To avoid accumulation of bottom deposits under the cages it is possible to provide annual re-location of cage modules within the allocated water area; ❖ Control of the quality of water environment around productive activity of cage farms should be performed by seasonal sampling of water at cages in 500-meter line and the analysis of these samples at the licensed laboratory; ❖ Bottom silt should be placed in such places where it will not flow down to water body and will not harm ground waters. Various reservoirs and pools can be such places of temporary storage; ❖ Avoid using chemicals for harvesting fish; ❖ Make sure no pollution on ground surface water is caused nor sewage discharges into farmland or fishpond directly.
18. Silk Production	<p><u>Positive.</u> The positive impacts of sericulture are the reduction of salinity, the prevention of wind and water erosion and the improvement of air and water quality resulting from the planting of mulberry trees.</p> <p><u>Adverse.</u> The major environmental concerns in silk production are the chemical fertilizers and pesticides for the cultivation of mulberry trees, pollution generated by the waste-water released by the degumming process, increased water consumption in the silk fibre production process and land consumption for the plantation of mulberry trees.</p>	<ul style="list-style-type: none"> ❖ Disinfection and frequent change of water of the bathtubs used when winding grege (raw silk), will prevent diseases of tonsillitis; ❖ Control of such parameters as temperature, humidity and ventilation is extremely important at each stage of silk production process. ❖ Decrease in water temperature of the bathtubs applied when winding raw silk, can be an effective factor of reduction of incidence of dermatitis; ❖ Water in bathtubs should often be changed, the exhaust ventilation of premises is also preferable. To the maximum possible extent, it is necessary to avoid direct contact of skin with raw silk submerged into the bathtubs used when winding grege.
19. Purchasing of livestock processing and milk collection and cooling equipment and associated small	<p><u>Positive.</u> Increased meat and dairy production, which would result in creation of new jobs and increased income; introduction of advanced dairy technologies and techniques, contribution to poverty reduction and food safety.</p> <p>Introduction of new technologies & quality standards at</p>	<p>To prevent contamination of wastewater:</p> <ul style="list-style-type: none"> ❖ Avoid meat, milk and their by-product losses; ❖ Install grids to reduce or avoid the introduction of solid materials into the wastewater drainage system; ❖ Adopt best-practice methods for facility cleaning systems, using approved

<p>scale construction and rehabilitation activities</p>	<p>enterprises, use of advanced machinery & equipment, providing additional value to produced agricultural production, creating new jobs and increased incomes, contribute to improvement of socio-economic conditions urban and rural areas, etc.</p> <p>Reduced labor burden for rural employees; improved farms' efficiency; increased production volume.</p> <p><u>Adverse.</u> Increased ground and surface waters pollution due to use of chemicals; increased concentrations of pollutants in wastewater effluents and emissions to air, mostly dust and odor, emissions to air (dust/ particulate matter, often toxic substances), acoustic, vibration, water and energy consumption.</p>	<p>chemicals and / or detergents with minimal environmental impact and compatibility with subsequent wastewater treatment processes;</p> <ul style="list-style-type: none"> ❖ Where possible and subject to sanitary requirements, segregate solid process waste and non-conforming products; ❖ Optimize product filling and packaging equipment to avoid product- and packaging-material waste; ❖ Optimize the design of packaging material to reduce the volume of waste; ❖ Plastic waste from packaging cuttings can be reused, or should be sorted as plastic waste for off-site recycling or disposal, etc. ❖ Installation of exhaust ventilation equipped with dry powder retention systems (e.g. cyclones or bag filters); ❖ Ensure wastewater treatment facilities are properly designed and maintained for the anticipated wastewater load; ❖ Keep all working and storage areas clean; ❖ Empty and clean the fat trap frequently (e.g. daily emptying and weekly cleaning); ❖ Minimize stock of waste and by-products and store for short periods in cold, closed, and well-ventilated rooms; ❖ Reduce heat loss by: Using continuous, instead of batch, pasteurizers; Partially homogenizing milk to reduce the size of heat exchangers; Improve cooling efficiency; <ol style="list-style-type: none"> 1. During interior demolition use debris-chutes above the first floor 2. Keep demolition debris in controlled area and spray with water mist to reduce debris dust 3. Suppress dust during pneumatic drilling/wall destruction by ongoing water spraying and/or installing dust screen enclosures at site 4. Keep surrounding environment (sidewalks, roads) free of debris to minimize dust 5. There will be no open burning of construction / waste material at the site 6. There will be no excessive idling of construction vehicles at sites 7. Construction noise will be limited to restricted times agreed to in the permit 8. During operations the engine covers of generators, air compressors and
---	---	--

	<p>During construction/reconstruction activities, the main negative impacts are generated during construction phase and relate to soil erosion, soil and water pollution through waste generation, air pollution, acoustic and aesthetics and asbestos issues; inappropriate handling of asbestos might be a real health concern for the construction workers, and the general public in the vicinity of the rehabilitated premises in particular when it is inhaled; Labor and safety impacts due to various accidents; health impacts in the case of the usage of noxious/toxic solvents and glues and of lead-based paints and etc.</p>	<p>other powered mechanical equipment should be closed, and equipment placed as far away from residential areas as possible</p> <p>9. The site will establish appropriate erosion and sediment control measures such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers.</p> <p>10. Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities.</p> <p>11. Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers.</p> <p>12. Construction waste will be collected and disposed properly by licensed collectors</p> <p>13. The records of waste disposal will be maintained as proof for proper management as designed.</p> <p>14. Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos)</p>
20. Beekeeping	<p>Frequent treatments with acaricide medicines applied by beekeepers do not lead to full release of bee families from varroa tick, but only reduce its number. Increase in number of medical treatments increases cost value and pollutes bee production, reduces considerably life expectancy, hampers development of bee families, as well as causes death of queens.</p> <p>In most cases, use of chemical means against diseases of bees causes pollution of products of beekeeping. The special danger for human's health is constituted by residuals of chemical medicines which got to honey at treatment.</p> <p>Sharp decrease in the immune status of bees along with environmental trouble of apiaries, mass use of pesticides leads to spread of diseases in various combinations which were found in single cases before.</p> <p>For receiving of environmentally friendly products and increase in immunity of bees it is necessary to introduce more widely non-medicamentous and zootechnic methods of prevention and</p>	<ul style="list-style-type: none"> ❖ To place families only in the environmentally friendly territories; ❖ Apiaries and points should be located at the distance of 3-10 km from regional highways, industrial enterprises, mines and other sources of pollution, farther than the danger area bees can reach, as well as farther than those places where soils can accumulate toxic substances for a long period of time; ❖ At placement of apiaries to consider specific and quantitative structure of the melliferous plants capable to accumulate pollutants, including big massifs of such melliferous plants as local sources of pollution; ❖ To limit honey flow time in environmentally polluted territories; ❖ Timely stop honey flow – till mass blossoming of melliferous plants capable to accumulate pollutants; ❖ To place bee families for the autumn supporting honey flow only in environmentally friendly territories; ❖ To control quality and environmental condition of carbohydrate and protein feeds for wintering of families, presence of honeydew and pollutants there, especially at location of apiary in ecologically adverse conditions;

	<p>treatment of diseases. Observing hygiene at their keeping, as well as good honey flow increases resistance of these insects to diseases.</p>	<ul style="list-style-type: none"> ❖ If necessary, to provide families with environmentally friendly protein and carbohydrate feeds for wintering, having replaced the polluted ones.
<p>21. Renewable energy / solar panels</p>	<p><u>Positive</u>. Electricity generated from renewable energy sources has a smaller environmental footprint than power from fossil-fuel sources, which is arguably the major impetus for moving away from fossil fuels to renewables. Concerning the environment, the use of Solar energy technologies (SETs) has additional positive implications such as: (i) reduction of the emissions of the greenhouse gases (mainly CO₂, NO_x) and prevention of toxic gas emissions (SO₂, particulates); (ii) reclamation of degraded land; (iii) reduction of the required transmission lines of the electricity grids; and (iv) improvement of the quality of water resources.</p> <p><u>Adverse</u>. The impacts and the modification on the landscape are likely to come up during construction stage, by activities such as earth movements and by transport movements. Emissions into soil and groundwater may be caused by inadequate storage of materials. In large-scale plants a release of these hazardous materials is likely to occur as a result of abnormal plant operations, damaged modules or fire and therefore to pose a small risk to public and occupational health. The increased potential danger of electrocution from the direct current produced by systems, needs to be taken into account especially by untrained users.</p>	<ul style="list-style-type: none"> ❖ Care and attention during the planning, construction and operation phases can minimize the effects on vegetation, soil and habitat. ❖ By siting and installation of the ST systems on existing roofs to minimize visual impacts, as the glare from solar panel glazing. This can be ameliorated by allowing architectural integration into already existing or new buildings with minimum or even positive visual impact. It is also recommended to avoid the siting of solar panels on buildings of historic interest or in conservation areas. ❖ In the case of large-scale systems predevelopment assessments can diminish the loss of habitat and cause changes to the ecosystem and visual intrusion. Sites of significant natural beauty are avoided in order to mitigate visual and ecological intrusion. ❖ Accidental discharges and leakages of used chemicals can be avoided by good working practice and by using appropriate equipment during installation and maintenance. Recycling of the used chemicals and appropriate disposal of the chemicals is expected to minimize indirect environmental impacts. ❖ Effect on building can be avoided by safety systems installed in the buildings, as well as by good working practice (e.g. protection from water leakages).

5. ENVIRONMENTAL GUIDELINES

The purpose of the ESMF is to assist the PFI loan officers, RRA staff, sub-borrowers as well as environmental specialists in determining the potential environmental impacts of sub-projects and specific conditions to each of the sub-project loans to ensure that potential impacts are minimized, if not entirely avoided. The Guidelines provide the anticipated sub-project activities and the impacts that they may have on environmental components as well as mitigation measures to be undertaken to minimize or even prevent impacts on environment. In particular, the PFIs loan officers and RRA will use the sets of forms presented in the *Annex 5*, which will assist them in determining of environmental impacts that can be expected from different types of projects in various sectors. Knowing the impacts to be expected from various types of subprojects, the loan officer as well as the subproject designer/beneficiary can define the mitigation measures required as a condition for the loan. These Guidelines may be also used for the purpose of environmental monitoring of sub-projects. Since these are only guidelines and the information contained within is generalized, in some instances, the officers would be advised to seek local professional opinion (e.g. agricultural extension staff, research officers, environmental inspectors, etc.) for more specific information and advices.

5.1. Rules and Procedures for Credit Sub-projects Environmental Screening and Review

5.1.1. Each sub-loan/lease proposal will undergo an environmental review procedure, as follows:

EA stages. Taking into account the EA requirements specified in the National Legislation, as well as the WB OPs, the EA process for selected sub-projects would involve three steps: (a) based on the preliminary project description prepare the Statement of the draft Environmental Impacts which should be presented to the SEE for its review and approval; (b) based on the detailed project design prepare the ESMP for the project implementation phase (the description of the ESMP is presented below); and (c) once the project has been implemented and before its commissioning – prepare the Statement on Environmental Consequences.

Draft Statement of Environmental Impacts. This document should be prepared by sub-project beneficiary and/or by a consultant hired on its behalf. It should specify a large spectrum of environmental and social issues, based on the technical and economic substantiation of the sub-project and in particular the following: (a) environmental, social and economic baseline; (b) situational plan showing existing recreational areas, settlements, irrigation, reclamation facilities, farmland, power lines, transport communications, water, gas pipelines and other information about the area; (c) description of project activities and used technologies; (d) expected emissions, discharges, wastes, their negative impact on the environment and ways of neutralization; (e) warehousing, storage and disposal of wastes; (f) analysis of the alternatives of the proposed or existing activity and technological solutions from the perspective of environmental protection, taking into account the achievements of science, technology and best practices; (g) organizational, technical, technological solutions and activities, excluding the negative environmental impacts and mitigating the impact of the expertising object on the environment; (j) analysis of emergency situations; and (i) forecast environmental changes and environmental impacts as a result of the implementation of the expertising object. The document has to be reviewed and approved by the oblast SEE which confirms the project Category and specifies the main issues on what the project beneficiary has to be focused during the next steps of the EA process.

The role of different involved parties in the ESA pprocess:

-*Credit applicants* (within the Component 2) and *beneficiaries of the project activities* (within the Component 1): complete the form (*Annex 5; Form 1*) to identify possible environmental impacts of proposed activities, as well as identify and agree on mitigation measures to be undertaken. In

completing these form, the credit applicants/project activities beneficiaries will use the info presented in the Statement of the draft Environmental Impacts. They are also responsible for obtaining appropriate permits and approvals that may be required for the particular type of activity to be financed, and are issued by the local authorities responsible for environmental issues. Per the results of environmental screening and in the case the subproject is qualified as category B, ensures an EIA is conducted and an ESMP is prepared which include a monitoring plan.

- *PFI*s: conduct screening of applications on subprojects including for environmental impacts, ensuring required permits and approvals have been obtained. The loan officer request, when needed, RRA to carry out field site visits for on site environmental screening (specifically, for sub-projects classified as category B) or conduct himself it, to verify the environmental and social data provided by applicants, assist in identification of mitigation measures, and confirm that the environmental category is appropriate and that the ESMP is adequate;

- *RRA*: review the quality of environmental screening of applications on the project activities, done by the PFIs, including the quality of the environmental impact assessment study, verifying necessary permissions and approvals, as well as monitor compliance of project activities with ESMP, including for subprojects financed PFI; provide advice to PFI on specific issues that may arise including EA/ESMP preparation and assistance to category B projects through site visits; monitor for cumulative impacts; provide training on environmental due diligence to PFIs; provide training and information on sustainable agricultural practices via advisory services component.

EA process. As specified above, the initial step in EA process is conducting by project activity and sobloans beneficiary an initial EA and preparing the draft statement of environmental and social impacts. This document along with the detailed subproject proposal is presented to the PFIs and/or to RRA. It is expected that the majority of project activities as well as credit sub-projects will fall into category B. The PFI (for component 2 sobloans) and RRA for project activities (under component 1) will screen each sub-project against the environmental checklist to define the environmental category of the sub-project, review the proposed mitigation measures, and ascertain that all required permits have been obtained and are valid. For sub-projects classified as Environmental Category B, the PFI Loan Officer and/or the RRA should visit the applicant and project site to ensure that all national requirements are met and conduct a simple EA and identify mitigation measures, and completing the field visit checklist (*Annex 5; Form 4*). When the PFIs and/or RRA visit reveals environmental and social risks, the applicant will hire a consultant to prepare a site specific EIA and ESMP. The cost of the EIA can be included in the subloan amount retroactively, if it has already been approved. A final approval of the EA will be issued by the RRA (*Annex 5; Form 3*). In some cases, the subprojects EA process requires also designing the Statement on Environmental Consequences, - see below.

Statement on Environmental Consequences. In some cases, (mostly when the subloan application is for building a new facility with environmental and social impacts, - livestock processing enterprise; construction of a veterinary laboratory; other cases specified in the Law on SEE) it is necessary to prepare such document. Per law requirements, the need for such document should be prescribed in the Statement of Draft of Environmental Impacts. In such cases, after commissioning and before the subproject operation the project beneficiary and/or on its behalf a hired consultant will prepare this document which should reflect the following issues: (a) correction of the design decisions and other taken measures on the consideration of the SEE decisions, as well as on the proposals made at the public hearings; (b) environmental regulations governing the subproject operation; (c) implementing arrangements for environmental protection measures and monitoring activities; (d) the implementation of measures for environmental guiding of the operation of the object; and (d) conclusions about the possibility of business activities. This document is submitted to the SEE for review and approval.

During the project implementation, the PFIs/RRA should ensure that the environmental mitigation measures are implemented. In the case of non-compliance, the PFIs (with assistance of RRA specialists, as needed) will investigate the nature and reason(s) for non-compliance,

and a decision is taken about what is needed to bring a sub-project into compliance, or whether financing should be suspended.

5.1.2. Subproject environmental screening and proposed EA instrument

Sub-project Categories: The following environmental categorization for potential types of activities and sub-projects is presented as follows:

Sub-projects assessed as Category A (high environmental risks) will be not financed under this project.

Usually the following projects are considered as having “significant” impacts and respectively 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,
- d) extraction, consumption, or conversion of substantial amounts of forest and other natural resources;
- e) measurable modification of hydrologic cycle;
- f) hazardous materials in more than incidental quantities;
- g) physical displacement of people and other significant social disturbances.

It is expected the supported sub projects will be not related to mentioned above circumstances and respectively will not have significant environmental impacts. In the case such projects will be presented for financing, they will be rejected.

There is 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).

Similarly, as above, the project will not support any projects located in the proximity of mentioned areas.

Sub-projects assessed as Category B, (with moderate environmental risks) may generate some environmental and social impacts which can be addressed by applying some mitigation measures. In some cases these projects would require a site specific EIA and a simple ESMP while in most cases – a simple ESMP, which should include monitoring activities. In the case of project that involve some impacts which are not significant and which can be mitigated by well known mitigation or avoidance measures or by applying best housekeeping and/or construction practices, it is recommended to apply an ESMP Checklist, - in particular for small scale construction and reconstruction activities.

In the case of subprojects which do not require civil works or which generally would not any environmental and social impacts the subproject will be qualified as *Category C* for which is not needed any further EA activities. The table below provides proposed project activities and suggests their environmental Category along with the EA that can be applied.

