Food and Agriculture Organization of the United Nations

# Food and Agriculture Organization of the United Nations

# Republic of Yemen

# Global Agriculture and Food Security Program (GAFSP)

# Smallholder Agricultural Production Restoration and Enhancement Project (SAPREP) (P162659)

# Environmental and Social Management Framework (ESMF)

Sana'a

June 2017

**Table of Contents**

**Annexes**



**List of Tables**



**List of Maps**

ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| CBD | Convention on Biodiversity |
| CC | Climate Change |
| CITES | Convention on International Trade in Endangered Species |
| CMS | Conservation of Migratory Species |
| CRRC | Climate Resilience of Rural Communities |
| EIA | Environmental Impact Assessment |
| EMP | Environmental Monitoring Plan |
| EPA | Environmental Protection Authority |
| EPL | Environment Protection Law |
| ESMF | Environmental and Social Management Framework |
| FUs | Field Units |
| ESMP | Environmental and Social Management Plan |
| FAO | Food and Agriculture Organization of the United Nations |
| GAFSP | Global Agriculture and Food Security Program |
| GCC | Governorate Coordination Committee |
| GDP | Gross Domestic Product |
| GDPP | General Directorate of Plant Protection |
| GEF | Global Environment Facility |
| GSCP | Groundwater and Soil Conservation Project |
| PM | Pest Management |
| PMP | Pest Management Plan |
| M&E | Monitoring and Evaluation |
| MAI | Ministry of Agriculture and Irrigation |
| MWE | Ministry of Water and Environment |
| NAPA | National Adaptation Program of Action |
| NASS | National Agriculture Sector Strategy |
| NBSAP | National Biodiversity Strategy and Action Plan of Yemen |
| NFSS | National Food Security Strategy |
| NGO | Non- Governmental Organizations |
| NIP | National Irrigation Program |
| NWRA | National Water Resource Authority |
| NWSSIP | National Water Sector Strategy and Investment Program |
| O&M | Operation and Maintenance |
| PAPs | Project Affected Persons |
| PCU | Project Coordination Unit |
| PO | Project officer |
| RALP | Rain-fed Agriculture and Livestock Project |
| SA | Social Assessment |
| SAPREP | Smallholder Agricultural Restoration and Productivity Enhancement Project |
| SFD | Social Fund for Development |
| UNCCD | United Nations Convention on Combating Desertification |
| UNFCCC | United Nations Framework Convention on Climate Change |
| WB | World Bank |

**Executive Summary**

**Preamble**

This Environmental and Social Management Framework (ESMF) is prepared for the Smallholder Agricultural Production Restoration and Enhancement Project (SAPREP). The project objective is to increase the use of productivity and nutrition-enhancing agricultural practices by smallholders in targeted areas. The project is funded by a $36M grant from the Global Agriculture and Food Security Program (GAFSP).

**Introduction**

**In early 2015, Yemen descended into an enduring full-fledged conflict that resulting** in a catastrophic humanitarian situation. In May 2015, the UN placed Yemen at Level 3 of humanitarian distress, the highest categorization of countries in conflict. The escalation of conflict amplified an already existing protracted crisis, characterized by widespread poverty, conflict, and poor governance. According to UN agencies, the civilian death toll is estimated to have reached more than 7,500 with about 35,000 wounded. About half of Yemen's population lives in areas directly affected by the conflict and 3.1[1] million Yemenis have been forcibly internally displaced. The UN Yemen Humanitarian Response Plan (January 2016) estimates that 10.3 million Yemenis require immediate assistance to save or sustain their lives..

**The ongoing conflict has disrupted service delivery and led to severe economic distress.** Gross Domestic Product (GDP) is reported to have plunged by 40 percent, underpinned by widespread disruptions of economic activities, with enterprises operating at half the capacity compared to pre-war era. Unemployment rates are on the rise. An estimated eight million Yemenis have lost their livelihoods or are living in communities with minimal to no basic services. Poverty, already high before the conflict increased even further.