Table 8 Screening of categories for proposed types of sub-projects and suggested EA instrument

No	Project activity	Proposed Category	Remarks	Proposed EA instrument
1	Purchasing seeds, other inputs, equipment	C		No further actions after filling the Environmental Screening Checklist
2	Climate Smart Agriculture Technologies for fodder production (droughts, floods) (water condensation techniques; production ventures of perennial grass seed; energy-smart technology investment)	C	No civil works	No further actions after filling the Environmental Screening Checklist
3	On-farm water-harvesting structure	C	Excluding investments in construction of large water reservoirs (more than 500 m3)	No further actions after filling the Environmental Screening Checklist
4	Conservation agriculture technology for fodder production to address soil erosion and drought impacts in perennial plantations; restoration of degraded soils through integrated soil fertility management (ISFM); and equipment for no-till conservative agriculture	C	Excluding earthworks that would trigger the slopes stability. Each subproject on restoration of soils will be preliminary screened to avoid any environmental impacts.	No further actions after filling the Environmental Screening Checklist
5	Demonstration farms/household high quality fodder production, hay preparation, feeding practices	C		
6	Establishment of sites for silage production	C/B	In the case of large scale (for more than 50 animals) – the project should be qualified as Category B	Depending on environmental sensitivity of location and scale of project it might be used a simple EIA and ESMP (for a new location) and/or an ESMP or an ESMP Checklist
7	Vaccinations of animals	C	These activities do not require environmental assessment	
8	Use of insecticide/acaricide livestock dips	C	These activities do not require environmental assessment	Impacts mitigation will be done through special training.
9	Upgrading the regional veterinary laboratories	B/C	In the case no civil works or	ESMP Checklist/or no EA activities rather than Screening

			minor ones or only indoor, it is proposed the project will be category C	Checklist for simple Category C subprojects
10	Veterinary laboratory operation - bio-safety and waste management	C	These activities do not require environmental screening	No EA activities, - mitigation measures will include special training.
11.	Training of farmers in sound manure management, and animal husbandry practices	C		
12	Biogas production	B		Site specific EIA and ESMP
13	Use of pesticides and fertilizers for improving fodder production	C	No pesticides will be purchased under the project	Mitigation measures will include training and information dissemination activities
14	Investments in improving the animal heard and shelter	C/B	In the case of civil works for shelters construction	EMP Checklist
15	Poultry activities	C/B	In the case of involving civil works	ESMP Checklist
16	Purchasing of inputs and machinery for feed and fodder production	C		
17	Fish breeding (only within internal water reservoirs and courses)	C		
18	Silk Production	C	In the case of construction of facility for washing the silk – would be Category B	ESMP Checklist
19	Purchasing of livestock processing and milk collection and cooling equipment and associated small scale construction and rehabilitation activities	B		Depending on environmental sensivity of location and scale of project it might be used a simple EIA and ESMP and/or an EMP or an ESMP Checklist
20	Beekeeping	C	The only minor impacts might be due to use of acaricides	Mitigation measures will include training and information dissemination activities
21	Renewable energy/solar panels	B		ESMP Checklist

Based on the results of the screening, the environmental requirements for category B subprojects would be one of the following:

- a) simple Environmental and Social Management Plan for projects with minor impacts that are typical for different agricultural and/or livestock processing activities; ESMP Checklists - for small scale construction and reconstruction projects (the template for this document is presented in the Annex 5);
- b) simple EIA and ESMP for projects which are located in areas new natural habitats, as well as regular EA and ESMP, - for more complex projects. A sample for the TORs for an EIA and ESMP is presented in Annex 6.

EA for an existing enterprise. For expansion or where change of technology is proposed for existing facilities, an environmental audit may be required, and/or a simple environmental due diligence procedure, depending on the nature of the sub-project. Such procedure would include collecting and checking relevant information and documents regarding environmental performances of selected enterprise (see *Table below*).

Table 9 Environmental Eligibility Checklist for the Existing Enterprise and Screening Criteria for the Proposed Project

No.	Criteria	N/A	Yes	No	Comments
1	Does the enterprise have a valid operating permit, licenses, approvals etc.?				If no, (a) all required licenses/ permits/ approvals etc. must be obtained prior to project approval, or (b) the project investment must include funds to obtain them
2	Does the enterprise meet all Uzbek environmental regulations regarding air emissions, water discharges and solid waste management?				If no, (a) the facility must take corrective measures to meet all environmental regulations prior to project approval, or (b) the investment must include funds to meet them.
3	If the enterprise has any significant outstanding environmental fees, fines or penalties or any other environmental liabilities (e.g. pending legal proceedings involving environmental issues etc.) will the investment be used to correct these liabilities?				If the enterprise has outstanding liabilities, it must take corrective measures to remove them prior to project approval.
4	If any complaints were raised by local affected groups or NGOs regarding conditions at the facility, will the investment be used to remedy these complaints?				If yes, the PFIs should examine the nature of the complaints and actions taken to address them. If there are significant unresolved complaints, the PFIs should consult with the WB regarding appropriate actions.

Rejection of sub-project: If the sub-project is rejected on environmental grounds after a site visit and review of the EA documents, an improved version of the EA documents may be submitted by the proponent, and re-appraised as above. Re-appraisal should be restricted to one improved proposal, and the proponent should not expect to make multiple applications on the basis of continuous marginal improvements to the scheme. Re-appraisal should be at the discretion of the PFIs, and consulted with the RRA.

5.2. Social Screening

In addition to environmental aspects, a “social screening” of the project area will be held at the completion of detailed project design documentation. The screening will be carried out by the Specialist on social issues and resettlement¹¹ in close cooperation with RRA, Design Institute, engineers and other relevant technical staff. Screening of the socio-economic impacts will be based on preliminary project design documentation.

Screening of the project area will include:

- Identification of the potential socio-economic impacts and risks (impact on land, residents, vulnerable groups, vulnerable farmers, women and children, and other issues);
- Identification of significant impacts;

Identification of appropriate mitigation measures. *The subprojects should be screened to ascertain that they will not cause any resettlement impact.*

Rejection of sub-project: If the sub-project is rejected on environmental grounds after a site visit and review of the EA documents, an improved version of the EA documents may be submitted by the proponent, and re-appraised as above. It will be rejected if it causes (i) any temporary or permanent economic impact; (ii) livelihood impact; (iii) restriction of access or requires temporary or permanent physical resettlement. Re-appraisal should be restricted to one improved proposal, and the proponent should not expect to make multiple applications on the basis of continuous marginal improvements to the scheme. Re-appraisal should be at the discretion of the PFI, and consulted with the RRA.

5.3. Preventive measures to minimize the negative social impact of the project.

There is a risk of the potential social impacts associated with the project implementation. In order to mitigate or minimize these potential negative social impacts on the residents, the project implementation should be carried out in accordance with the following principles:

- a. It is necessary to determine the project and sub-projects' beneficiaries by age, gender, vulnerability, and others social factors;
- b. It is necessary to minimize the implementation of project activities that may cause the need for a negative impact on the socio-economic conditions of life of the residents, damage to social infrastructure and social facilities, as well as access to them;
- c. Beneficiaries should have an opportunity to raise complaints in regards to the project implementation.

¹¹ToR and the scope of work for the specialists involved in the project will be prepared at a later stage of the project. This is due to the fact that at this stage there is no final project design documentation, which includes the scope of work undertaken to the specialists involved in the project implementation.

6. ENVIRONMENTAL AND SOCIAL SUPERVISION, MONITORING AND REPORTING

6.1. Basic requirements of environmental and social monitoring and reporting

Environmental and social monitoring during sub-projects implementation has to provide information about key environmental and social aspects of the sub-projects, particularly its environmental impacts, social consequences of impacts and the effectiveness of taken mitigation measures. Such information enables the implementing agency to evaluate the success of mitigation measures as part of project supervision, and allows corrective action(s) to be implemented in a timely manner, when needed. The ESMP identifies monitoring objectives and specifies the types of monitoring, and their link to impacts and mitigation measures along with specific description, and technical details of monitoring measures, including the parameters to be measured, methods to be used, frequency of measurements.

Monitoring objectives. During the sub-project's implementation, RRA would perform regular supervisions of the project sites to confirm compliance with ESMP requirements. Separately, World Bank experts will also carry out annual site specific visits to review compliance. In the case of non-compliance, the RRA would investigate the nature and reason(s) for non-compliance, and a decision would have to be made on what is needed to bring a sub-project into compliance, or whether financing should be suspended.

The reporting of progress of implementation of the ESMP would be the responsibility of the investment recipient and such reports would be submitted to RRA, as relevant bi-annually. Monitoring reports during project implementation would provide information about key environmental and social aspects¹² of the project activities, particularly on the environmental impacts and effectiveness of mitigation measures. Such information enables the client and the Bank to evaluate the success of mitigation as part of project supervision, and allows corrective action to be taken when needed.

Specifically, the monitoring section of the Investment ESMPs would provide:

- (a) details, of monitoring measures, including the parameters to be measured, methods to be used, sampling locations, frequency of measurements;
- (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 RRA will present short information about the ESMF 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.

6.2. Integration of the ESMF into project documents

The ESMF provisions would be used for the following:

- i. Inclusion of the ESMF requirements in the Project Operational Manual;
- ii. Inclusion of Environmental Guidelines in construction contracts for individual sub-projects, both into specifications and bills of quantities, and the Contractors will be required to include the cost in their financial bids;
- iii. Highlighting of ESMF follow-up responsibility within the Rural Restructuring Agency;
- iv. Specifying mitigation and avoidance measures during the implementation of the proposed activities;
- v. Monitoring and evaluation of mitigation/avoidance measures identified in the site-specific review and in the ESMPs. The necessary mitigating measures would constitute integral

¹²Impact on labour force, gender issues, impact on socially vulnerable groups of the population, living standards of the population, impact on land resources and other.

part of the subproject implementation including the contracts binding the contractors to carry out the environmental obligations during construction works.

All contractors will be required to use environmentally acceptable technical standards and procedures during carrying out of works. Additionally, contract clauses shall include requirements towards compliance with all national construction, health protection, safeguard procedures and rules as well as on environmental protection.

7. GRIEVANCE REDRESS MECHANISM

7.1 Grievance Redress Mechanism

The project will have a Grievance redress mechanism (GRM) for project beneficiaries and other interested parties to submit inquiries, grievances or compliments vis-à-vis various project activities as a way to mitigate various risks. The RRA will operate the GRM. A detailed description of the mechanism is included in Annex 9.

The designed Grievance redress mechanism is a process for receiving, evaluating, and addressing project-related complaints and applications from the affected communities at the level of the project.

The terms 'grievance' and 'complaint' are used interchangeably.

8 INSTITUTIONAL ISSUES AND IMPLEMENTATION ARRANGEMENTS

8.1 Major responsibilities with regard to project ESMF implementation.

Rural Restructuring Agency (RRA) will be responsible for project coordination, implementation, monitoring, reporting and management. RRA has prior extensive experience in implementing Bank-financed projects and will play the major role in implementing ESMF provisions, ensuring that appropriate EIA and where necessary ESMP will be prepared for each sub-project to be financed. RRA will be involved in the process of project implementation from the very beginning, at the project's appraisal stage. It evaluates project proposals to attribute them a confirm the WB Category type of Environmental Assessment to be conducted for project proposed by the PFIs reviews the set of documents prepared by PFIs and sub-borrowers (sub-projects' screening checklists as well as all necessary permits and clearances needed for project implementation) completes Environmental Screening Checklist and makes a final decision on project's financing. In case of non-compliance with presumed mitigation measures during project implementation, RRA can make a decision on suspending of funding.

The environmental assessment documentation for the first three Category B subprojects from the RRA and PFIs will be subject to prior review and approval by World Bank.

During sub-project appraisal RRA jointly with the PFIs will have to ensure that proposed sub-projects are in compliance with all environmental laws and standards of the RUz, as certified by the relevant local or national authorities of the Republic, and the Environmental Guidelines. All relevant documents and permits should be kept in each sub-borrower document file maintained by RRA.

The following institutional strengthening activities related to the environmental management and monitoring are recommended:

- ❖ strengthening the RRA capacity by hiring of an Environmental Specialist (ES);
- ❖ ESA training programme for RRA/PFIs;
- ❖ agriculture extension and awareness raising programme for key stakeholder groups including on ESA issues.

8.2 Major responsibilities of Environmental Specialist

Environmental Specialist (ES): The RRA will be obliged to hire an Environmental Specialist for the whole duration of the project (*Annex 7*). The Environmental Specialist will be responsible for environmental monitoring of the Project interventions and its impacts. The ES will be in charge of overall coordination and reporting on the ESMPs, inspection of environmental compliance at work sites, advising project participants on environmental issues, coordination the overall environmental monitoring at project level, and coordination of the agricultural extension programme. The ES will be responsible for assisting the PFIs in implementation of the project credit line, including reviewing ESMPs, monitoring their implementation, advising and guiding PFIs on specific environmental issues and management options and ensuring that cumulative impacts are addressed. The ES will also be responsible in identifying training needs of the PFIs, ensure that environmental requirements are integrated into bidding documents for physical investments, and analyzing contracts and application in terms of environmental management and mitigation issues. The ES will be responsible for periodically collecting information on changes and impact of the project activities. ES needs to study the environmental condition of the project area and identify main environmental parameters. The ES will be in charge of overall coordination and reporting on the ESMP, inspection of environmental compliance at worksites, advising project participants on environmental issues, coordination the overall environmental monitoring at project level, and coordination of the agricultural extension programme (detailed TOR for ES is given in *Annex 7*).

8.3 ESA capacity building

As part of the social and environmental capacity building that will be provided for implementation of WB-financed operations in RUz, relevant staff of RRA and implementing agencies/Consultants will receive training in the application of the ESMF. It is proposed to prepare specific materials, hold a workshop, and arrange site visits to other countries in the region on similar projects in progress to provide hands-on training to the RRA staff. During supervision of the project, the World Bank will assess the implementation of the ESMF, and if required, will recommend additional capacity building activities.

In order to ensure proper implementation of the various environmental activities (preventive actions, monitoring) recommended in this ESMF, the Livestock Sector Development Project will provide the necessary institutional strengthening to the RRA, as well as support public outreach on environmental management issues to the PFIs, farmers associations and their members. This institutional strengthening will comprise the delivery of technical assistance and training, as well as support for public outreach/awareness activities. Each of these activities is described below.

A training program targeting the RRA/PFIs, farmers and other stakeholders will be implemented in the framework of the Project's institutional component. In particular, it is proposed the PIU environmental specialist should have training course on ESA techniques and procedures. In terms of the PFIs, who will be responsible for assisting the sub-borrowers in preparing environmental screening form and identifying potential sub-projects environmental issues, and in approving ESA reports and ensuring their implementation, each participating PFI will designate an officer responsible for environmental aspects, review and approvals, who will be trained on environmental issues to designated further environmental assessment responsibilities.

In this regard, a special training program would be designed involving representatives from the PFIs. The training program should be practical and include work with realistic case studies, based on actual loan proposals and types of business activities supported by the Project. It should also cover an explanation and practical application of the environmental standards and forms designed for use by the participating financial institutions. The training will cover the following issues:

- (a) national (of Uzbekistan) and World Bank requirements for environmental assessment;
- (b) screening and scoping procedures including checklists of potential environmental impacts of the agricultural production and agro-processing activities;
- (c) main provisions of environmental and social management plans for proposed sub projects, including mitigation and monitoring requirements. Field studies also may be included. Such training will enable these target groups to recognize and assess potential negative environmental impacts and set of measures to mitigate them.

Training for sub-borrowers. Next the most critical group to be exposed to the importance of the environment concerns includes entrepreneurs from agricultural and agro and livestock processing sectors who will be receiving the loan, and whom should be provided advices on use better available techniques to prevent/mitigate impact and promote sustainable agriculture and agro- and livestock processing technologies.

Training for veterinary specialists on managing sector environmental and social impacts. Such training will include the following topics: environmental issues of project activities; prevention of spreading animal diseases; veterinary waste management in accordance with existing national guidelines; "International Best Practice in Safety of Research Laboratories" developed by the US National Institutes of Health; proper and safe handling and storage of contaminated materials; health protection and feeding of animals; issues of diagnostics, treatment and prevention of brucellosis, tuberculosis, echinococcosis, anthrax, foot-and-mouth disease, pox,

issues of appropriate disposal of carcasses of dead animals, etc. Veterinary specialists will pass labor safety training course.

Sound manure management. This training would include animal waste management systems involve the collection, transport, storage, treatment, and utilization to reduce migration of contaminants to surface water, groundwater, and air; internationally recognized guidance, such as that published by FAO, on land requirements for livestock production for livestock units (LU) per hectare (ha) to ensure the appropriate amount of land for manure deposition; feeding diets for livestock, measures to reduce methane generation and emission follow, other pollution preventive measures and etc.

Practicing large and/or small scale silage production and measures to ensure appropriate handling and disposal of the "silage liquor", preventing soil and ground water pollution. In the Republic of Uzbekistan there is a tradition of corn silage production, but only on a large scale. However, this technology could be applicable also to small-scale farmers and can significantly increase the capacity to feed animals compared to corn grain. Having the appropriate knowledge about the silage production techniques and the timing of their application is an important factor with significant implications on the capacity to feed animals. The training will also cover environmental concerns: if excessively humid corn is used to prepare silage, it can produce a toxic "silage liquor". Thus the training should produce a special guidebook and a training module to clearly explain that the correct level humidity of corn is essential to produce quality silage and avoid the risk of "silage liquor".

Promoting Integrated Pest Management in fodder production. Farmers should be trained on following items: adverse environmental impacts and risks of chemical pesticides; Principles of the Integrated Pest Management and alternative pest management strategies; pest control methods; IPM approaches and good management practices; apply pesticides according to planned procedures, while using the necessary protective clothing; what pesticides can be used; application, handling, usage and storage of pesticides; implementation of PMP plans as part of ESMPs. Relevant publications, booklets and instructions should be developed and published for further use. Demonstration plots will be applied.

Ensuring safe usage of acaricides for animals' health, including in the silk production and beeking. Farmers should be trained on following items: advanced technics of handlings, application and storage of acaricides; occupational health and safety issues; environmental risks and mitigation issues, etc. Relevant publications, booklets and instructions should be developed and published for further use.

Sustainable management of dairy-processing related environmental problems. Target group of trainees are farmers applied for sub-projects financing. Following items will be included from training and awareness activities: what occupational health and safety hazards related dairy-processing (Exposure to physical hazards; Exposure to chemical hazards; Exposure to biological agents; Confined spaces); recognizing of mentioned risks and typical mitigation measure, etc. Relevant publications, booklets and instructions should be developed and published for further use. Demonstration plots will be needed. Educational Center (NGO) located in project districts can be used for these purposes.

8.4 Requested Budget for ESMF Implementation

For the second component preparation stage, the funds to be spent for preparing subprojects Environmental Assessments, obtaining of necessary permits and other relevant activities are the responsibilities of sub-borrowers. They will depend on the nature of project proposal, its complexity, scale, etc. At the construction and operation stages, the funds to be spent for installations and other activities to ensure mitigation measures against the environmental impacts from proposed activities is also the responsibility of sub-borrowers. These funds will depend on particular techniques and technologies used for implementing mitigation measures as well as on their scale, number, variety and other factors.

At the same time, in order to ensure successful ESMF implementation, series of capacity

building activities are necessary for which the project has to provide adequate funding. Estimate budget for proposed capacity building activities and trainings is presented in the Table 12 below.

Indicate the RRA safeguards specialist will also have to review social aspects to minimize social risks, unless there is a different person assigned to do this role.

Table 10 Estimate budget for capacity building activities

Target Group	Purpose of Training	Number of Workshops/Activities	Costs of Workshop/Activity in USD
Environment Management			
RRA staff, and PFIs loan officers	To ensure that RRA and PFI loan officers are aware about importance of the environment and know how to recognize the impacts that various funded activities may have on the environment. They also will be trained on the subproject EA rules and procedures as well as on conducting environmental supervision and monitoring	2 workshops (YR1 and YR2)	5,000 USDx 2 workshops= 10,000 USD
RRA Environment Specialist	To provide RRA environmental specialist with knowledge on the screening of the projects, EIA process and EIA review/study tour	1 study tours (YR1 and YR4)	2,500 USD
Sub-borrowers/project beneficiaries	Environmental awareness and a practical exercise to observe and learn about sustainable agricultural practices and best available techniques and industry and agriculture	3 workshops (YR1,2 and YR3)	4,000 x 3 workshops = 12,000 USD
Integrated Pest Management in fodder production and safe use of acaricides, including in silk production and beeking			
Representatives of oblast and district agricultural departments; participating farmers (Sub-borrowers/project beneficiaries)	Pest characteristics applied for fodder production; control measures, including IPM approaches, involving agricultural, physical, biological, and chemical control methods	1X1 day workshop	4,000 USD
Representatives of oblast and district agricultural departments; participating farmers, Local environmental inspectors, participating farmers (Sub-borrowers/project beneficiaries)	Safety issues (for pest handling, transportation, usage and storage)	5X1 day workshop	5,000 USD = 25,000 USD
Representatives of oblast and rayon agricultural departments; participating farmers, Local environmental	Safety issues and sustainable use of acaricides in livestock practices	5X1 day workshop	5,000 USD = 25,000 USD

inspectors. Sub-borrowers/project beneficiaries			
Representatives of oblast and rayon agricultural departments; participating farmers, Local environmental inspectors, and participating farmers sub-borrowers	Safety issues and sustainable use of acaricides in silk production and beeking practices	5x1 day workshop	5,000 USD = 25,000 USD
Ensuring bio-safety and waste management and preventing inadvertent spread of the animal diseases			
Representatives of regional veterinary laboratories	Laboratory waste management by basing training and upgrades to laboratory infrastructure and equipment on "International Best Practice in Safety of Research Laboratories" developed by the US National Institutes of Health; use of PPE; Safe disposal of waste and contaminated materials; Treatment of hazard waste in accordance with regulations and administrative instructions and etc.	1x2 day training	6,000USD
Field demonstrations with improved pesticides usage and IPM technologies, silage preparation			
Representatives of oblast and rayon agricultural departments; participating farmers (Sub-borrowers/project beneficiaries)	Field demonstrations on Pest problems diagnosed and related IPM opportunities in fodder production, pest management practices, including agricultural, physical, biological and chemical control methods	1X1 day workshop	5,000 USD
Representatives of oblast and rayon agricultural departments; participating farmers (Sub-borrowers/project beneficiaries)	Field demonstrations on proper Silage preparation and pollution prevention measures	5X1 day workshop	10,000 USD
Public awareness related to livestock environmental issues			
Training			
Representatives of oblast and rayon agricultural departments; participating farmers (Sub-borrowers/project beneficiaries); Environmental inspectors	Managing sector environmental and social impacts in the livestock sector, including disposal of dead animal carcasses	5X1 day workshop	10,000 USD
Representatives of oblast and rayon	Silage production and proper environmental management	1x1 day workshop	2,000 USD

agricultural departments; participating farmers (Sub-borrowers/project beneficiaries); Environmental inspectors			
Representatives of oblast and rayon agricultural departments; participating farmers (Sub-borrowers/project beneficiaries); Environmental inspectors	Sustainable manure management, responsibilities, manure management plans	5x1 day workshop	10,000 USD
Representatives from private sector livestock processing enterprises; Environmental inspectors	Sustainable management of dairy-processing related environmental problems, manure management, responsibilities to prevent effects of pollution, good minimization practices (examples ¹³) and etc.	3x1 day workshop	6,000 USD
Preparing and disseminating information materials			
Preparing, printing and disseminating different guidebooks	Silage production; Manure management IMP and agro-chemicals use. Use of acaricides Environmental problems in the veterinary sector Livestock processing and environmental problems		25,000 USD
Monitoring of the mechanism of applications submission (MAS)			
Responsible representatives of the Mechanism of applications submission	Receiving, sorting, processing, resolution and feedback on the developed MAS	The whole period of the project implementation Number of applications is not limited	25,000 USD
TOTAL			USD 202,500

¹³https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/268691/pb13558-cogap-131223.pdf

9 ESMF PUBLIC CONSULTATION

RRA on _____, 2017, has disseminated the draft summary ESMF in Russian and English language to relevant ministries for review and comments, also posting it for wide public discussion on the web-page of the RRA (_____).

ESMF Public consultation. On _____, 2017, the MAWR/RRA has conducted public briefing and consultation on this document (see *Annex 11* with the minutes of consultation). Outside of participants from the interested state institutions in the meeting took part also representatives from environmental and agricultural NGOs, local representatives of the government bodies, such as local authorities of all oblasts, and others. During the consultation, the MAWR/RRA has presented a summary of a draft ESMF to public. Particularly, the audience was informed about screening of the projects, types of Environmental Assessment for Category B projects, potential impacts which may be generated by small scale rehabilitation and construction, fodder production and agro-processing activities as well as measures to be taken to prevent/mitigate potential impacts. The consultation meeting's attendees actively participated in discussions which were mainly focused on environmental screening procedure, implementing arrangements, rules and procedures for agro chemicals use and capacity of environmental authorities to perform monitoring of sub-projects.

The meeting concluded that the draft ESMF document covered practically all potential impacts and possible mitigation measures. The draft ESMF was revised after the meeting taking into account inputs from the consultation. The final version of the ESMF was disclosed in the country and in the WB Infoshop and will be used by the government agencies during the project implementation.

ANNEX 1. POTENTIAL PROJECT IMPACTS

1. Impacts of Fishery

Nutrients are the main type of pollution at fish breeding. At cultivation of commodity fish emissions of nutrients consist generally of fish forages. Pollution of water bodies from cage fish breeding as a result of residuals of food and end products of metabolism of fishes – excrements and water. These are, mainly, easily oxidable organic substances, accumulation of which can cause the strengthened enrichment of water environment, qualitative changes of the structure of ecosystem that accelerates significantly its evolution. Pollution of soluble nature (organic substances of forage, products of metabolism of fishes) are washed away from cages and dissipate slowly in the whole reservoir. Insoluble in water solid particles of pollution settle at the bottom of the water body forming deposits with the increased content of organic substances.

Among the pollutants special attention should be paid to nitrogen and phosphorus which are formed as a result of mineralization of residuals of organic substances of forages and excrements of fish. At the same time, the volume of organic substances and biogenes in water depends on the content of these components in the forages used at cultivation. Therefore, at breeding it is recommended to use highly digestible qualitative forages with low content of phosphorus.

2. Impacts of Poultry

Poultry facilities are a source of odour and attract flies, rodents and other pests that create local nuisances and carry disease. Odour emissions from poultry farms adversely affect the life of people living in the vicinity. Odour associated with poultry operations comes from fresh and decomposing waste products such as manure, carcasses, feathers and bedding/ litter. Pollution of soil and water with nutrients, pathogens and heavy metals is generally caused by poor manure-management and occurs where manure is stored. Water and soil pollution related to poultry litter is, however, generally not an issue at the production site, as poultry manure is only directly discharged into the environment in exceptional conditions. Poultry manure contains considerable amounts of nutrients such as nitrogen, phosphorus, and other excreted substances such as hormones, antibiotics, pathogens and heavy metals which are introduced through feed.

3. Impacts from silk production

Silk is a highly renewable resource with less impact on the environment than many other productions. In conventional silk production, the silkworms are fed with mulberry crops that require some pesticide and fertilizer. However, these crops require far fewer chemical inputs than conventional cotton. Conventional silk production also washes the fibers in chemical detergents which are a low level pollutant if released untreated. However, the chemical processes involved in silk production are far lower impact than those in conventional cotton production or synthetics. Silk is also suitable for low impact dyes, which may reduce the impact of the colouring process. The major environmental concerns in silk production are the chemical fertilizers and pesticides for the cultivation of mulberry trees, pollution generated by the wastewater released by the degumming process, increased water consumption in the silk fibre production process and land consumption for the plantation of mulberry trees. The positive impacts of sericulture are the reduction of salinity, the prevention of wind and water erosion and the improvement of air and water quality resulting from the planting of mulberry trees.

4. Impacts of Biogas installation

In spite, most renewable energy technologies are environmentally sound in theory, all of them can have negative impacts on the environment if poorly planned and implemented. During the

construction phase, impacts can arise from improper storage and handling of construction wastes, these are also a risk of acoustic pollution and issues related to the occupational safety. During the operational phase, the most severe impacts on environment may arise from improperly maintained manure storage and processing facilities, and biogas system infrastructure. Of particular concern would be those facilities' operations which may result in air pollution and explosions which can occur during raw gas leaks and generation of mixture of methane with air in limits of highly explosive methane concentrations of 5-15 vol.%. All these impacts are expected to be easily mitigated through a good projects design and implementation practices, adherence of technological process and labor discipline. As a biodigester is a closed system and treated materials are not in contact with atmosphere, the typical negative impacts can be easily minimized.

5. Beekeeping

The considerable loss to beekeeping is caused by unreasonable application of chemical method of pest control, diseases of plants and weeds. Certainly, the method is rather effective, profitable and available to broad application. However, the majority of pesticides are harmful both to the humans, and to bees and other insects, animals and birds.

Thus, temperature and humidity should be considered as primary ecological factors determining the possibility of existence of bees. Other climatic components have mainly secondary nature, affecting generally the wellbeing of families. In particular, it concerns precipitations, wind, some other parameters complicating or facilitating the activity of bees. Frequent treatments with acaricide medicines applied by beekeepers do not lead to full release of bee families from varroa tick, but only reduce its number. Increase in number of medical treatments increases cost value and pollutes bee production, reduces considerably life expectancy, hampers development of bee families, as well as causes death of queens.

6. Renewable energy/solar panels

Electricity generated from renewable energy sources has a smaller environmental footprint than power from fossil-fuel sources, which is arguably the major impetus for moving away from fossil fuels to renewables. PV cell technologies that have relatively lower environmental risks compared to other types of electric sources. However, chemicals used in PV cells could be released to air, surface water, and groundwater in the manufacturing facility, the installation site, and the disposal or recycling facility. The production of photovoltaic devices involves the use of a variety of chemicals and materials. The amounts and types of chemicals used will vary depending upon the type of cell being produced. The releases of chemicals to the air from the photovoltaic facilities were reported as both air stack emissions and fugitive air emissions. The environmental concerns or issues likely to arise from the installation and operation of the Grid-connected Rooftop Solar Photovoltaic (GRPV) facility are limited and can be managed/mitigated, except for the disposal of damaged or discarded panels, if these are not covered under the take-back policy with the manufacturer/supplier during replacement. In case a take-back policy is not available or cannot be ensured throughout the life cycle, the discarded or damaged panels should be disposed of as per the local laws on the disposal of hazardous wastes. Safety of personnel during installation and operation can be ensured through measures in each rooftop developer's standard working protocol regarding safety equipment, which the developer can include as part of the loan application. The project will bring general social benefit for the region through air quality improvement, and employment opportunities to the local communities. Since all Photovoltaics (PV) panels would be installed on rooftops, the only negative social impacts could be access restrictions to the rooftop. However, these will be part of a contractual arrangement and hence these are expected to be voluntary and agreed by consent amongst the parties.

In regard the socio-economic viewpoint the benefits of the exploitation of Solar energy technologies (SETs) comprise: (i) increase of the regional/national energy independency; (ii)

provision of significant work opportunities; (iii) diversification and security of energy supply; (iv) support of the deregulation of energy markets; and (v) acceleration of the rural electrification.

7. Impacts associated with the upgrading veterinary analytical laboratories and other small scale construction and rehabilitation activities

During construction and/or rehabilitation activities of laboratories, or of vaccine storage facilities or other small scale construction/rehabilitation of various premises for agro-processing and milk collection and cooling equipment, construction of animal shelters, the main negative impacts relate to soil and water pollution through waste generation, air pollution, acoustic and aesthetics, as well as labor safety issues. The most common potential negative impacts from these activities and their significance can be summarized as follows:

- b) *Dust, air pollution and noise.* These are the most common environmental effects during the civil works which depends on the scale of construction activities and types of facilities to be constructed or renovated.
- c) *Waste handling and spill response:* (re)construction activities will also generate solid and liquid wastes including drywall, machine oil, paints, and solvents. Minor spills of fuel and other materials are likely to occur during the course of rehabilitation activities. Improper handling of on-site wastes and response to spills could result in adverse effects on the local environment including groundwater and students.
- d) *Asbestos:* at this stage it is not known if asbestos has been used in premises to be proposed for rehabilitation of the veterinary laboratory, but taking into account its large usage in the past it is possible to find such material used as an insulation material and/or roofing material. In the case of inappropriate handling of asbestos this material might be a real health concern for the construction workers, and the general public in the vicinity of the rehabilitated premises in particular when it is inhaled.
- e) *Labor and safety impacts:* during civil works in the case the workers do not obey necessary safety rules, they might be subject to various accidents.
- f) *Health impacts* associated with indoor construction activities in the case of the usage of noxious/toxic solvents and glues and of lead-based paints.
- g) *Waste waters* as the results of inadequate implementation of sanitation activities.
- h) *Pollutant air emissions from the associated boilers.* The types of pollutants and their volumes also depend on the type of boilers and of used fuels.

8. Livestock impacts and including on pastures

The following potential livestock impacts can be expected from project activities:

- ❖ Environmental impacts of potential expansion of livestock, including the management of cattle manure and increased pressure on grazing lands;
- ❖ Potential risks of degradation or changing species composition in the pastures due to overgrazing as well as soil losses because of erosion, and a reduction in soil productivity caused by alteration of the vegetation status and composition.
- ❖ Environmental pollution during animals feeding. Livestock feed includes hay, grain (sometimes supplemented with protein, amino acids, enzymes, vitamins, mineral supplements, hormones, heavy metals, and antibiotics), and silage. Feed can become unusable waste material if spilled during storage, loading, and unloading or during animal feeding. Waste feed, including additives, may contribute to the contamination of storm-water runoff, primarily because of its organic matter content¹⁴.

¹⁴WB Environmental, Health, and Safety Guidelines for Mammalian Livestock Production (<http://www.ifc.org/wps/wcm/connect/e2cfd90048855333ae04fe6a6515bb18/Final%2B-%2BMammalian%2BLivestock%2BProduction.pdf?MOD=AJPERES>)

Manure management. Mammalian livestock production operations generate significant quantities of animal waste, mainly in the form of un-metabolized nutrients excreted as manure. Manure contains nitrogen, phosphorus, and other excreted substances which may result in air emissions of ammonia and other gases and may pose a potential risk of contamination to surface or groundwater resources through leaching and runoff. Manure also contains disease-causing agents such as bacteria, pathogens, viruses, parasites, and prions, which may also potentially affect soil, water, and plant resources (for human, livestock, or wildlife consumption). Most of the animal waste is generated at housing, feeding, and watering locations. Following are the summary of positive and negative potential impacts for manure application here:

Positive environmental impacts

- ❖ Soil fertilization by manure application: decomposition of the organic material by microorganisms produces carbon dioxide (CO₂), water and minerals of plant nutrients as N, P, S and metals. The mineralization is the transformation of organically bound elements into plant available nutrients. Application of manure to crop land or pastures will reduce the requirements of artificial fertilizer.
- ❖ Soil fertility improvement: organic matter that remains one year after application is assumed to be part of the soil organic matter and will decompose gradually over the years, releasing plant nutrients.
- ❖ Improvement of the soil structure stability. Organic matter is also involved in the physical properties of soil e.g. porosity, aeration water holding capacity, it improved soil structure and reduces the soil vulnerability to erosion.
- ❖ Improvement of inorganic fertilizer potentiality: organic matter in soil increases the capacity of absorption of minerals, reducing the loss of the elements brought in the fertilizers. Absorbed elements are gradually released for plant nutrition.

Negative environmental impacts

- ❖ Runoff of manure and manure components into surface water, contributing to water pollution.
- ❖ Leaching of nitrate and phosphorus into the ground water, contributing to underground water pollution.
- ❖ Ammonia emissions: before and during storage, and during application in the field.
- ❖ Emission of NO_x: this is formed as a by-product of the denitrification process.
- ❖ Emission of methane, formed upon decomposition of manure under anaerobic conditions.
- ❖ Air pollution. Dairy cows and their manure produce greenhouse gas emissions which contribute to climate change.
- ❖ Large amount of animal wastes may be produced by livestock and poultry breeding, mainly the indigested nutrients contained in the animal excretion. The excreted matters such as nitrogen and phosphorus contained in the livestock and poultry excrement will give off ammonia and other gases in the air, may pollute surface water and ground water resources by means of filtration and runoff. In addition, animal excrement contains many pathogenic elements, such as bacteria, pathogens, virus, parasite and viroid, which may cause adverse impact on the soil, water and plant resources (those plants may be the food source for human, livestock and poultry and wild animals). Most of animal wastes are possibly found inside the house, livestock and poultry farm and watering place. Animal wastes can be classified into the liquid, mud and solid (depending on the content of solid) by its form. The animal waste management system can be utilized to reduce above adverse impacts by following functions: collect, transport, store, treat and utilize (but discard) the wastes.

Overall it is expected the project will not contribute to expansion of the livestock – it would make its contribution to reduction of number of head directed on improving of heard quality and the project focus is replacing of more numerous herds with less but more productive animals.

From other hand, improvement of fodder production will lead to increasing of farmers' abilities to feed the animals at home and less using pastures what can also contribute to reduction of pastures degradation.

9. Dairy and livestock agro-processing impacts

Sub-projects related to dairy and livestock processing which might be implemented under the project activities will generate a great number of both direct and indirect positive impacts.

Direct positive impacts will be generated by increased livestock processing activities which would result in creation of new jobs and respectively, more employment and increased income. Indirect positive impacts will relate to overall improving of agricultural production and business environment, introduction of advanced agricultural and livestock technologies and techniques & quality standards at enterprises. In addition, use of advanced machinery & equipment, providing additional value to produced agricultural production enhancement competitiveness of domestic production and products, will contribute to poverty reduction and food safety, improvement of country's socio-economic conditions in urban and rural areas and others

Despite their important contribution to overall and agricultural development, livestock processing industries can also give rise to undesirable environmental side-effects. Left unchecked, like any other industry, livestock industry can create environmental pollution or hazards in various ways: the discharge of organic or hazardous wastes into water supplies; the emission of dust or gases that affect air quality and produce toxic substances; and the use of dangerous machinery that can put the safety and health of workers at risk.

In dairy and livestock processing sector - production/processing production of cheese, yogurts; butter; other dairy products as well as of meat and its subproducts, the main impacts are related to surface water pollution through increased concentrations of pollutants in wastewater effluents and their treatment, waste management, emissions to air, mostly dust and odor, acoustic, vibration, water and energy consumption, labor hazards.

The overall potential adverse impact can be from high to moderate, primarily due to human health threat.