**Yemen is among the ten countries in the world with the highest rates of food insecurity and now is facing an unprecedented food crisis.** Today, conflict and civil insecurity are the main drivers of food insecurity with devastating effects on livelihood and nutrition situation. The March 2017 Integrated Food Security Phase Classification (IPC) reports an overall deterioration in the food security and nutrition situation, with an increase in the total number of food insecure people in Yemen from 14 to 17 million people between June and December 2016. This constitute 60 percent of population compared to 41 percent before the conflict. 6.8 million Yemenis are currently in IPC Phase 4 (Emergency) and 10.2 million are in Phase 3 (Crisis). Malnutrition has also been a serious problem in Yemen for a long time and acute malnutrition is a major outcome of the severe food insecurity and is at alarming levels. Eleven governorates are in serious or critical nutrition situation with global acute malnutrition (GAM) rates.

**Agriculture is a key source of livelihoodsin Yemen.** Prior to the outbreak of the conflict, the sector employed more than half (54 percent) of the workforce and was the main source of income for 73 percent of the population either directly or indirectly through the services and industries

[1] Office of Coordination of Humanitarian Affairs (OCHA)

serving the agricultural economy. The sector faces many challenges including high level of poverty, rapid population growth, poor connectivity to social and economic infrastructure and the extremely fragile and limited natural resources base that limit the productivity. The principal agricultural systems are in the rainfed highlands characterized by terraced agriculture for coffee, fruits, grains and qat, extensive livestock production, and the plains where irrigated horticulture and field crops predominate. The poor mountainous agriculture areas of the highlands are a challenge, with two thirds of all Yemen's food insecure living in rainfed highland areas. About 75 percent of agricultural production comes from these highlands, which are home to 60 percent of the population.

**Limited water and fragmented land constrain agricultural potential.** Yemen is one of the most water scarce countries in the world, with about 80$m^3$ per capita of renewable water resources per year, just 1.3 percent of global average. Agriculture accounts for some 90 percent of water use, At the same time less than six percent of the total land area is considered suitable for field cultivation. Particularly small and fragmented plots (1 ha in average) are another constraint that prevents the sector from making a larger contribution to rural incomes and addressing trade imbalance in food items. In addition, Yemen is particularly vulnerable to climate change. The threats to the water sector from a changing climate would have serious implications on agriculture, including yields.

**Yemen depends almost entirely on imports to fulfill local demand for staple commodities**. Approximately 80 percent of food consumed is imported while local agricultural production accounts for only 20 percent of overall food availability. Imported food consists of staples such as wheat, rice, oil, sugar and milk. Yemen has self-sufficiency in some cereals (sorghum, millet, and barley) while 85 percent of wheat is imported. Cereals, qat and fodder account for 80 percent of total arable land use with wheat representing only 16 percent of the area cultivated for cereals. Domestic production consists also of meat, fruits and vegetables.

**The conflict has severely disrupted agricultural production and markets, transportation and distribution. While productivity has always been low, the situation has become even worse with the conflict.** In 2016, the total locally grown food supply was 62 percent of pre-crisis levels, mainly due to a reduction in the cultivated area, thus reducing food availability and household stocks. The crisis has reduced field activities and severely disrupted livelihoods in the agriculture sector. The conflict resulted in a lack of inputs such as seeds, fertilizer and fuel, damage to agricultural machinery, irrigation systems and storage facilities together with deterioration of water and electricity services, and breakdown of logistical chains. The absence of electricity and fuel, as well as the damage to production facilities, led to the disruption of locally manufactured supplies of production inputs for agriculture. The shortage of animal fodder and veterinary services have led to a decline in livestock production, a main source of income for many rural families. Prior to conflict the sector was the main source of livelihood for two-thirds of the Yemen population. Being the main employment sector in Yemen, agriculture has also been the sector most affected by the crisis with a loss of almost 50 percent of its workers. This drastic drop in employment will likely have a long-term negative impact on the labor force in agriculture.