Following are the main potential adverse impacts of dairy and livestock agro-processing:

- ❖ Contribution to surface water pollution/wastewater from silk solids (e.g. protein, fat, carbohydrates, and lactose), salting activities during cheese. It can lead to significant organic content, high salinity levels; creation of other pollutants as acids, alkali, and detergents, etc. as well as pathogenic microorganisms and viruses;
- ❖ Soil, groundwater and surface waters can be polluted, and solid waste amount can be increased due to production processes, nonconforming products and product losses, grid and filter residues, sludge from centrifugal separators and wastewater treatment, and packaging waste;
- ❖ Air pollution and air emissions as well as dust level can be caused by dairy and livestock processing activities and lead to fine milk powder residues in the exhaust air from the spray drying systems and bagging of product;
- ❖ Dairy and livestock processing facilities are related to on-site wastewater treatment facilities, in addition to fugitive odor emissions from filling/emptying milk tankers and storage silos what can increase the odor level in area.
- ❖ Dairy and livestock processing facilities consume considerable amounts of energy and can strengthen stress on natural resources.

The risks of pollution are relatively smaller at the initial stages of preservation and transformation, but they may increase with the level of physical and chemical alteration, particularly in the industries using dated equipment and technology (new technologies are less polluting than old ones in terms of wastes and emissions per unit of output).

The size of the industry may be an important factor, but not determinant in itself. The smaller-scale industries can also generate scattered pollutants with a cumulative effect in a given geographic region.

In general terms, waste products may occur as waste water, solid material, volatile compounds or gases that are emitted into the air.

Wastewater. An important environmental impact of the animal processing industry results from the discharge of wastewater. The dairy and livestock processing requires the use of water and respectively produces a lot of wastewater. The strength and composition of pollutants in the wastewater evidently depend on the nature of the processes involved. Discharge of wastewater to surface waters affects the water quality in three ways:

- ❖ The discharge of biodegradable organic compounds (BOC's) may cause a strong reduction of the amount of dissolved oxygen, which in turn may lead to reduced levels of activity or even death of aquatic life.
- ❖ Macro-nutrients (N, P) may cause eutrophication of the receiving water bodies. Excessive algae growth and subsequent dying off and mineralization of these algae, may lead to the death of aquatic life because of oxygen depletion.
- ❖ Livestock industrial effluents may contain compounds that are directly toxic to aquatic life.

Suspended Solids (SS). Suspended solids are insoluble organic and inorganic particles present in wastewater. SS is mainly material that is too small to be collected as solid waste. It does not settle in a clarifier either. Discharge of SS increases the turbidity of water and causes a long term demand for oxygen because of the slow hydrolysis rate of the organic fraction of the material. This organic material may consist of fat, proteins and carbohydrates. The natural biodegradation of proteins (from for instance milk), will eventually lead to the discharge of ammonium. Ammonium oxidation into nitrite and nitrate by nitrifying bacteria, leads to an extra consumption of oxygen.

Eutrophication. Nitrogen (N). In wastewater Nitrogen is usually present as fixed in organic material or as ammonium. Occasionally also nitrate may be present (this may be the case in dairy industries where HNO_3 is used for cleaning operations). Nitrogen and phosphorus (P) removal can be achieved through special wastewater purification systems, which are based on either biological or physic-chemical processes.

Solid waste. Livestock by-products that are not used in any way will be referred to as solid waste. They must be dumped. The following types of solid waste may be distinguished:

- (a) toxic compounds. These compounds require special attention, e.g. special dumping grounds;
- (b) organic compounds. These compounds may require attention under certain conditions because of hygienic reasons or because during decomposition ill odor or leaching problems may arise;
- (c) non degradable compounds. These may be dumped at regular dumping grounds.

Air pollution. An important factor with respect to environmental impact is whether the produced milk and meat products are processed at home or in a factory. Home processed livestock products hardly offers any environmental problems as little waste is produced (mainly air pollution from heating and some pollution of cleaning water with milk and meat residuals) and as the concentration of the waste is generally low.

10. Impacts of investments in improving the animal heard

The proposed project activities on investments in improving the animal health might generate a series of various environmental and social impacts, positive and negative. Positive impacts attribute mainly to socio-economic environment. Negative impacts attribute to water, air and soil pollution, odor, health risks, loss of biodiversity and habitats, etc.

Potential social impacts. The sub-projects to be implemented under the on mentioned investments will generate a great number of both direct and indirect positive impacts. Direct positive impacts will be generated by increased livestock production due to animal health improvement, which would result in creation of new jobs and respectively, and increased income. Indirect positive impacts will relate to overall improving of business environment, contribution to poverty reduction and food safety.

Potential adverse environmental impacts can include the following:

- ❖ Solid waste generated during mammalian livestock production (waste feed, animal waste, and carcasses, as well as various kinds of packaging (e.g. for feed and pesticides), used ventilation filters, unused / spoilt medications, used cleaning materials, and sludge from wastewater treatment if present (which may contain residual amounts of growth enhancers and antibiotics, among other hazardous constituents);
- ❖ Odor and air emissions;
- ❖ Waste waters;
- ❖ Hazardous materials used throughout the livestock production cycles (e.g. disinfecting agents, antibiotic and hormonal products);
- ❖ Animal diseases.

Positive impacts. It is expected that Project will have beneficial impacts in these areas as there will be less animals and more productive ones. Also it means fewer animals required for the same production volume and less pressure on pastures; improved quality of production and respective products for markets, including foreign ones; increased farm incomes; improved rural economic situation, etc.

11. Impacts of chemicals

Animal feeding varies according to the type of production and the climatic region in which the production is located and is based on roughage, such as corn or grass silage, hay, fresh grass, and grazing.

Among potential here are impacts of use of mineral fertilizers and pesticides for improving fodder production. The overall potential impact can be from moderate to high.

In order to produce sufficient quantity of feed and forage for winter supplementation, smallholder farmers need to cultivate increased quantities of barley (*Hordeum vulgare*), lucerne (*Medicago sativa* spp.) and sainfoin (*Onobrychis viciifolia*).

Improper use of mineral fertilizers can lead to soil degradation/ reduction in soil organic content and less reliance on compost material and manure for meeting soil fertility requirements, modified soil structure and reduction in soil moisture holding capacity; increase in soil acidity. In the long run, possible loss of productivity as a result of insufficient soil moisture; loss of soil's natural fertility. Chemical fertilizers can contribute to increasing of emissions of greenhouse gases and therefore to global warming resulting in climate change. Fertilizer runoff may cause nutrient enrichment of water bodies and eutrophication of water bodies, modification of aquatic ecosystems.

Other impacts can be expected from use of insecticide/acaricide livestock dips applied directly to livestock or to structures (e.g. barns and housing units) and to control pests (e.g. parasites and vectors) using dipping vats, sprayers, and foggers. Pesticides can also be used to control

predators. The potential pollutants from pesticides include the active and inert ingredients, diluents, and persistent degradation products. Pesticides and their degradation products may enter groundwater and surface water in solution, in emulsion, or bound to soil particles. Pesticides may, in some instances, impair the uses of surface waters and groundwater. Some pesticides are suspected or known to cause chronic or acute health hazards for humans as well as adverse ecological impacts.

Acaricides are the major chemicals used to control ticks and other ectoparasites. As the ticks take animal blood meal, they also transmit disease causing organisms to not only the livestock but also man they present a strong constraint to livestock production in the project area. To reduce their impacts the farmers routinely use the conventional control methods which include the use of chemical Acaricides and give some partial results albeit shortcomings like the presence of chemical residues in milk, meat and the development of tick resistant strains. A wide range of Acaricides exist for use against ticks of domestic animals and livestock among one of the many methods used to control ticks. Documented in the project area Acaricides include arsenics, chlorinated hydrocarbons, organophosphates, carbamates and synthetic pyrethroids which are sold under the following names: Ivermektin, Inter-Ivermetin, Ivertet, Flyblock, Ecomektin, Cypek, Santomektin, Diazinon "Lucy", Solfisan, Ivermek Gold, Vilmektin, Rolenol, Ivermekvet. They are applied through, dipping, spraying, spot treatment or hand dressing.

Usually farmers do not wear any protective clothing during the administration of acaricides. Dermal exposure to these pesticides are usually overlooked or underestimated by farmers in RUz although the pesticides are capable of binding to the skin, extracting lipids out of the skin or rendering it permeable to other similar toxic chemicals. Pesticides residues in meat and milk are likely to be higher in livestock products produced by smallholder rural farmers. Inappropriate trading, labeling and use of acaricides and anti-helminthes in the project area raises concerns about food safety and public health. Because of their large use, these chemicals pose health risks to non-target species, including people, domestic and companion animals, wildlife, and aquatic species.

12. Impacts of the animal diseases

Animal diseases can enter a facility with new animals, on equipment, and on or people. Some diseases can weaken or kill large numbers of animals at an infected facility. From this point of view, the project impacts will be positive as the project will support a series of activities for diseases control, through better veterinary services, vaccinations, veterinary points.

The main areas of environmental risk from the project activities are:

- (i) the inadvertent spread of the viruses during culling, transport and disposal of carcasses, animal waste, litter, and used protective gear;
- (ii) contamination of surface and groundwater from use of disinfectants;
- (iii) laboratory bio-safety and waste management.

In addition, minor environmental disturbances may occur during renovation of laboratories and vaccine storage facilities.

13. Impacts of hay collection and of silage production

Silage-production is a fermentation process aimed at preserving forage in its wet state away from air. One is seeking to lose minimum dry matter and nutritional value and to avoid creating products toxic to the animal. Harvesting forage for storage is only possible in meadowlands sufficiently well-maintained for this purpose or by growing intensive annual forage crops. It presupposes land prepared specifically for this use, even if it alternates with grazing. Cutting

helps maintain permanent meadowland. On the other hand, intensive cropping poses the same environmental problems as agriculture.

Positive environmental impact of hay collection

- ❖ Grass-cutting generally promotes the maintenance of permanent meadows based on grasses (elimination of refuse and some weeds). It improves the composition of meadow flora.
- ❖ Cutting grass reduces the possible risk of fire. It can be practiced on fire-breaks.

Negative environmental impact of hay collection

- ❖ Repeated cutting can make the meadow flora uniform and lead to reduction of botanic diversity. Removal of forage harvests entails a transfer of nutrients and decreases soil fertility if there is no compensation by the use of fertilizers.
- ❖ Intensive annual forage crops have the same environmental impacts as other intensive crops: risk of erosion, reduced retention of organic matter in the soil, leaching of fertilizing elements leading to water pollution.
- ❖ Cutting annual meadows promotes seasonal stripping of the soil and can promote wind erosion.

Silage leachate is an issue for all farmers who have silage. Silage leachate can come from all forms of silage storage: bunkers, upright silos, bags, and piles. Handling leachate can be simple or complex depending on the scope of operation.

Silage leachate is an organic liquid that is formed when water, or in some cases pressure from the structure, comes in contact with silage and runs off. Leachate can be formed as a part of silage storage, especially if the corn or alfalfa is harvested too wet. Water comes in contact with the silage because it is part of the silage. The other source of leachate is rain water coming in contact with silage and carrying nutrients with it. This leachate has a high biological oxygen demand, BOD. If silage leachate is allowed to reach surface water, oxygen in the water will be consumed so quickly that anything living in the water, including fish, could immediately be in peril. Leachate also can cause algal blooms that will further deplete the oxygen levels of surface water and it can also produce high levels of ammonia which will also cause fish kill.

Groundwater is not immune to the hazards of silage leachate. Leachate can increase water's acidity due to its high nitrate-nitrogen levels. Another side effect of silage leachate in groundwater is a distasteful odor.

14. Impacts as the results of laboratory bio-safety and waste management

Project activities directed to increasing of laboratory bio-safety and proper waste management expected to have a positive environmental impact as the Project's investments in facilities, equipment, and training for veterinary services and laboratories will improve the effectiveness and safety of animal diseases handling and testing procedures.

Veterinary laboratories provide services to protect the health and well-being of local, national, regional, and global animal populations and associated commerce. They handle biological materials that can pose bio-risks to both animal and human populations. Poor management of wastes, including contaminated ones exposes health care workers, waste handlers and the environment to the risk of infections, toxic effects and contamination.

The principal routes for release of biological materials from laboratory environments, with subsequent potential exposures, include:

- i) personnel via surface contamination or infection,
- ii) intentional acts allowing release,

- iii) air-borne,
- iv) effluents,
- v) equipment and materials, such as fomites,
- vi) solid waste including carcasses, specimens and reagents,
- vii) release via live animals or vectors.

Risks caused by laboratory processes and procedures can be low, moderate or high. Nature of the procedures involving biological materials to be conducted in the facility can result in novel modes of spread and infection, activity characteristics include:

- ❖ Scale of work (e.g. small, large);
- ❖ Amplification;
- ❖ Volume and titer;
- ❖ Storage state of material: liquid, frozen, solid;
- ❖ Agents satisfactorily contained during laboratory processes;
- ❖ Generation of aerosols;
- ❖ Possibilities for cross contamination.

It is therefore of critical importance that laboratory managers ensure that bio-risks in their facilities are clearly identified, understood, controlled, and communicated to the appropriate stakeholders. For veterinary laboratories, bio-risk analyses focus on the potential for animal, human, and environmental exposures, including intentional and unintentional release of biological materials from the laboratory.

15. Impact on labour resources and employment activities

Cattle in the regions of Uzbekistan is one of the most important types of property in rural areas, as well as a source of income, wealth and an important factor in social status. Therefore, development of livestock as the agriculture sector will attract economic active and free labor force in the regions, both for permanent and temporary employment.

The main share of the population in the regions is employed in the agricultural sector on permanent and temporary (seasonal) basis. That is why the increasing of the volume of the livestock sector requires the involvement of the working population, providing the possibility of obtaining permanent income¹⁵.

The livestock sector attracts qualified seasonal or full-time labor force. The need for labor is relatively equally spread out throughout the year and there is no demand for high number of workers for a short period of time. The risks of child and forced labor in the sector are minimal.

16. Impact on land acquisition and resettlement

The project is not expected the land acquisition and resettlement. In this regard, there is no need to trigger the World Bank's operational policy on involuntary resettlement OP 4.12.

Risks of land acquisition and resettlement: at this stage of the project implementation there are no risks of land acquisition and resettlement.

17. Impact on vulnerable groups

Development and modernization of agriculture, including livestock, in the regions will have positive impact on socially vulnerable groups of population, namely, will allow:

¹⁵ If livestock production develops sustainably, working-age population will always have the opportunity to get job, i.e. there will be job places.

- creating additional jobs for the residents; as well as providing the conditions for obtaining a permanent or seasonal income for vulnerable people, in particular low-income families, and unemployed residents. Obtaining a source of income for the residents with a low standard of living and income will allow them increasing their income, improving the quality and standard of living, welfare, and expanding opportunities to meet their basic needs.

In Uzbekistan, there is a practice of providing social assistance to vulnerable groups in the regions. It is aimed at providing income opportunities by breeding of small cattle and poultry. It is provided by the allocation of funds from the local budget for the purchase of small cattle and poultry. This enables such households not only receive income from breeding small cattle and poultry, but also to produce livestock products for own consumption, reducing thus the cost of food within the family.

In addition, products from such livestock activities (eggs, poultry, etc.), can be sold within the makhalla, among neighbors, friends, acquaintances or relatives, bringing the income to the vulnerable family.

18. Impact on gender issues

Gender and social equality is provided for all project beneficiaries. Leasehold and dekhkanfarms that could potentially be the project beneficiaries and are involved in livestock production, regardless of gender or social criteria may participate in the project and benefit from it.

Uzbekistan is a traditionally patriarchal country. Men are mostly involved in agricultural activities. Agricultural activity, especially livestock, is a hard work that need high physical activity, time and may be harmful for woman's health. However, in compliance with the current legislation and the requirements of the World Bank there are no gender restrictions in the project implementation. The principle of equality between women and men is provided.

The residents in the region, regardless of their gender, are involved in the production of agricultural products, including livestock products, including for the household's own consumption.

Animal husbandry: Usually, men are engaged in animal husbandry. They own cattle (cows, bulls) and are engaged in its buying, selling and grazing.

Small cattle: Generally, women are engaged in breeding poultry and small cattle, such as goats, sheep. They are responsible for cattle care, often are engaged in caring for sick cattle, working as dairymaid, feeding the cattle, as well as in processing and marketing of milk, poultry, meat (poultry) and eggs.

For most households in the regions, breeding small cattle and poultry is a traditional activity, which is directed on satisfaction of household's own consumption in livestock products and allows them getting cheaper products and reduce the cost of food. In addition, households that are already engaged in such production of livestock, often sell their products among their neighbors and relatives that allow them getting the income. Consequently, the possibility of increasing income in the households at the expense of creating conditions for the expansion of livestock production will have a positive impact on the improvement of nutrition and standards of living in the household, including the availability of prices for finished products of livestock (own consumption).

Gender risks: The main risk of impact on gender issues is the question of distribution of revenues from the men and women's activities. Due to the fact that Uzbekistan is a patriarchal country, the level of income for men and women from the same activity can vary significantly. Thus, the income of men for performed work is higher than the income of women for the same work. However, in reality, the risk of social conflicts is minimal, since this practice is customary

for the population of the country. The main recommendation of the project is to comply with equality in terms of the activities provided for both men and women.

ANNEX 2. PROPOSED MEASURES FOR MITIGATION OF ENVIRONMENTAL AND SOCIAL IMPACTS

The potential impacts associated with the construction and rehabilitation activities in the case of veterinary laboratories upgrading or construction, or in the case of rehabilitation/small scale construction of animal shelters and premises for installing of livestock processing equipment will be easily mitigated by ensuring that all civil works will be designed and operated in accordance with environmentally sound engineering practices and governed by the applicable environmental standards of the Republic of Uzbekistan. This will be clearly specified in the construction contracts and enforced by the client. Such practices would include the following:

Organizational measures. Before starting the construction/rehabilitation activities it is necessary to inform the local construction and environment inspectorates and communities about upcoming activities in the media and/or at publicly accessible sites (including the site of the works). Furthermore, it is necessary to have in place all legally required permits. All works should be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. Construction workers should be properly dressed, having when necessary respirators and safety glasses, harnesses and safety boots.

Protection of air quality and dust minimization. During construction/rehabilitation activities it is necessary to use debris-chutes above the first floor and to keep demolition debris in controlled area, spraying with water mist to reduce debris dust. It is also necessary to suppress dust during pneumatic drilling/wall destruction by ongoing water spraying and/or installing dust screen enclosures at site. It is strictly prohibited burning of construction/waste material at the site. For the transportation of any other dusty material to the rehabilitation site watering or covering of the cargo should be implemented. Reduction of dust on rehabilitation site during dry season of the year can be accomplished by watering the ground surface. Workers that perform the works should be introduced with protective clothes and respirators.

Noise reduction. Before any beginning of the work it is recommended to inform all potentially affected parties and especially the neighbors either directly or through local billboards or newspapers on the rehabilitation activities. The noise should be limited by using good management practice and limiting works on regular daily shift (during the vacation time) and or after the school classes. The construction equipment and machinery used should be calibrated according to the Noise Standards.

Construction wastes and spills. As a general requirement is that the existing building elements to be rehabilitated (walls, ground cement slabs etc.) should be carefully rehabilitated and the construction wastes should be sorted and removed in an organized way and disposed on an authorized land filled. All valuable materials (doors, windows, sanitary fixtures, etc.) should be carefully dismantled and transported to the storage area assigned for the purpose. Valuable materials should be recycled within the project or sold. Wastes where ever possible should be minimized, separated and handled accordingly. When wastes are separated they are more manageable. Some materials like doors or ceramics sinks might be usable on the site again. Non-usable materials should be taken to appropriate place for recycling. For non-recyclable wastes, in agreement with local councils the wastes will be deposited on authorized landfill. Open burning and illegal dumping of any waste is strictly prohibited. In addition to solid wastes, some amounts of hazardous wastes will be produced on the site: like the remaining from paints, enamels, oiled packaging, oils, material contaminated with oil, insulation material, etc., which have to be collected and handed over to the local self-government body authorized for collection and transportation of hazardous waste.

Asbestos issues. The general approach while handling this material is that constructors avoided crushing/destruction of asbestos plates from the roofs and or from the walls insulation and deposited them in an organized manner on the construction sites. Also the constructors should avoid releasing asbestos fibers into the air from being crushed. It is also imperative while

working with asbestos plates the workers have to wear special clothing, gloves and respirators. If the use of asbestos-containing materials (ACM) is anticipated for the roof renovation, it is necessary to provide brief information about alternative non-asbestos materials, their availability and the rationale for the material choice made. Once the presence of ACM in the existing infrastructure has been presumed or confirmed and their disturbance is shown to be unavoidable, incorporate the following requirements in the EMP for construction works:

- ❖ Develop a plan for doing works involving removal, repair and disposal of ACM in a way that minimizes worker and community asbestos exposure. The plan should include:
 - (i) Containment of interior areas where removal will occur in a negative pressure enclosure;
 - (ii) Protection of walls, floors and other surfaces with plastic sheeting;
 - (iii) Removal of the ACM using wet methods and promptly placing the material in impermeable containers;
 - (iv) Final clean-up with vacuum equipment and dismantling of the enclosure and decontamination facilities;
 - (v) Disposal of the removed ACM and contaminated materials in an approved landfill;
 - (vi) Inspection and air monitoring as the work progresses, as well as final air sampling for clearance, by an entity independent of the contractor removing the ACM;
- ❖ Require that the construction firms/and or individuals employed during the construction have received training in relevant health and safety issues;
- ❖ Provide for all construction workers with personal protection means, including respirators and disposable clothing;
- ❖ Require that the beneficiary or the selected contractor notifies authorities of the removal and disposal according to applicable regulations and cooperates fully with representatives of the cognizant agency during all inspections and inquiries.

Temporary storage of materials (including hazardous). Stockpiling of construction material should be avoided if possible. If not, construction material should be stored on the construction site, and protected from weathering. Hazardous materials like paints, oils, enamels and others should be kept on impermeable surface, and adsorbents like sand or sawdust should be kept for handling small spillage.

Ensuring workers health and safety. The personal should have protective equipment, rubber gloves, respirators, goggles and breathing mask with filter, as well as helmets. Prior starting civil works, all workers have to pass labor safety training course. In addition, it is necessary to carry out the routine inspection of the machinery and equipment for purpose of the trouble shooting and observance of the time of repair, training and instruction of the workers engaged in maintenance of the machinery, tools and equipment on safe methods and techniques of work. Special attention should be paid to welding operations. It is prohibited to distribute the faulty or unchecked tools for work performance as well as to leave off hand the mechanical tools connected to the electrical supply network or compressed air pipelines; to pull up and bend the cables and air hose pipes; to lay cables and hose pipes with their intersection by wire ropes, electric cables, to handle the rotating elements of power driven hand tools.

Ensuring bio-safety and waste management and preventing inadvertent spread of the animal diseases. The Project will finance essential equipment, consumables and reagents, staff training and technical assistance for the veterinary laboratories and veterinary posts to be installed. A particular focus of the training activities will be on laboratory waste management by basing training and upgrades to laboratory infrastructure and equipment on “International Best Practice in Safety of Research Laboratories” developed by the US National Institutes of Health (see Annex 1). Design of upgrades for veterinary laboratory and posts will include facilities for safe disposal of wastes and contaminated materials. Construction and renovation works

associated with rehabilitation of laboratory and veterinary posts will be carried as specified above, ensuring the implementation of all mitigation measures specified in the EMP Checklist. The EMP Checklist will be included as part of the construction/rehabilitation contracts. In addition, waste generated in upgraded laboratory facilities will be managed using existing national guidelines that are consistent with international good practice.

Carcass. To prevent infectious illness and odor as well as the generation of vector, it is required to take proper measures to manage and rapidly disposal of carcass. The operator should implement the actual management and disposition system and not recycle carcass as animal feed. It is recommended to reduce mortality by taking proper animal-care and prophylactic measures. Livestock and poultry died of disease shall be timely disposed of and not allowed to be casually discarded, sold or reused as feed. While collecting carcass, proper storage is required, if necessary, refrigeration should be taken to prevent decomposition. It is feasible to bury carcass at the site if no other carcass disposal methods are issued by local authority. Landfill site, regardless of its location, should be accessible for excavating equipment. The site with soil stability and low permeability should be equipped with insulation layer strong enough to separate the area from houses and water sources so as to prevent pollution caused by odor from buried decaying matters or filtered matters.

Animal waste. Livestock and poultry excrement collection system: for the ground designed with groove, the livestock and poultry excrement should be pushed falling into the underground storage zone; for the ground designed without groove, it is necessary to scrape and wipe the floor and flush with water. For the livestock and poultry excrement used for farmland fertilizer, since it contains dangerous chemical and biological elements, it is necessary to make careful analysis of potential impact beforehand. Some treatments to some extent and preparations as well as proper application ratio may be required before utilizing the excrement as fertilizer.

To reduce the pollution of livestock and poultry excrement to the surface water, ground water and air as much as possible, it is recommended to select proper feeds according to the nutrient requirement in different production and growth stage of animal; select the feeds low in protein and amino acid; by grinding feeds, to improve absorptivity and reduce the consumption of feed, thus less livestock and poultry excretion will be produced (while increasing the livestock and poultry yield); select the high-quality and pollution-free feeds (for instance, the content of pesticide and dioxin must be known or not exceed the standard requirement) with content of additives like copper and zinc not exceeding the required amount for animal's healthy growth. It is necessary to regularly collect solid wastes (such as the bedding and excrement) and refrain from leaving the wastes overnight. To reduce the storm runoff in the storage system, the dry livestock and poultry excrement or garbage from the farm should be stored in a place with cover or ceiling.

Biogas residue disposal and compost. It is required to make proper adjustment and control of major technical parameters for each stage according to the technical requirement and the actual condition of excrement. Biogas residue should be timely transported to the excrement compost or other non-hazardous treatment places for further treatment. Livestock and poultry excrement from the farm should be specifically stored. The storage facility should be kept away from each kind of surface water body (with a distance no less than 400m), and should be at the downwind or crosswind area relative to the predominant wind direction in ordinary year of the farm's production and living quarter. The storage facility should be equipped effective seepage control to prevent ground water contamination from livestock and poultry excrement; in addition, the cover should be equipped to keep the facility from rainwater. For composting, it is required to stack materials evenly to prevent uneven thickness and moisture content of material layer. During fermentation and compost maturity period, it is necessary to keep proper height and ventilation and turn heaps to meet the suitable condition for further fermentation.

Preventing environmental pollution and ensuring sound manure management. Proper manure management refers to capture, storage, treatment, and utilization of animal manures in an environmentally sustainable manner. It can be retained in various holding facilities. Animal manure (also referred to as animal waste) can occur in a liquid, slurry, or solid form. It is utilized

by distribution on fields in amounts that enrich soils without causing water pollution or unacceptably high levels of nutrient enrichment. Manure management is a component of nutrient management.

One of the key factors of animal waste management is the design of one or more storage structures (ponds, tanks, and/or dry stacks) that can store the waste generated for time period recommended by the state and local regulatory agency.

To address all of the pollution risks associated with manures, slurries and grazing animals, particularly in bathing water catchments, it is essential to apply following approaches, the main individual components of which are as follows:

- ❖ minimizing dirty water around the steading;
- ❖ better nutrient use;
- ❖ a risk assessment for manure and slurry;
- ❖ managing water margins.
- ❖ avoid spreading close to domestic or public buildings;
- ❖ spread livestock slurries and manures when the wind direction is away from public/residential areas and areas designated for their conservation value;
- ❖ avoid, where possible, spreading in the hours of darkness.
- ❖ locate any field heap of farmyard manure:
- ❖ at least 10m away from any clean surface water or field drain or watercourse and at least 50m from any spring, well or borehole; and
- ❖ as far away from residential housing as possible.
- ❖ spread livestock manures only when field and weather conditions are suitable to prevent water pollution.

Pollution risk can occur at all stages of handling livestock slurry and manures, including collection, storage, transportation and land application. At all times, the quantity of material requiring to be collected, stored and applied to land should be minimized. The risk of pollution occurring is usually higher with liquid systems than with solid based systems. Minimize the unroofed steading areas to which stock have access, or alternatively roof these areas where practical. It is needed always to separate uncontaminated water from dirty water and prevent it from entering the handling system.

Many farms have existing drainage systems to allow run-off from roads and yards to discharge to local watercourses. This drainage can carry silt, chemicals, Fecal Indicator Organisms [FIOs] and other materials, thereby causing a risk of pollution. It may be possible to make use of properly sited and designed ponds to deal with this currently uncollected drainage and minimize pollution risks. Farmers should draw up a Manure Management Plan (also known as Farm Waste Management Plans). Professional advice should be provided from relevant (mandated) agencies.

There are also other examples of mitigation measures that can be followed¹⁶.

Implementation of project trainings activities for capacity building and knowledge improvement in area of sound manure management, proper and advanced feeding practices, application of IPM approaches and etc., can also ensure positive environmental impacts on pastures status.

Environmental assessments for proposed sub-projects in area of fodder production or animal breeding or other will be conducted which will take into account existing pastures which can be potentially affected both negatively or positively, and site specific environmental management plan with mitigation measures will be developed as a part of ESA report. The project would support additional TA activities to strengthen the existing institutional capacities to ensure that effective ESAs are conducted, ESMPs are implemented properly and monitoring systems are put in place.

¹⁶<http://www.gov.scot/Publications/2005/03/20613/51370>

Involved parties will have responsibilities on implementation of specific ESMP and mandated bodies (persons) will conduct relevant monitoring on regular basis.

Preventing ground water pollution by silage “liquor”. The ensiling process as a biological process can also have negative effects on the environment. To avoid the negative impact and to protect the soil and underground waters, it is extremely important to meet a few requirements:

- (i) Proper location of silos. Trenches/furrows for filling and storing silage must be built on areas protected from accumulation of precipitations, especially floods, but groundwater too should be deeper than 4-5 meters from the basis of the construction.
- (ii) Silos’ sealing. The trenches must be well sealed, both its foundation as well as the walls, with concrete walls and/or thick polyethylene film. Lateral walls and the walls at the entrance into the trench must be higher than the ground level to avoid accumulation of water from precipitation drain. For these purposes, concrete trenches, soil furrows at a small depth completely covered with polyethylene film which would not permit the drainage of plant juice into the soil can be recommended. Also, plastic containers and polyethylene bags can be used for ensiling, which should be also sealed and will not permit liquids to drain or gases to dispose.
- (iii) Renovation and cleaning of silos. After emptying the silos, there are residues of spoiled feed, which are a favorable environment for developing rotting bacteria, molds, etc. It is necessary to clean the silos 2-3 weeks before ensiling and if necessary to renovate the capacities where feed will be ensiled. After cleaning and renovation, it is mandatory to disinfect the trenches and other stock houses for silage storage, with 5% slaked lime or 1% copper sulphate or other chemicals recommended for the disinfection of succulent feed silos. Demonstrational plots will be used show how the concrete trenches can be cleaned, renovated and disinfected with 5% slaked lime before the harvesting of silage corn, for example.
- (iv) Harvesting of corn for ensiling. For a good conservation and for making quality silage, it is necessary that corn plants are harvested at the time of maximal quantitative productivity and the highest content of nutrients. This is when the corn plant humidity is 60-70% and the phase of corn grains’ ripening is milk-dough. If the humidity is higher than 70%, then substantial quantities (up to 10-15% of total mass) of juices from plants dispose during the compaction of the ensiled mass. This leads to a worsening of the silage quality, a reduction in the contents of nutrients, but can also favor environmental pollution, especially of groundwater.
- (v) The shredders used for harvesting must assure small chopping of corn plants (1-3 centimeters length), while corn grains must be smashed too. Shredders of such producers as “Speru New Holland” shredder for harvesting the corn, the Turkish manufactured shredder “CELMAC” or similar can be recommended for the correct chopping of plants and corn grains.
- (vi) Compaction of the corn mass must be done properly and concomitantly with the filling of chopped plants. On the demonstrational plots, compaction can be done by wheel tractors, with feet under one’s own weight and by hand with a wood log with metal. For compacting corn mass the tractor can be used provided that the size of the trench (polyethylene film sleeve is much bigger than in the experiments on the demonstrational plots).
- (vii) Sealing of silage must be done in a few days to eliminate the air at maximum, to prevent undesired fermentation and to avoid aerobic processes which can favor mold and toxic substances.
- (viii) If during the ensiling period rains, the process of harvesting and storage must be stopped, while the silos (trenches) shall be temporarily preserved – covered with polyethylene film that must be fixed well. Special roof made of metal and metal tiles can be arranged to protect the silage from precipitation and frosts.
- (ix) To avoid the deterioration of the film by rodents, after the corn mass is covered, on top of the cover lime can be powdered, and to avoid the freezing of the layer of soil and upper layer of silage, the trench must be covered with a 50-60 cm layer of straw before the first frost.

- (x) The corn silage taken out of the trenches and other storage facilities does not stand prolonged storage. This is why a quantity equal to the daily norm of animal nutrition will be extracted on daily basis. Every time after part of the silage is taken the storage facilities must be thoroughly closed to avoid air access as much as possible.
- (xi) Wells located within 45 meters to silage storage should be routinely checked for contamination such as nitrates and E.coli.
- (xii) Farmers can implement practices to reduce the amount of leachate produced and its impact on the environment. Make sure that the moisture content of corn silage is between 65% and 70% for bunkers. Moisture levels may be even lower for corn silage stored in upright silos, though it should not fall below 62%. Alfalfa haylage should be harvested at 60% to 70% moisture content. Contact between silage and water can be minimized by utilizing plastic covers to divert water off of the silage area.
- (xiii) Make sure that the water is not running along the sides of the bunker and coming into contact with feed. If these measures are not enough to impede leachate movement off site then engineered practices need to be implemented. Grassed filter strips or diverting leachate into an existing or new holding facility may be needed.

Strict respect of these requirements will assure absolute avoidance of the negative impact of corn silage on the environment for the simple reason that it would not permit the generation of the so-called “silage juice”. Moreover, only respecting these rules silage with good organoleptic qualities, of a dark yellow color, smelling of sour bread and which animal eat with pleasure can be received.

However, if for certain reasons, one or more ecological requirements will be violated somehow and if silage juice will appear and accumulate in silage, it is extremely important to remove these as soon as possible. Silage juices should be collected and diluted 1:10 in good irrigation water. This solution can be used as liquid fertilizer on fields with feed plants, cereals or technical crops. It is less recommended to use it for perennial fruit crops and one must avoid the use of this fertilizer for vegetables and cucurbits crops.

Safe agricultural chemicals management

General remarks. Although the project will not support purchasing and use of mineral fertilizers and pesticides, the farmers routinely use acaricides to control ticks and other ectoparasites. Furthermore, to a limited extent they also purchase on their own agro-chemicals for improved fodder production which might cause impacts on the environment and on the farmers' health. By reducing pesticide use, livestock production operators may reduce not only the environmental impacts of their operations, but also production costs. Pesticides should be managed to avoid their migration into off-site land or water environments by establishing their use as part of an Integrated Pest Management (IPM) strategy and as documented in a Pesticide Management Plan (PMP). The following stages should be considered when designing and implementing an IPM strategy, giving preference to alternative pest management strategies, with the use of synthetic chemical pesticides as a last option.

The objective of ESMF in this regard is to encourage adoption of Integrated Pest Management approach and increase beneficiaries' awareness of pesticide-related hazards and good practices for safe pesticides use and handling. This will be done by providing relevant information dissemination and training. Below are presented key issues that should be reflected in the training curricular.

Principles of the Integrated Pest Management¹⁷. 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

¹⁷This section is based on the World Bank Group in the Environmental, Health, and Safety Guidelines prepared in 2007.

development of pesticide resistance. The IPM 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,
- d) rational Chemical Control.

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.

Alternatives to Pesticide Application. Where feasible, the following alternatives to pesticides should be considered:

- ❖ 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.

Pesticide Application. 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:
- ❖ 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;
- ❖ 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.

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.

Safety issues in mineral fertilizers usage and handling. Similarly, as in the case of usage of pesticides, fertilizers usage may provide important benefits for forage production, they also pose certain risks associated with accidental expose of environment and of farmers during their inappropriate handling and usage. To avoid adverse environmental impacts while using mineral fertilizers it is necessary to comply strictly with a series of requirements, stipulated in the existing legal documents as well as in the fertilizers Guidelines for their handling. The rules and procedures of production, storage, transportation and usage of the mineral fertilizers are reflected in a relatively small number of documents, and most of them were adopted at the time of the USSR.

Main requirements while using mineral fertilizers. The usage of different mineral fertilizers should be done depending on such factors as type and quality of the soil, type of the crop, system of crop rotation, weather and climate conditions, ways and terms of their application.

Provisions with regard to fertilizers storage:

- ❖ Keep stocks of fertilizers, and soil amendment materials to the minimum required.
- ❖ Ensure that the storage facility is appropriately secured.
- ❖ Fertilizers and soil amendment materials are not to be stored in contact with ground surfaces.
- ❖ Storage areas/facilities are to weather-proofed and able to exclude runoff from other areas.
- ❖ Do not store in close proximity to heat sources such as open flames, steam pipes, radiators or other combustible materials such as flammable liquids.
- ❖ Do not store with urea.
- ❖ Do not contaminate fertilizers, and soil amendment materials with other foreign matter.
- ❖ In case of fire flood the area with water.
- ❖ If augers are used to move the material ensure that any residue(s) in the immediate area is cleaned up.
- ❖ Dispose of empty bags in the appropriate manner.