**Under these circumstances the Smallholder Agricultural Production Restoration and Enhancement Project (SAPREP)** has been prepared based on the proposal submitted by the Government of Yemen in June 2013 to the Global Agriculture and Food Security Program (GAFSP) and also as an emergency response to the deteriorating food security situation in Yemen. The main feature of the proposal was to address the major challenges identified in the National Agriculture Sector Strategy (NASS) adopted by the Government of Yemen in 2012 to tackle the persistent challenges of the Yemeni agriculture sector, including food security, smallholder agricultural productivity, and climate resilience.

**Brief Project Description**

The project will focus on two main areas of support: (i) providing support to poor households and smallholders to improve agricultural production, income and nutrition, and (ii) helping conflict affected farmers to re-engage in crop and livestock sectors to restore their livelihood and provide income for their basic needs. The project will consist of the following three components:

*Component 1: Community Subprojects and investments.* This component will finance priority subprojects and investments to improve smallholders' production,, income and nutrition through: (i) strengthening community land and water management; (ii) improving animal husbandry, livestock production and animal health services; and (iii) improving livelihood and nutrition, and increasing value-added of selected agriculture products. The component will also provide urgently needed support to farmers affected by the conflict, IDPs, returnees and other vulnerable groups (including poor women) to resume crop and livestock production. Subprojects and investments will be selected and implemented through a community-based and participatory approach.

*Component 2: Capacity Building and Extension.* This component will finance: (i) capacity building activities to strengthen skills of stakeholders involved in service provision in the project areas; and, (ii) extension activities for project beneficiaries in a range of fields. These activities will help preserve capacity of key service providers during the ongoing conflict and contribute to long term sustainability of community level agriculture investments. Potential service providers may include extension workers, agricultural input suppliers, local private veterinary technicians, and NGOs active in the agricultural sector, any other individuals in the district providing services in agriculture or economic development. All these stakeholders have the potential of being service providers not only for the project beneficiaries but for all farmers in their areas.

*Component 3: Project Administration, Management, Monitoring and Evaluation.* This component will support project administration and management, and monitoring and evaluation activities to ensure satisfactory project implementation.

The project will target poor and food insecure households within the governorates that are the most food insecure governorates in Yemen as identified by the Integrated Phase Classification (IPC) carried out in February 2017 to classify the severity and magnitude of food insecurity. These seven governorates, namely (i) Shabwa, (ii) Abyan, (iii) Lahej, (iv) Taiz, (v) Al-Hodeidah. (vi) Hajjah,

and (vii) Saada, are in Emergency food insecurity phase and serious or critical nutrition situation. The selected governorates represent highland and lowland which are the main agro-ecological systems in Yemen.

**Institutional and Implementation Arrangements**

SAPREP will be implemented by the FAO representation in Yemen and the Social Fund for Development (SFD) as the FAO main implementation partner. FAO and SFD have established institutional and implementation mechanisms for the delivery of the project relevant activities in Yemen.

The FAO main office in Sana'a will provide oversight and quality assurance to the Project Team that will be in charge of the day-to-day management of the project, including all fiduciary aspects, safeguards, monitoring and reporting. At the regional level, implementation will be supported by FAO's regional hubs in Aden,Hodeidah and Saada. From SFD side, the agricultural unit in the central office in Sana'a will provide overall support while the branch offices i will provide support and coordination at governorate level..

FAO will establish the project coordination structures at national and regional levels which will coordinate implementation of the project activities. The coordination structure will consist of the Project Coordination Unit (PCU) at the national level, and the Project Coordination Teams (PCT) that will be based at the hub levels. PCU and PCT will comprise of FAO and SFD staff. PCU and PCTs will work closely with all the relevant stakeholders to update them on the project status and ensure coordination of the project activities with other livelihood and food security interventions on the ground.