Provisions with regard to fertilizers field usage:

- ❖ Keep fertilizer amounts to a minimum and covered to avoid unnecessary expose to open air.
- ❖ Keep spreaders and air seeders that are left in the field overnight covered.
- ❖ Cover spreader and air seeders between jobs.
- ❖ Ensure that the drill, air seeder and/or fertilizer box is completely empty at the end of each day. If the drill, air seeder and/or fertilizer box cannot be fully emptied fill to capacity prior to storage for the night.
- ❖ Do not store dry urea with dry ammonium nitrate.

Ensuring minimization of hazards associated with inappropriate handling and usage of fertilizers: The *Table* below provides information about typical hazard scenarios that may arise in conjunction with the procurement, handling and storage of fertilizers as well as the recommended measures to control the potential risks.

Table: Typical hazard scenarios and recommended measures

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 labeled. 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 e.g. training records, risk assessments, maintenance schedules, recipes for fertilizer blends, MSDS's etc.

Ensuring safe application of acaricides in livestock, silk production and beekeeping. To reduce the impacts of ticks and other ectoparasites farmers routinely use Acaricides which are applied through, dipping, spraying, spot treatment or hand dressing.

Dipping provides a highly effective method of treating animals with Acaricides for the control of ticks. The disadvantage of this method however is the initial construction cost and the cost of Acaricide which make this method unattractive for small scale ranching operations. The method involves immersion of animals in a dipping tub containing solution of chemicals.

The spraying method of tick control is not as efficient as dipping. It involves the use of fluid Acaricides applied to animals by means of a spray. The spraying equipment is portable and needs only small amounts of Acaricides to be mixed for the application. The Acaricides may not be thoroughly applied to all parts of the animal body hence it is less efficient than the dipping method of application. The 2 methods mentioned above, dipping and spraying may not exposed ticks in the inner parts of the ear, under part of the tail, the tail brush and the areas between the teats and the legs in cattle with large udder, to the Acaricides and hence may escape treatment.

The process of applying Acaricides to these areas by hand is termed hand dressing or spot treatment. The advantage here is that the method is more effective and economical in terms of cost of Acaricide as spot treatment is restricted to only selected areas instead of the whole animal. The disadvantage however is that the process is time consuming and laborious.

To reduce inappropriate handling and improve usage of acaricides and anti-helminthes at recommended doses, the labeling of parasiticides in the project area should be packaged in suitable containers with instruction in the national/Russian language, include the use of containers graduated by pictorial symbols or pictograms illustrating animal size and corresponding quantities of the drug required for treatment. Also biological and integrated parasite management methods should be encouraged and taught to rural farmers to reduce the use of pervasive veterinary parasiticides. Stringent policies and efforts by Government of Uzbekistan are also required to regulate the importation, distribution and marketing of agro-chemicals.

All specified measures will be promoted via the training Program supported under the project.

Pasture degradation prevention measures. As specified above the potential impacts in this regard are positive. The project aimed to increase livestock productivity in RUz, and includes components which would improve the productivity, use and access to the pastures and also would strengthen and build the capacity of national level institutions to help develop a cadre of technically qualified specialists in pasture management and improvement. Farmers Councils in khokimiyats are the key resource at the community level to facilitate improvements in animal health and productivity. Findings, practices and educational kit of this project can be used also as a part of pasture degradation prevention measures.

Other prevention measures include: good pasture management through rotational grazing are potentially the most cost effective ways to reduce and offset GHG emissions. The resultant increases in vegetation cover and soil organic-matter content sequester carbon, while inclusion of high-quality forage in the animals' diet contributes to reducing methane emissions per unit of product. Improved grazing management also generally improves the profitability of production, proper handling of seeds. Feed efficiency can also be increased by improving herd health through improved veterinary services, preventive health programs and improved water quality. Intensification of pasture management and feed production can reduce the land requirements per unit of animal product produced, thus curbing land-use expansion. Intensification alone is not sufficient, however, and complementary measures are required

Mitigation of potential impacts of the meat and dairy – processing activities. Production of meat and its subproducts as well as of cheese, yogurt, butter and other dairy products are associated with waste waters, solid waste management, emissions and labor safety. These require typical mitigation measures, well known which include the following:

- ❖ Avoid meat and milk, product, and by-product losses;
- ❖ Install grids to reduce or avoid the introduction of solid materials into the wastewater drainage system;

- ❖ Adopt best-practice methods for facility cleaning systems, using approved chemicals and / or detergents with minimal environmental impact and compatibility with subsequent wastewater treatment processes;
- ❖ Where possible and subject to sanitary requirements, segregate solid process waste and non-conforming products;
- ❖ Optimize product filling and packaging equipment to avoid product- and packaging-material waste;
- ❖ Optimize the design of packaging material to reduce the volume of waste;
- ❖ Plastic waste from packaging cuttings can be reused, or should be sorted as plastic waste for off-site recycling or disposal, etc.

Measures to be taken to minimize potential negative environmental impacts depend on their type, magnitude, combination and distribution. All of them are expected to be typical, temporary by nature and site specific and can be easily mitigated by applying relevant mitigation measures.

Furthermore, the project would support additional TA activities to strengthen the existing institutional capacities to ensure that effective ESAs are conducted, ESMPs are implemented properly and monitoring systems are put in place. Of particular attention would be those activities resulting in water, soil and air pollution, and soil erosion.

Prevention and response-focused activities are expected to have a positive environmental impact, as the investments in facilities, equipment, and training for veterinary and public health service staff and laboratories will improve the effectiveness and safety over existing animal diseases handling and testing procedures by meeting international standards established by the World Organization for Animal Health (OIE) and the World Health Organization (WHO).

ANNEX 3. International Best Practice in Safety of Research Laboratories¹⁸

Procurement / Transportation
<ul style="list-style-type: none"> Minimize acquisition / quantity of hazardous materials, minimize storage time needed Identify mechanism of waste disposal before acquisition For chemicals, have Material Safety Data Sheets (MSDSs) accessible/confine deliveries to areas that are equipped to handle them (and train relevant personnel) Ensure container is intact and appropriately labeled (US regulations detail how hazardous materials have to be identified, packaged, marked, labeled, documented and placarded) Transport in appropriate (secondary) containers Use triple packaging system for infectious and potentially infectious substances Adhere to international air transport regulations
Storage / Management
<ul style="list-style-type: none"> Inventory should have name as printed on the container For chemicals: include molecular formula for further identification and to provide a simple means of searching chemicals; include CAS (Chemical Abstract Service) registry number for unambiguous identification of chemicals despite the use of different naming conventions Source Size of container Hazard classification, as a guide to safe storage, handling, and disposal Date of acquisition, to ensure that unstable chemicals are not stored beyond their useful life, and Storage location <p><i>Procedures</i></p> <ul style="list-style-type: none"> Dispose of materials anticipated to not be needed within a reasonable time frame Use approved containers; make sure storage containers remain intact and sealed Dispose of chemicals prior to expiration date, monitor reactive chemicals Replace deteriorating labels before information is obscured or lost Follow regulations for safe storage in stockroom or lab Avoid storing chemicals on bench tops or lab hoods Store volatile chemicals in ventilated cabinet (near hood) If ventilation is not required, store in closable cabinet or on shelf with lip to prevent sliding Do not expose stored chemicals to heat or direct sunlight Observe all precautions regarding the storage of incompatible chemicals Provide vented cabinets beneath hoods for storing hazardous materials Use chemical storage refrigerators for storing chemicals Have fire protection system (sprinklers) Follow storage limits for flammable and combustible liquids Restrict access to storage facility
Protocols / Facilities for Use in Research
<ul style="list-style-type: none"> Wear and use appropriate personal protection materials to minimize exposure Wash hands Reduce the possibility of creating splashes or aerosols Contain in biological safety cabinets operations that generate aerosols Use good housekeeping Use mechanical pipetting devices Promptly decontaminate work surfaces Never eat, ring, smoke, handle contact lenses, apply cosmetics, or take medicine in the lab Take special care when using sharps Keep lab doors closed when experiments are in progress

¹⁸US National Institutes of Health

- Use secondary leak-proof containers to move or transfer cultures
- Decontaminate infectious waste before disposal
- Post appropriate warning signs
- Mark emergency equipment, maintain it, inspect it; list telephone numbers to call in case of accident
- Control access

For Radioisotopes

- Use only in designated areas
- Allow the presence of essential staff only
- Use personal protective equipment
- Monitor personal radiation exposures
- Use spill trays lined with disposable absorbent materials
- Limit radionuclide quantities
- Shield radiation sources
- Mark radiation containers with the radiation symbol, including radionuclide identity, activity, and assay date
- Use radiation meters to monitor working areas, protective clothing, and hands after completion of work
- Use appropriately shielded transport containers
- Remove radioactive waste frequently from the working area
- Maintain accurate records of use and disposal of radioactive materials
- Screen dosimetry records for materials exceeding the dose limits
- Establish and regularly exercise emergency response plans
- In emergencies, assist injured persons first
- Clean contaminated areas thoroughly
- Write and keep incident reports

For Animal laboratories

- Require good microbiological techniques
- Establish policies and protocols for all operations and for access to vivarium
- Establish appropriate medical surveillance program and supervision for staff
- Prepare and adopt safety or operations manual
- Post warning signs
- Decontaminate work surfaces after use
- Use appropriate biological safety cabinets or isolator cages; handle and decontaminate animal bedding and waste materials appropriately
- Transport material for autoclaving or incineration safely, in closed containers
- Treat, report, and record injuries

Training of Personnel

Employer develops Chemical Hygiene Plan containing (models available from U.S. government and from some professional societies)

- Employee information and training about the hazards of chemicals in the work area:
 - How to detect their presence or release
 - Work practices and how to use protective equipment
 - Emergency response procedures
- Circumstances under which a lab operation requires prior approval from the institution
- Standard operating procedures for work with hazardous chemicals
- Criteria for use of control measures
- Measures to ensure proper operation of fume hoods and other protective equipment
- Provisions for additional employee protection for work with select carcinogens and toxins
- Provisions for medical consultations and examinations for employees
- Labs should establish their own safety groups at the department level (include students and support staff)
- Labs should provide training in safety and waste management for all lab workers, including students in laboratory classes
- Labs should incorporate institutionally supported lab and equipment inspection programs into their

<p>overall health and safety programs</p> <ul style="list-style-type: none"> • Review exit / evacuation routes • Know how to report fire, injury, chemical spill, or summon emergency response • Know first aid • Know location and use of emergency equipment such as safety showers and eyewashes • Know location and use of fire extinguishers and spill control equipment (have appropriate kits readily available) • Lab personnel should establish ongoing relationships and clear lines of communication with emergency response teams • Include information on safe methods for highly hazardous procedures commonly encountered by lab personnel that involve: <ul style="list-style-type: none"> Inhalation risks Ingestion risks Risks of percutaneous exposures Bites and scratches when handling animals Handling of blood and other potentially hazardous pathological materials
Decontamination and disposal of infectious material
Segregation / Triage of Waste
<p>Multi hazardous waste – goal is reduction of waste to a waste that presents a single hazard.</p> <ul style="list-style-type: none"> • Consider frequency and amount of waste generated; assess risk • Identify / characterize waste: <ul style="list-style-type: none"> Physical description Water reactivity Water solubility pH and possibly neutralization information ignitability / flammability presence of oxidizer presence of sulfides / cyanides presence of halogens presence of radioactive materials presence of biohazardous materials presence of toxic constituents • Minimize waste's hazards • Determine options for management of hazards • If appropriate, take steps to neutralize waste or render it non-hazardous • When possible, select a single management option • Establish procedures for dealing with unstable waste, or waste that requires special storage or handling • Store safely: <ul style="list-style-type: none"> Designated room or facility modified to contain the waste (with ventilation and effluent trapping) Protect workers Minimize risk of fire or spill Minimize radiation levels outside of area Consider compatibility of materials being accumulated (e.g., aqueous and non-aqueous waste should be separated) • Give particular attention to the handling or cleaning of radioactive laboratory ware, and to the proper disposal of sharps. <ul style="list-style-type: none"> Non-contaminated (non-infectious) waste can be reused or recycled or disposed of as general waste Contaminated (infectious) sharps – collect in puncture-proof containers fitted with covers and treated as infectious; autoclave if appropriate Contaminated material for decontamination by autoclaving and thereafter washing and reuse or recycling Contaminated material for direct incineration
Disposal

No activity should begin unless a plan for the disposal of hazardous waste has been formulated

- Use appropriate disposal method for each category of waste
- Use appropriate containers
- Label and securely close waste containers
- Separate wastes as appropriate

For low level radioactive waste, options include

- Storage time for decay and indefinite on site storage,
- Burial at a low-level radioactive waste site,
- Incineration, or
- Sanitary sewer disposal

For biological waste, options include

- Disinfection
- Autoclaving
- For liquids, disposal in sanitary sewer; putrescible waste disposed of by incineration; needles and sharps require destruction, typically by incineration or grinding

Collection and storage of waste

- At satellite area near lab:
 - should be clearly identified, ventilated if necessary
 - determine whether to recycle, reuse, or dispose
 - hold here for less than one year; when containment volume limits reached, move to central accumulation area – package appropriately

- At central accumulation area:
 - separate according to compatibility, commingle solvents when appropriate
 - label clearly, store in appropriate containers
 - limit storage time to 90 days
 - (ensure that employees are trained to handle waste materials as well as contingency planning for emergencies)

When transporting, make provisions for spill control in case of accident; have internal tracking system to follow movement of waste

Ensure that all necessary records have been generated (Quantities and identification of waste generated and shipped; Documentation and analyses of unknown materials; Manifests for waste shipping as well as verification of waste disposal; Any other information required to ensure compliance and safety from long-term liability)

- Disposal options:
 - Incineration – is method of choice for most wastes, but is most expensive
 - Normal trash – only where appropriate, must be clearly identified and appropriately labeled
 - Sanitary sewer – not commonly used; solutions must be aqueous and biodegradable, or low toxicity inorganics – make sure sewer doesn't drain into water supply inappropriate for waste disposal, and make sure waste is highly diluted

Release to the atmosphere – not acceptable; fume hoods must have trapping devices to prevent discharge to atmosphere

- If hazardous and non-hazardous wastes are mixed, entire waste volume must be treated as hazardous
- Preparation for transport to a treatment, storage, and disposal facility (TSDF)
- Waste generator must obtain assurance (in terms of documentation, permits, records) that provider is reliable

For infectious material

- Decontaminate, autoclave, or incinerate in lab
- Package appropriately (for incineration or for transfer to another facility for incineration)
- Protect against hazards to others to those who might come in contact with discarded items

ANNEX 4. Environmental Management Plan Checklist

Part 1: General Project and site information

INSTITUTIONAL&ADMINISTRATIVE				
Country				
Project title				
Scope of project and activity				
Institutional arrangements (Name and contacts)	WB (Project Team Leader)	Project Management		Local Counterpart and/or Recipient
Implementation arrangements (Name and contacts)	Safeguard Supervision	Local Counterpart Supervision	Local Inspectorate Supervision	Contactor
SITE DESCRIPTION				
Name of site				
Describesite location			Attachment 1: Site Map []Y [] N	
Who owns the land?				
Description of geographic, physical, biological, geological, hydrographic and socio-economic context				
Locations and distance for material sourcing, especially aggregates, water, stones?				
LEGISLATION				
Identify national & local legislation & permits that apply to project activity				
PUBLIC CONSULTATION				
Identify when / where the public consultation process took place				
INSTITUTIONAL CAPACITYBUILDING				
Will there be any capacity building?			[] N or []Y if Yes, Attachment 2 includes the capacity building program	

PART 2: SAFEGUARDS INFORMATION

ENVIRONMENTAL /SOCIAL SCREENING			
Will the site activity include/involve any of the following?	Activity	Status	TriggeredActions
	Building rehabilitation	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Section B below
	Minor new construction	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	See Section B below
	Individual wastewater treatment system	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	See Section C below
	Historic building(s) and districts	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	See Section D below
	Acquisition of land ¹⁹	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Section E below
	Hazardous or toxic materials ²⁰	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	See Section F below
	Impacts on forests and/or protected areas	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Section G below
	Handling / management of medical/veterinary waste	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	See Section H below
	Traffic and Pedestrian Safety	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	See Section I below

¹⁹The project will support construction of new buildings only in case land acquisition is not required and there are no problems with resettlement; for such cases the investor should have vested property right, as well as should prove that land is not occupied or used illegally during the implementation of subprojects

²⁰Toxic / hazardous material includes but is not limited to asbestos, toxic paints, lead paints, etc.

PART 3: MITIGATION MEASURES

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
A. General Conditions	Worker Safety	<ul style="list-style-type: none"> • The local construction and environment inspectorates and communities have been notified of upcoming activities • The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works) • All legally required permits have been acquired for construction and/or rehabilitation • All work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. • Workers will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots) • Appropriate signposting of the sites will inform workers of key rules and regulations to follow.
B. General Rehabilitation and /or Construction Activities	Air Quality	<ul style="list-style-type: none"> • During interior demolition debris-chutes shall be used above the first floor • Demolition debris shall be kept in controlled area and sprayed with water mist to reduce debris dust • During pneumatic drilling/wall destruction dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site • The surrounding environment (side walks, roads) shall be kept free of debris to minimize dust • There will be no open burning of construction / waste material at the site • There will be no excessive idling of construction vehicles at sites
	Noise	<ul style="list-style-type: none"> • Construction noise will be limited to restricted times agreed to in the permit • During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible
	Water Quality	<ul style="list-style-type: none"> • The site will establish appropriate erosion and sediment control measures such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers.
	Waste management	<ul style="list-style-type: none"> • Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities. • Mineral construction and demolition wastes will be separated from general refuse,

		<p>organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers.</p> <ul style="list-style-type: none"> • Construction waste will be collected and disposed properly by licensed collectors. • The records on waste disposal will be maintained as proof for proper management as designed. • Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos)
C. Individual wastewater treatment system	Water Quality	<ul style="list-style-type: none"> • The approach to handling sanitary wastes and wastewater from building sites (installation or reconstruction) must be approved by the local authorities • Before being discharged into receiving waters, effluents from individual wastewater systems must be treated in order to meet the minimal quality criteria set out by national guidelines on effluent quality and wastewater treatment • Monitoring of new wastewater systems (before/after) will be carried out
D. Historic building(s)	Cultural Heritage	<ul style="list-style-type: none"> • If the building is a designated historic structure, very close to such a structure, or located in a designated historic district, notification shall be made and approvals/permits be obtained from local authorities and all construction activities planned and carried out in line with local and national legislation. • It shall be ensured that provisions are put in place so that artifacts or other possible “chance finds” encountered in excavation or construction are noted and registered, responsible officials contacted, and works activities delayed or modified to account for such finds.
E. Acquisition of land	Land Acquisition Plan/Framework	<ul style="list-style-type: none"> • At this stage of implementation the project doesnot requireacquisition of land and resettlement. It is impossible to estimate potential impact on the land resources required for the project implementation. After preparation of the final project documentation there will be an opportunity to carry out assessment of impact on land resources. • If expropriation of land was not expected but is required, or if loss of access to income of legal or illegal users of land was not expected but may occur, that the Bank’s Task Team Leader shall be immediately consulted. • The approved Land Acquisition Plan/Framework (if required by the project) will be implemented
F. Toxic Materials	Asbestos management	<ul style="list-style-type: none"> • If asbestos is located on the project site, it shall be marked clearly as hazardous material • When possible the asbestos will be appropriately contained and sealed to minimize exposure • The asbestos prior to removal (if removal is necessary) will be treated with a wetting agent to minimize asbestos dust • Asbestos will be handled and disposed by skilled & experienced professionals

		<ul style="list-style-type: none"> • If asbestos material is be stored temporarily, the wastes should be securely enclosed inside closed containments and marked appropriately. • The removed asbestos will not be reused
	Toxic/hazardous waste management	<ul style="list-style-type: none"> • Temporarily storage on site of all hazardous or toxic substances will be in safe containers labeled with details of composition, properties and handling information • The containers with hazardous substances shall be placed in an leak-proof container to prevent spillage and leaching • The wastes shall be transported by specially licensed carriers and disposed in a licensed facility. • Paints with toxic ingredients or solvents or lead-based paints will not be used
G. Affected forests and/or protected areas	Protection	<ul style="list-style-type: none"> • All recognized natural habitats, wetlands and protected areas in the immediate vicinity of the activity will not be damaged or exploited, all staff will be strictly prohibited from hunting, foraging, logging or other damaging activities. • Large trees shall be marked and cordoned off with fencing, their root system protected, and any damage to the trees avoided • Adjacent wetlands and streams shall be protected from construction site run-off with appropriate erosion and sediment control feature to include by not limited to hay bales and silt fences • There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas, especially not in protected areas.
H. Disposal of medical/veterinary waste	Infrastructure for medical waste management	<ul style="list-style-type: none"> • In compliance with national regulations the contractor will insure that newly constructed and/or rehabilitated health care facilities include sufficient infrastructure for medical waste handling and disposal; this includes and not limited to: <ul style="list-style-type: none"> • Special facilities for segregated healthcare waste (including soiled instruments “sharps”, and human tissue or fluids) from other waste disposal; • Appropriate storage facilities for medical waste are in place; • If the activity includes facility-based treatment, appropriate disposal options are in place and operational
I. Traffic and Pedestrian Safety	Direct or indirect hazards to public traffic and pedestrians by construction activities	<p>In compliance with national regulations the contractor will insure that the construction site is properly secured and construction related traffic regulated. This includes, but is not limited to:</p> <ul style="list-style-type: none"> • Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards • Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes. • Adjustment of working hours to local traffic patterns, e.g. avoiding major transport

		<p>activities during rush hours or times of livestock movement</p> <ul style="list-style-type: none"> • Active traffic management by trained and visible staff at the site, if required for safe and convenient passage for the public. • Ensuring safe and continuous access to office facilities, shops and residences during renovation activities, if the buildings stay open for the public.
--	--	---

Part 4. MONITORING PLAN

Phase	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency /or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)
During activity preparation							
During activity implementation							
During activity supervision							

ANNEX 5. ENVIRONMENTAL SCREENING CHECKLIST FORMS FOR ACCESS TO CREDIT COMPONENT

Environmental Screening Checklist forms should be included in the credit application forms. This is a sample document that is recommended by the team of experts for use during the preparation of credit guideline and manual under Access to Credit Component.

FORM 1 - ENVIRONMENTAL SCREENING CHECKLIST

(To be completed by credit applicant)

1. *Sub-project name:*

• *Brief Description of Sub-project:*

1.1 *Nature of the activity:*

1.2 *Cost:*

1.3 *Physical characteristics (description of items to be financed):*

1.4 *Site area (number of hectares) and location:*

1.5 *Property ownership:*

1.6 *Existence of ongoing operations? (yes/no)*

1.7 *Plans for Expansion?*

1.8 *New construction?*

2. Will the sub-project have impacts on the environmental parameters listed below during the construction or operational phases? Indicate with a check during which phase the impacts will likely occur and whether mitigation measures are required.

Environmental Component	Construction Phase	Operational Phase	Mitigation Measures
Terrestrial environment			
Soil Erosion: which horticulture crops are envisaged? Is the land located on the slopes and/or on the plain areas? Will the project involve ploughing/plant cultivation on the slopes?			
Soil pollution: Will the project apply pesticides? If yes which types and their amount?			
Land, habitats & ecosystems degradation: Is the area which is to be used currently a natural habitat (forest, wetland, natural grassland, etc.)?			
Land degradation: Will the project involve land excavation?			
Generation of solid wastes– what type of wastes will be generated and their approximate amount			
Generation of toxic wastes– what types of toxic waste will be generated (obsolete and unusable pesticides and mineral fertilizers; chemicals used in agro-processing activities; asbestos) and their approximate amount.			
Biodiversity and Habitats Loss: Will the project be located in vicinity of protected areas, wetlands or other sensitive areas supporting important habitats of natural fauna and flora? Will it result in modification of natural habitats			
Construction: Will there be disturbance to the land and natural environment			
Air quality			
Will the project provide pollutant emissions? Which types of pollutants (SOx, NOx, solid particles, dioxins, furans, etc)			
Aquatic environment			
Water Quantity: will the project involve water use? From which water source (centralized water supply system and/or from water reservoir)?			

Water Quality/Pollution: Will the project contribute to surface water pollution– what will be the approximate volumes of waste water discharge? Does the project involve discharges of waste waters in water reservoirs and/or in centralized sanitation network/septic tank?			
Loss of Biodiversity: Will the project involve introduction of alien species (in case of horticulture projects)?			
Degradation of natural aquatic ecosystems– will the project involve discharges in water courses and reservoirs of solid wastes; pesticides;			
Socio-economic environment			
Social impacts– does the project involve the following: (a) occupational safety issues; (b) health hazards; (c) land acquisition; (d) loss of the access to sources of income; and (e) disturbance of residents living near the project area.			
Does the project require public consultation to consider local people environmental concerns and inputs?			

3. For the environmental impacts that were indicated above with a check, describe the mitigation measures that will be included during the construction (C) or operational (O) phase of sub-project or both (B).

Simple Environmental Mitigation Plan

Environmental impact (What is to be mitigated)	Sub-project Phase (C, O or B)	How and where will it be mitigated	Responsibility and cost

4. A typical sub-project monitoring plan would be prepared to monitor the implementation of the EMP for the sub-project.

Environmental Monitoring Plan

Project phase	What is to be monitored	How and where will it be monitored	Frequency of monitoring	Responsibility	Cost
---------------	-------------------------	------------------------------------	-------------------------	----------------	------

Baseline					
Construction					
Operation					
De-commissioning					

Form 2

ENVIRONMENTAL SCREENING CHECKLIST

(To be completed by PFI)

1. *Sub-project name:*

2. *Environmental Category (B or C), based on sub-project application form:*

(For Category B sub-projects, the PFI will refer the screening to the RRA)

3. *Environmental assessment required (for B sub-projects):*

Yes/ No

4. *What environmental issues raised by the sub-project:*

5. *If environmental impact assessment is required, what specific issues to be addressed?*

6. *What is the time frame and estimated cost of conducting the environmental impact assessment?*

Date referred to RRA: _____

Environment Checklist for Existing Enterprise Screening Criteria

Criteria	Comments
1. Does the existing enterprise have a valid operating permit, licenses, approvals etc.?	If no, either: All required licenses/ permits/ approvals etc. will be obtained prior to project approval, or Project investment must provide key investments needed to obtain them.
2. Does the existing enterprise meet all Uzbek environmental regulations regarding air emissions, water discharges and solid waste management?	If no: Enterprise must take corrective measures to meet all environmental regulations prior to project approval, or Project investment must provide key investments needed to meet them
3. If the existing enterprise has any significant outstanding environmental fees, fines or penalties or any other environmental liabilities (e.g. pending legal proceedings involving environmental issues etc.) will the investment be used to correct this condition?	If the enterprise has outstanding liabilities the facility must agree to take corrective measures to remove them prior to project approval.
4. If there have been any complaints raised by	If yes: RRA should examine the nature of the

local affected groups or NGOs regarding conditions at the facility will the investment be used to remedy these complaints?	complaints and actions taken to address them. If there are significant unresolved complaints, RRA should consult with WB regarding appropriate action
5. Will the project likely have significant, diverse environmental impacts that are sensitive, diverse, or unprecedented? Impacts may affect an area broader than the sites of facilities subject to physical works	If yes, assign "Category A" and do not fund
6. Will the project have potential adverse impacts on human populations or environmentally important areas- including wetlands, forests, grasslands, and other natural habitats- are less adverse than those of Category A. Are the impacts site specific, few if any irreversible and mitigating measures are readily developed	If yes, assign "Category B"
7. Will the project likely have minimal or no impact	If yes, assign "Category C"

Form 3

FINAL ENVIRONMENTAL ASSESSMENT AND MONITORING CHECKLIST

(To be completed by the PFIs (in consultation with RRA Environmental Specialist based on review of the mitigation proposed and the environmental assessment (if required)).

Was an Environmental Impact Assessment needed? (Yes or No) ____ If yes, was it done? ____

Was an Environmental Management Plan prepared? (Yes or No) _____

Are the mitigation measures to be included in project implementation adequate and appropriate? (Yes or No) _____

Will the project comply with existing pollution control standards for emissions and wastes? (Yes or No) ____ If no, will an exemption be sought? ____

Is an Environmental Monitoring Plan necessary? (Yes or No) ____ If so, has it been prepared? (Yes or No) ____ Approved by the PFIs? _____

What follow-up actions are required by the proponent, the PFIs or the RRA Environmental Specialist?

Were public consultations held concerning potential environmental impacts of the proposed subproject? (Yes or No) _____ Were minutes recorded? (Yes or No) _____

Annex: minutes of consultation

Project Officer: Date:

Environmental Screener: Date:

Form 4

FIELD VISIT CHECKLIST FOR CATEGORY B SUB-PROJECTS UNDER THE ACCESS TO CREDIT COMPONENT

(To be completed by RRA)

ProjectName:

Date/timeofVisit:

District:

Visitors:

Location

- Obtain a site map or make a sketch
- Locate site on local map or indicate area (e.g. for grazing)

Current activity and site history

- Who is the site contact (name, position, contact information)?
- What is the area of the site to be used for project activities?
- What are current uses of the site?
- What were previous uses of the site (give dates if possible)?

Environmental Situation

- Are there sensitive sites nearby (nature reserves, cultural sites, historical landmarks)?
- Is anything known about the geology/hydrology of the site? Are there water courses on the site?
- What is the terrain or slope?
- Does the site experience flooding, waterlogging or landslides? Are there signs of erosion?
- What are the neighboring buildings (e.g., schools, dwellings, industries) and land uses? Estimate distances.
- Will the proposed site affect transportation or public utilities?

Pesticide Situation

- Are pesticides stored and disposed in safe manner?
- Are applicators aware of, and practicing safe spraying and handling precautions?
- For what pests and diseases are pesticides used and have alternative pest management approaches being tried?
- Do applicators use proper safety precautions during spraying of pesticides?
- Are farmers and farm assistants trained in proper pesticide use, storage and disposal?
- Are there any environmental issues relating to pesticide use?

Licenses, Permits and Clearances

- Does the site require licenses or permits to operate the type of activity proposed? Are these available for inspection?
- What environmental or other (e.g., health, forestry) authorities have jurisdiction over the site?

Water Quality Issues

- Does the proposed activity use water for any purposes (give details and estimate quantity). What is the source?
- Will the proposed activity produce any effluent? (estimate quantity and identify discharge point)
- Is there a drainage system on site for surface waters or sewage?
- Is there a plan available of existing drainage or septic systems?
- How waste water is managed (surface water courses, dry wells, septic tanks)?
- If the project involves the use of an existing dam, does the dam meet World Bank safety standards

- Will the scheme lead to increased water intake from the rivers?

Soils

- What is the ground surface (agricultural land, pasture, etc.)?
- Will the project damage soils during construction or operations?
- Will the project affect the landscape significantly (draining wetlands, changing stream courses)

Biological environment

- Describe vegetation cover on the site.
- Is there information about rare or threatened flora and fauna at or near the site? If yes, would the project have an impact or increase risk to the species?
- Obtain a list of vertebrate fauna and common plants of the site (if available).
- Note potential negative impacts on biota if project proceeds.

Visual Inspection Procedures

- Try to obtain a site map or make a sketch to mark details.
- Take photos, if permitted.
- Walk over as much of the site as possible, including boundaries, to note adjacent activities.
- Note any odors, smoke or dust emissions, standing water, etc.

Recommended Mitigation Measures

- Confirm proposed mitigation measures or provide recommendations for satisfactory mitigation measures

ANNEX 6. TERMS OF REFERENCE FOR ENVIRONMENTAL IMPACT ASSESSMENT

An environmental assessment report for Category B project focuses on the significant environmental issues raised by a Sub-project. Its primary purpose is to identify those measures that, if incorporated into the design and implementation of a project can assure that the negative environmental effects will be minimized. The scope and level of detail required in the analysis depend on the magnitude and severity of potential impacts.

The environmental impact assessment report should include the following elements:

- (a) *Executive Summary*. This summarizes the significant findings and recommended actions.
- (b) *Policy, legal and administrative framework*. This section summarizes the legal and regulatory framework that applies to environmental management in the jurisdiction where the study is done.
- (c) *Project Description*. Describes the nature and scope of the project and the geographic, ecological, temporal and socioeconomic context in which the project will be carried out. The description should identify social groups that will be effected, include a map of the project site, and identify any off-site or support facilities that will be required for the project.
- (d) *Baseline data*. Describe relevant physical, biological and social condition including any significant changes anticipated before the project begins. Data should be relevant to project design, location, operation or mitigation measures.
- (e) *Environmental impacts*. Describe the likely or expected positive and negative impacts in quantitative terms to the extent possible. Identify mitigation measures and estimate residual impacts after mitigation. Describe the limits of available data and uncertainties related to the estimation of impacts and the results of proposed mitigation.
- (f) *Analysis of Alternatives*. Systematically compare feasible alternatives to the proposed project location, design and operation including the "without project" alternative in terms of their relative impacts, costs and suitability to local conditions. For each of the alternatives quantify and compare the environmental impacts and costs relative to the proposed plan.
- (g) *Environmental Management Plan (EMP)*. If significant impacts requiring mitigation are identified, the EMP defines the mitigation that will be done, identifies key monitoring indicators and any needs for institutional strengthening for effective mitigation and monitoring to be carried out.
- (h) *Annexes*. These should include:
 - (i) The list of EA preparers;
 - (ii) References used in study preparation;
 - (iii) A chronological record of interagency meetings and consultations with NGOs and effected constituents;
 - (iv) Tables reporting relevant data discussed in the main text, and;
 - (v) A list of associated reports such as resettlement plans or social assessments that were prepared for the project.

In addition, the Terms of reference should specify the composition and qualifications of the study team, the duration of the studies, the scope and nature of any primary data collection and field visits that will be required, and include a schedule of reporting and the nature and constituencies for consultations with stakeholders that are to be carried out.

ANNEX 7. Terms of Reference for RRA Environmental Specialist

A) Responsibilities

The Environmental Specialist (ES) will be responsible for environmental monitoring of the Project interventions and its impacts. The ES will be in charge of overall coordination and reporting on the EMP, inspection of environmental compliance at worksites, advising project participants on environmental questions, coordination the overall environmental monitoring at project level, and coordination of the agricultural extension programme. The specialist will be responsible for periodically collecting information on changes and impact of the project activities. ES needs to study the environmental condition of the project area and identify main environmental parameters. Following to this, responsible for environmental monitoring of the Project interventions and its impacts. The ES will be in charge of overall coordination and reporting on the EMP, inspection of environmental compliance at worksites, advising project participants on environmental questions, coordination the overall environmental monitoring at project level, and coordination of the agricultural extension programme. ES needs to set monitoring indicators for the periodical study of environmental impacts of the project activities. Project related study documents, including model of rational environmental management, and others will be the main frame works for the specialist to operate. ES will ensure that the information gathered is provided to the Project Manager and relevant component coordinators so that they will be able to properly assess project implementation and make suitable adjustments to implementation plans (should that be necessary). This information and the findings from it are a powerful management tool to be used on a continual basis during implementation and therefore it is important that the Environmental specialist receives suitable and continuous support from the Project management. Detailed responsibilities of the Environmental specialist in relation to the Project are listed below (but not limited to this list):

- ❖ Gathering and analyzing information related to environmental issues in the project area;
- ❖ Guiding the project staffs in the areas of sub-projects requirements and provide them required information regarding environmental policies and standards;
- ❖ Reviewing environmental standards of each-sub-projects with the aim to identify appliance of the project classification in respect with the directives;
- ❖ Monthly provide report to the Project Manager on project progress and effectiveness of the taken measures and environmental parameters, identified for each sub-projects for the duration of the project and recommendation on the mitigation measures.

Guiding the staff of RRA and providing assistance in preparation of the loan project, bidding documents for the compliance to the environmental standards with identifying the weak aspects, related to the specifications and/or the type of goods/work.

Periodically organize study programs for development and enhancing the professional skills of the personnel involved in the project in the environmental related issues.

Act as the communication point between the national and international authorities and organizations involved in the Environment and Nature Protection.

Actively participate in IDA supervision missions.

B) Reporting

The ES will report directly to the RRA. The ES will be responsible to implement the monitoring plan. ES will prepare and submit concise quarterly reports to the attention of the RRA on the most important issues related to the EMP. The format of the report will be prepared by the ES and approved by the RRA.

C) Qualifications and Experience

The Environmental Specialist should have:

- a) A university degree in the area of ecology, environment and nature protection, industrial engineering and/or similar.
- b) At least 3 years experience of working in the area of monitoring, environment and nature protection and/or similar.
- c) Broad experience in monitoring environmental impacts, national environmental standards and requirements for nature, human health and general safeguard policies and standards.
- d) Understanding of international environmental standards, including World Bank safeguard policies and requirements.
- e) Experience in interacting with the Government of Uzbekistan, international agencies, national and local administrations.
- f) Good written and communication skills. Knowledge of English is preferable.