The participatory approach adopted by SAPREP promotes the central role and active participation of communities and beneficiaries in the development and implementation of investment proposals under the project. Beneficiary communities are the populations of settlements or villages who share a common interest in the subproject and will be actively involved in the identification, selection, implementation, monitoring and operation and maintenance of community investments under SAPREP. FAO and SFD will have adequate staff and consultants (male and female) to facilitate the mobilization of communities and assist communities to form committees that will develop and review proposals and contribute in the implementation for sub-projects in a participatory and inclusive way. Final approval of proposals for community sub-projects and investments will be the responsibility of FAO. This will be done in accordance with the Project Implementation Manual that includes detailed guidelines to ensure the openness, inclusiveness and fairness of the process to reduce the risk of elite capture.

**Objectives of the Environmental and Social Management Framework (ESMF)**

The purpose of the ESMF is to ensure that environmental and social management is integrated into the development cycle of individual subprojects. The SAPREP will be implemented as a community-led effort, where communities will be empowered to identify their priority agricultural needs. Since exact sub-projects are not determined at the onset of project, but will be decided during project implementation based on demand and consultations with the concerned communities, the ESMF is the appropriate instrument under the Bank Operational Policy OP 4.01 on Environmental Assessment. The ESMF is intended to serve as a practical tool to guide identification and mitigation of potential negative environmental and social impacts of proposed investments and serve as a platform for consultations with stakeholders and potential project beneficiaries. The ESMF has been prepared in compliance with the

Bank's OP 4.01 and relevant Yemeni policies on environmental assessment, and is consistent with the FAO Environmental and Social Management Guidelines.

The ESMF will be also applicable for the Bank's Operational Policy on Pest Management (OP 4.09). The ESMF includes a screening tool to identify subprojects that might require the preparation of a simple ipest management plan (PM); and provides guidance for the preparation of an IPM.

The ESMF identifies the policy triggers for the project, the screening criteria for sub-projects, the environmental and social impacts for the likely subprojects and the mitigation measures to mitigate the identified risks, assessment of the institutional capacity of the implementing agency and measures for capacity-filling gaps, and an estimate of the budget needed for the implementation of the ESMF.

**World Bank Safeguard Policies**

The SAPREP is classified as environmental Category B according to the World Bank Operational Policy OP 4.01 on environmental assessment. The project is expected to have significant positive environmental and social impacts, with relatively minor and localized negative impacts. The ESMF has been developed to ensure environmental and social due diligence for subprojects. The Bank safeguard policies on Environmental Assessment (OP 4.01) and Pest Management (OP 4.9) are triggered by SAPREP Component 1 (Community Subprojects and investments); Component 2 (Capacity Building and Extension) and Component 3 (Project Implementation and Monitoring) do not present environmental or social risks.

**FAO's Environmental and Social Management Policies and Procedures**

The SAPREP is classified as moderate risk according to FAO's Environmental and Social Management Guidelines[2] . To ensure the project does not pose any negative environmental and social impacts, some mitigation actions are necessary. The proposal triggers FAO safeguard 1 on Natural Resources Management and safeguard 5 on Pest and Pesticide Management.

**Public Consultations and Disclosure**

The World Bank and FAO require that stakeholder consultations be undertaken during planning, implementation and operation phases of the project. As part of the SAPREP preparation, consultations have been an ongoing process with key stakeholders and other beneficiaries. The initial project design including the environmental/social aspects were discussed with key stakeholders during consultations that were held during June 1 to 17, 2014.

Annex (III) of the ESMF contains a summary of stakeholder consultations where points and concerns of stakeholders were documented. The stakeholder consultations provided valuable input to the design of SAPREP and identification of specific sub-projects. Under the participatory approach to be used during project implementation, consultation with beneficiary communities will be an integral part of sub-project identification, selection, design, implementation, and monitoring.

As referenced above, the participatory approach adopted by SAPREP promotes the central role and active engagement of communities and beneficiaries in the development and implementation of investment proposals under the project. Stakeholders and beneficiary communities will be actively consulted on the identification, selection, implementation, monitoring and operation and maintenance of community

[2] FAO's Environmental and Social Management Guidelines, available at: http://www.fao.org/3/a-i4413e.pdf

investments under SAPREP. FAO and SFD will have adequate staff and consultants (male and female) to facilitate the mobilization of communities and assist communities to develop and review proposals and contribute in the implementation for sub-projects in a participatory and inclusive way. This will be done in accordance with the Project Implementation Manual, which includes detailed guidelines to ensure the openness, inclusiveness and fairness of the process to reduce the risk of elite capture.