ANNEX 8 Sample of screening form for assessment of resettlement and land acquisition impact

Report prepared by (name and title): Resettlement specialist					Date:
Type of infrastructure being built and location:					
<i>General aspects</i>	Yes		No		<i>Additional information/comments:</i>
General description: Provide details on the land that will be used for the investment (e.g., Who owns the land? What is the land being used for? What is on the land? Are there any informal structures on the land? Is it public/private land? Who owns the land? If/when was land acquired? (if already transferred: include copies of land transfer)					
Will privately used land be acquired for the proposed investment?					
Are there any outstanding compensation from previous land acquisitions to be paid?					<i>Estimate nb:</i>
Will it be necessary to clear the RoW (are there any structures within the RoW)?					
Have any residents, vendors or structures been moved/impacted in anticipation of the project?					<i>Estimate nb and year:</i>
<i>Site observations</i>					
<i>Impacts upon vendors</i>					
Will structures used by <u>formal</u> vendors be touched?					<i>Nb: ____ Type:</i>
Will structures used by <u>informal</u> vendors be touched?					<i>Nb: ____ Type:</i>
Will formal or informal vendors have to move?					<i>permanently/ temporarily?</i>

Will customers' access to formal or informal vendors be affected?					<i>permanently/ temporarily?</i>
Will vendors ability to bring their produce to selling point be affected?					<i>permanently/ temporarily?</i>
<u><i>Impacts upon public structures or general public</i></u>					
Will any public structures be affected?					<i>Nb: _____ Type:</i>
Will people's access to public structures be affected?					<i>Type and permanently/ temporarily</i>
<u><i>Impacts upon individuals</i></u>					
Will any residences be affected?					<i>Nb:</i>
Will non-residential structures (e.g., fences, terraces) be affected (outside and inside RoW)? (include both formal and informal structures/owner)					<i>Nb: _____ Type:</i>
Will any perennial trees (fruit, olive, mulberry) be affected?					
Will any crops be affected?					
Will any grazing area be affected?					
Any other observations:					
Conclusion: need for site-specific Resettlement Action Plan					

ANNEX 9 Grievance Redress Mechanism (GRM)

Transparency and accountability are the fundamental principles of the project. For this purpose, Grievance redress mechanism (GRM) was created within the project.

GRM created within the project, is available to all, including various ethnic, religious, gender and other special groups. Mechanism focuses not only on receiving and registration of applications, but also on how applications are resolved. In support of GRM information campaign and training are carried out. Despite the fact that feedback should be considered at the level the closest to the filed complaint, all grievances should be registered centrally and follow the main procedures stated in this chapter.

1. Definition of GRM

For Operational Guidelines of the World Bank, Grievance redress mechanism is the process of receiving, evaluation and consideration of the applications connected with the project which are filed by the population affected at the level of the project.

2. Objectives of ACM

Main objective of GRM under the Project is to ensure timely and convenient resolution of grievances and applications received from the citizens/beneficiaries/ PAPs. Types of the project affecting comprise involuntary resettlement, impact of construction works, limited access to infrastructure, environmental and social impact etc.

The objective of GRM is also to increase the accountability before the project beneficiaries and to provide channels for feedback with the project stakeholders on the issues concerning project actions. Such mechanism allows to reveal and resolve the problems impacting the project, including: complaints concerning safeguards measures, faults of employees, improper use of funds, abuse of power and other wrongful acts. Increasing transparency and accountability, GRM is aimed at reduction of the risk that the project will inadvertently prejudice citizens / beneficiaries and serves as an important feedback mechanism for improvement of the project impact.

a. GRM Scope

Scope: The project includes applications consideration mechanism which is provided to the project participants to submit questions, comments, proposals and/or complaints, or provide any form of feedback on all project-financed activities.

Who may use GRM: Applications consideration mechanism is available for project stakeholders to submit questions, comments, proposals and/or complaints, or provide any form of feedback on all project-funded activities, as well as for the project beneficiaries, i.e. project affected persons (i.e. those who will be and/or can be affected by the project directly or indirectly, positively or adversely) and the population in general which can use GRM for filing of complaints in oral or written form.

WHO MANAGES GRM: GRM is managed by the Project Implementation Unit (RRA).

When complaint can be filed: Complaints can be filed at any time during the preparation and implementation of the project.

However, the Project applications consideration mechanism does not hinder affected households from addressing to national / state legal system with their complaints at any

stage of the GRM process. PAPs can make complaints to the courts at any stage of the complaint examination, and not only after using the developed GRM.

Fee is not charged for filing of complaint or delivery of comments and/or proposals.

b. Procedures of applications consideration

Channels for filing of applications

The following channels the citizens / beneficiaries / PAP can file complaints concerning project-financed activities through, will be established within the project.

- a) Special e-mail: info@rra.uz
- b) Special line (371) 237 16 57
- c) On the project website <http://www.rra.uz/>
- d) Feedback boxes are in Tashkent, Kary Niyaziy str., 39 B
- e) Letters are sent to Tashkent, Kary Niyaziy str., 39 B
- f) Oral or written complaints are filed to the project staff (directly or by holding project meetings). (If the project participants provide oral comments / complaint, the project staff will file the complaint on behalf of them, and it will be processed through the same channels.)
- g) Grievance focal points under the project (including women)
- h) Project meetings are held at local level, and women attend each of them.

The project should provide flexibility in use of available channels, as well as availability of various contact points for people wishing to make oral complaint, and that the complaints addressed to the wrong physical person or legal entity, are redirected [to GRM manager].

Confidentiality and conflict of interest

Complaints can be filed anonymously, and confidentiality should be observed in all cases, including when the identity of the person filing the complaint, is known. For this reason, several channels for complaints filing in order to avoid the conflicts of interested parties, have been created.

Collection/receiving of complaints

The person receiving the complaint should fill in the form for complaints (see Annex 10 - A) or to provide the form to the applicant for self-filling, then to immediately submit the form to [GRM Manager]. Complaints to the project will be collected by [GRM Manager] every month.

Sorting/distribution by categories

After collection [GRM Manager] bears responsibility for sorting of the received feedback elements. Below are the examples of the categories which can be used for sorting of complaints:

No.	Classification
Category 1	Safeguard measures, including disputes on compensation, the issues of allocation of the land plots and delays in compensation payments
Category 2	Complaints concerning violation of policies, guidelines and procedures
Category 3	Complaints concerning violation of contract provisions
Category 4	Complaints concerning improper use of funds/insufficient transparency or other problems in the sphere of financial management

Category 5	Complaints concerning abuse of power/ project activities or actions of government officials
Category 6	Complaints concerning work efficiency of PIU staff
Category 7	Reports on force-majeure situations
Category 8	Proposals
Category 9	Acknowledgement

Registration / records

Once the category of the complaint is determined, [GRM Manager] registers the details concerning the complaint in tracking system. This system can be maintained manually (in paper form) or be connected to the project IMS. GRM files should be stored in the secured place (in password-secured IT database or in closed cabinet for storage of paper copies). Once the complaint is registered and sorted, [GRM Manager] submits the case to the [Project director]. The last should determine the following:

- Person responsible for studying of the complaint.
- The term during which the complaint should be resolved
- The agreed course of actions (for example, examination or answer not requiring examination, etc.).

Examination process is determined on the basis of the nature and difficulty of the complaint:

- As for the complaints concerning resettlement irrespective of the complexity of case, [specialist on social development / specialist on safeguards measures in PIU] should be involved in examination in addition to, or instead of [the employee responsible for examination].
- Examination of local complaints should be carried out [by the first specialist on examination] in 15-30 days.
- As for difficult complaints examination should be carried [by the second specialist / organization on examination] in 15-30 days or according to another arrangement with [GRM Manager].²¹

At appointment of the person responsible for examination, [GRM Manager] will ensure lack of the conflict of interests, i.e. all persons participating in examination process, should not have any material, personal or professional interest to the result, and any personal or professional relationship with the applicants or witnesses.

After determination of examination process, the person responsible for maintaining GRM makes records and enters these data into IMS / registration logbook.

The quantity and type of proposals and questions should also be registered, and should be reported in order to analyse them for improvement of communication in the project.

Notification of the applicant

If the applicant is known, [GRM Manager] will inform him / her on the terms and the progress by the phone, e-mail or mail within two weeks from the moment of receiving the complaint.²²

²¹ It is necessary to inform the top management about difficult and heavy complaints, and then the top management distributes the functions in examination. The top management should also be involved in examination and invite observers and external experts.

When applicant's address is available, this information will be provided in writing together with the tracking number and terms when PIU will answer the applicants (see Annex 10-B – Notification Form).

Examination

The person responsible for examination of the complaint will collect the facts to create a clear picture of the circumstances relating to the complaint. Examination usually includes the visit of the place, review of documents, meeting with the applicant (if they are known and ready to participate), as well as meeting with those who can solve this problem (including with official and unofficial heads or other leaders).

As for the resettlement and complaints connected with evaluation of assets out of the project funds, the second or the third evaluation can be carried out until the results of evaluation are acceptable for both parties. Evaluation can be made by independent appraisers, until is accepted by both parties. It can be carried out by independent appraisers at the expense of the party disagreed.

Results of examination and the offered answer will be submitted to the applicant for consideration [the person/organizations, responsible for decision making on the course of actions].

Once the decision on the course of actions and the answer for the applicant is made, [the specialist on examination] describes the actions to be taken in the form of complaints (see Annex 10-A) along with the details of examination and conclusions and sends it to [GRM Manager] which enters it into IMS.

If the agreed actions cannot be performed and/or if the complaint cannot be satisfactorily resolved in 30 days, the following steps will be taken:

Answer to the applicant

If the applicant is known, [GRM Manager] reports to him / her about the proposed measures by letter, e-mail, in oral form, in the process of receiving. Applicants will also be informed on how he / she can appeal against the initial decision.

[GRM manager] will request comments from the applicant on whether he / she considers the actions performed as a result of the made decision, satisfactory, and this information will be recorded along with the detailed data on the complaint and the taken counter measures.

Possibility to appeal

If the applicant is satisfied with the answer, discussions for further clarification of the positions will be carried out in the group or personally. The top management will participate in these meetings, and then the final decision on the taken measures will be made.

PIU will create [grievance focal point] which will carry out hearings of appeals. [Grievance focal point] will consist of the specialists who are part of the project and the representatives independent of the project implementation bodies and of the government. Conditions of [grievance focal point] will be agreed prior to determination of its format.

Applicants do not lose the right of submission of the appeal out of the project GRM /PIU, if they are not satisfied with the proposed counter measures.

²² These two weeks assume that the number of the received complaints will be rather small. Terms of provision of service will be corrected, if the amount of complaints exceeds the controlled level.

Publication

Once the case is resolved, the complaint and measures taken for its resolution will be published on the website of PIU and MAWR. The identity of the applicant will be kept confidential.

c. Raise of population awareness

Information provided in available format

Information on complaints processing system will be distributed to all beneficiaries and project affected persons by regular information channels used by the project, including by the organization of meetings at the beginning of the project, carrying out public consultations on resettlement, public meetings during the project implementation, brochures in local languages, provision on bulletin boards and in the Internet, informing within trainings held under the project.

PIU will provide information on GRM coverage, eligibility criteria for filing of the complaint, the procedure of the complaint filing (where, when and how), examination process, dates of receiving of the answer to complaints, and also the principle of confidentiality and the right to file anonymous complaints.

Warning advertisement/ periodic public information campaigns

Annual campaigns will be developed by [public relations officer] to encourage use of GRM and to publish information on the received and resolved complaints. Campaigns will use local mass media (for example, television, newspapers, radio). At organization and holding these campaigns, special efforts for bringing information to socially vulnerable groups of population should be taken.

Campaigns should include information on GRM coverage, eligibility criteria for filing of the complaint, the procedure of the complaint filing (where, when and how), examination process, dates of receiving of the answer to complaints, and also the principle of confidentiality and the right to file anonymous complaints.

d. Staffing and capacity building

Roles and responsibilities

[Project manager] will distribute obligations among the project staff (provided GRM is not ordered to the contractor). It will be documented in the first quarterly progress report, and information will be periodically updated.

- General management of GRM system
- Development and maintenance of efforts on raise of population awareness
- Collection of complaints
- Record/registration of complaints
- Notification of the applicant
- Sorting of complaints or their distribution by categories
- Examination
- Decision making on the basis of examination results
- Processing of appeals
- Publication of counter measures on complaints
- Organization and implementation of information materials and campaigns for raise of awareness
- Budgeting of GRM
- Submission of reports and comments by the results of GRM.

Capacity building

Training for all relevant staff and stakeholders will be carried out annually, or according to another arrangement. New employees will be trained within the process of introduction to work. Training will include all aspects of GRM stated in this chapter. All trainings should include information on GRM principles and procedures. Training will emphasize on responsibility before the applicant. At the beginning the main attention will be paid to transition from the informal resolution of complaints to registration of all complaints / feedback elements in this system.

For the staff directly dealing with beneficiaries or engaged in the system, or involved in the process of management and control of the system, special trainings should be organized.

Transparency, monitoring and reporting

The policy, procedures and regular updates in GRM system, filed and resolved complaints will be available in the Internet, as well as on local/ministerial announcements platforms and other fixed stands. They will be updated quarterly.

Periodical internal monitoring and reporting

[Project manager] will assess GRM functioning and will carry out random inspections during the regular supervision visits. [GRM manager] will work with [monitoring and evaluation specialist] for:

- Ensuring accurate data entry of GRM into the information management system (IMS) or other system. Consolidated reports will be produced in the format agreed with the project manager.
- Provision of monthly/quarterly summaries of GRM results, including any proposals and questions to the project team and management.
- Review of the stage of complaint consideration for tracking of those which are not resolved yet, and proposal of necessary remedial measures.

During the annual/semi-annual general meetings the project group should discuss and consider effectiveness and use of GRM and collect proposals on how to improve the mechanism.

Quarterly and annual progress reports submitted to the Bank

Quarterly and annual reports should include GRM section which provides updated information on the following:

- Status of creation of GRM (procedure, staffing, training, campaigns for raise of awareness of the population, budgeting, etc.)
- Quantitative data on the number of received complaints, including the number of complaints really related to the project, and the number of resolved complaints
- Qualitative data on the type of complaints and the provided answers, problems which remained unresolved
- Time necessary for resolution of complaints
- Number of complaints resolved at the lowest level, brought to higher instances
- Level of satisfaction with the taken measures
- Any specific questions relating to procedures / staff list or use of the mechanism

- Factors which can impact on the use of GRM/beneficiaries feedback system
- Any corrective measures taken.

The above-stated requirements to quarterly and annual progress reports will also be specified in Memoranda of supervision missions of the Bank.

Control and verification

The status of GRM development, extent of its use by beneficiaries/citizens, problems in implementation, etc. will be discussed at semi-annual / annual meetings on the projects portfolio. PIU will discuss necessary remedial measures with the Bank during the missions on project implementation support.

The independent review / audit of GRM will be carried out prior to interim report for assessment of effectiveness and use of the mechanism and, as required, to make recommendations on improvement.

e. Budgeting

The budget allocated for GRM will be included in the number of budgets approved by the Bank. The budget will include the cost of the following actions connected with GRM, as described below.

Raise of the population awareness and information campaigns on GRM (at the beginning and upon agreement throughout the whole project).

Processing of complaints:

- Creation and management of the channels chosen for filing of complaints
- Management of complaints collection process
- Registration of complaints and their distribution by categories
- Examination of complaints
- Communication with the applicant
- Process of appeal
- Publication of counter measures on complaints (if agreed)

Support costs:

- Expenses on time spent by the staff, as required
- Capacity-building of the staff appointed for work with GRM
- Updating of the website used for the publication of GRM results/policies/procedures
- IMS
- System of tracking of GRM results (for example, IMS)
- Independent verification.

ANNEX 10 Forms of applications registration

ANNEX A – REGISTRATION OF APPLICATIONS/REQUESTS

REGISTRATION OF APPLICATIONS/REQUESTS (Form A)			
<p><i>Instructions: This form should be filled by the employees who receive the request or the complaint, with the subsequent sending to [GRM MANAGER] at national office. Enclose supporting documents / letters, if relevant.</i></p>			
Date of receiving the complaint:		Name of the employee filling the form:	
<p>Complaint received (tick √):</p> <p><input type="checkbox"/> national level <input type="checkbox"/> regional level <input type="checkbox"/> district level <input type="checkbox"/> settlement</p>			
<p>Form of registration of the request or complaint (tick √):</p> <p><input type="checkbox"/> personally <input type="checkbox"/> on the phone <input type="checkbox"/> by e-mail <input type="checkbox"/> by sms <input type="checkbox"/> website</p> <p><input type="checkbox"/> box for complaints/proposals <input type="checkbox"/> community meeting <input type="checkbox"/> public consultations <input type="checkbox"/> other _____</p>			
<p>Name of the person filing the complaint: <i>(information is optional and is always considered as confidential)</i></p> <p>Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female</p>			
<p>Address or contact information of the person filing the complaint: <i>(information is optional and confidential)</i></p> 			
<p>Place of occurrence of the situation resulted in complaint/problem [write in]</p>			
National level:	Regional level:	District level:	Settlement:

Brief description of the complaint or request: <i>(Provide as many details and facts as possible)</i>		
	Category 1	Safeguard measures, including disputes on compensation, the issues of allocation of the land plots and delays in compensation payments
	Category 2	Complaints concerning violation of policies, guidelines and procedures
	Category 3	Complaints concerning violation of contract provisions
	Category 4	Complaints concerning improper use of funds/insufficient transparency or other problems in the sphere of financial management
	Category 5	Complaints concerning abuse of power/ project activities or actions of government officials
	Category 6	Complaints concerning work efficiency of PIU staff
	Category 7	Reports on force-majeure situations
	Category 8	Proposals
	Category 9	Acknowledgement
Who should deal with the complaint and monitor the process of its consideration:		
Progress of complaint resolution (for example, answer is sent, at the stage of resolution, resolved):		
Other comments:		

ANNEX B –NOTIFICATION FORM

CONFIRMATION OF COMPLAINT RECEIVING (Form B)

Instructions: This form is filled by [GRM MANAGER] and is sent by mail or is delivered to the applicant.

Date of complaint receiving:

Tracking number:

Complaint received (tick ✓):

☐ national level ☐ regional level ☐ district level ☐ ayil aymak ☐ settlement

Form of registration of the request or complaint (tick ✓):

☐ personally ☐ on the phone ☐ by e-mail ☐ by sms ☐ website

☐ box for complaints/proposals ☐ community meeting ☐ public consultations ☐ other _____

Name of the person filing the complaint: *(information is optional and is always considered as confidential)*

Gender: ☐ Male ☐ Female

Address or contact information of the person filing the complaint: *(information is optional and confidential)*

Email:

Tel:

Address:

Deadline for provision of answer (60 days from the date of receiving of the complaint):

ANNEX 11 Summary information on Public Consultation under the framework project on environment and social management

Date:

Location:....., Tashkent

Location/ venue	Objective	Invitees	Participants	Summary, conclusions and comments