The executive summary of the ESMF has been translated into Arabic and the final the ESMF including the Arabic executive summary will be disclosed in-country (on the FAO and SFD websites) and on the Bank's and GAFSP's websites as per the Bank's requirement. FAO requirements for moderate risk projects require disclosure of relevant project information (before appraisal formally begins) that is accessible and culturally appropriate, placing due attention to the specific needs of community groups which may be affected by project implementation (such as literacy, gender, differences in language or accessibility of technical information or connectivity). For moderate risk projects FAO releases the applicable information as early as possible.

**ESMF Findings**

The ESMF outlines the process for identification and evaluation of the potential environmental and social impacts of sub-projects (and activities) and their mitigation measures. The ESMF concluded that most of the planned sub-projects are expected to have none or very few and minor negative impacts, and presents mitigation measures for those potential negative impacts. By design, the project is expected to have far greater environmental benefits than adverse environmental impacts. However, it is recognized that small negative impacts can accrue into larger impacts if they are not identified early during the planning cycle, and their mitigation measures integrated into the project planning and implementation.

The following table (1) provides examples of types of subprojects activities, their potential impacts, and mitigation measures. Such impacts in many cases can be avoided or mitigated using sensible site selection criteria, good construction practices in harmony with the local culture, and appropriate management practices in the operational phase. The subprojects that have negative environmental and/or social impacts will need to have a specific Environmental and Social Management Plan (ESMP) to set forth the mitigation, monitoring and institutional measures to be taken during different stages of the project (design, construction and operation). The SAPREP implementation team (FAO/SFD) will work with communities to develop the site-specific sub-project ESMPs as part of the subproject identification and preparation process.

**Grievance Redress Mechanism**

An adequate grievance redress mechanism (GRM) will be established to ensure beneficiaries may communicate their concerns due to subproject activities either with the relevant focal point at the local level or with FAO/SFD central level and it is required this mechanism be publicized at the local level and in the local language. The SAPREP GRM will follow established FAO Yemen and SFD practices, and will provide multiple access points (telephone, complaints box, website, email, postal address) so that beneficiaries will know whom to contact with regard to their concerns. The SAPREP manager will have the overall responsibility to address concerns brought to the attention of the focal point regarding any environmental and/or social impacts due to subproject activities. Complaints received by the implementing agency shall be recorded and documented in the subproject file and the subproject progress report including the number and type of complaints and the results of their resolution.

**Social Accountability**

Social accountability will be taken into consideration through: (i) the ability of beneficiaries to voice complaints and provide feedback through well-established GRMs; (ii) dissemination of information about the resumption of the SAPREP to the intended beneficiaries' relevant communities; (iii) independent verification through the third-party monitoring agency; and (iv) the FAOs/SFD field monitoring activities.

**Table (1) Environmental and Social Management Plan Matrix**

| Sub-Projects Measures | Potential Environmental or Social Impacts | Proposed Mitigation Measures | Monitoring Requirements (including supervision) | Means of insurance and compliance | Institutional Responsibility (including enforcement/ coordination) | Time Frame or Schedule for Monitoring | Cost Estimate for Mitigation |
|---|---|---|---|---|---|---|---|
| **Added value activities to agricultural or animal production, processing, and packaging** | **Air Quality and Noise Construction**<br>Construction may impact air quality and generate noise. This results mainly from excavation, site grading, vehicle loading and unloading, and other construction-related activities.<br><br>**Operation**<br>Potential impacts on ambient air quality would result from odors and gaseous emissions generated by a food washing/air compressors wastewater treatment (undesirable odors); vehicles and motorized engines<br>- Odor and heat increase may happen due to ventilation<br>- Deterioration of water pipe and electric cables. The placement of septic disposal systems in impermeable soils with | **Air Quality and Noise Construction**<br>Use dust control measures onsite, such as water spraying for dust suppression;<br>Regulate site access;<br>Cover lorries transporting friable construction materials and spoil;<br>Prohibit open air burning;<br>Maintain machinery and vehicles in good working conditions to minimize emissions; and,<br>Provide adequate protective wear for workers.<br>Vehicles, boats and equipment must be maintained regularly to avoid any emissions;<br>Pre-treat gases emitted by boilers and generators;<br><br>**Operation**<br>Conserve energy use to reduce fuel combustion;<br>Control emissions from wastewater treatment facility/septic tanks;<br>Mitigation to the first factor could be addressed by frequent inspection to the buildings construction and apply the required maintenance. Regular | FAO with SFD monitor the design and supervision consultant‘s reports to ensure safeguards compliance, undertaking field visits or further investigations as necessary. The World Bank will also use 3rd party advisors to conduct its own monitoring to ensure the project is compliant with its environment and social safeguards | FAO with SFD oversee construction and operation activities and conducts visual inspection with the assistance of a representative of the local community. FAO/SFD ensures that contractors implement environmental management plans/regulations and that contractors perform continuous inspection and monitoring of areas of potential pollution and/or uses with the potential to result in soil contamination; | FAO/SFD with support from Governorate Units | Quarterly | To be covered as part of the constructio n cost |

| Sub-Projects Measures | Potential Environmental or Social Impacts | Proposed Mitigation Measures | Monitoring Requirements (including supervision) | Means of insurance and compliance | Institutional Responsibility (including enforcement/ coordination) | Time Frame or Schedule for Monitoring | Cost Estimate for Mitigation |
|---|---|---|---|---|---|---|---|
| | severe constraints to disposal of liquid effluent<br>- Decaying by product<br>- Vibrations, from short-term or long-term operation, which may affect adjoining areas and buildings.<br>Handling Operations & Occupational health:<br>Exposure of the workers to dust and other contamination sources.<br>Classification, cooling and loading due improper handling by workers.<br>Transmission of diseases may occur due to affected personnel working in handling of seeds and vegetables during the different steps inside the landing and storage site.<br><br>**Soil Quality and Surface/Ground water Pattern/contamination Construction**<br>Impacts on soil quality may result from the | inception and examinations for mentioned impacts and address them through repairing and replacement of materials spoiled.<br>Minimizing entrance of heavy machines to reduce vibration impact.<br>For handling and occupational health applying restrict hygiene regulation and occupational health measurements is critical and a separate ESMP is required to parts of operational stages for handling, washing, classification, freezing, backing up to loading and distribution to consumption.<br><br>**Soil Quality and Surface/Ground water pattern/contamination Construction**<br>Apply, inspect and maintain temporary/permanent erosion and sediment control measures (e.g. silt fences, rapid growth vegetation, erosion control matting) to exposed areas;<br>Restrict movement of vehicles to designated tracks.<br><br>**Operation** | | Complaints from local community<br><br>Review of tender and bid documents by FAO/SFD | | | |

| Sub-Projects Measures | Potential Environmental or Social Impacts | Proposed Mitigation Measures | Monitoring Requirements (including supervision) | Means of insurance and compliance | Institutional Responsibility (including enforcement/ coordination) | Time Frame or Schedule for Monitoring | Cost Estimate for Mitigation |
|---|---|---|---|---|---|---|---|
| | following construction activities:<br>Site clearance, site grading, excavation, onshore infrastructure, and oil leaks from vehicles/equipment.<br><br>**Operation**<br>Contamination of soils and groundwater with oils and chemicals may result from vehicles and equipment. Spills and leaks at liquid impoundment areas for fuels, solvents, waste and from infrastructure pipelines, may infiltrate through soil pores, under gravitational forces, and contaminate ground water aquifers; tourists driving around using four-by-four. Discharge into surface waters, or alteration of surface water quality, including but not limited to temperature, dissolved oxygen, turbidity, solids<br><br>**Waste waster**<br>Potential generation of waste water resulting for | Maintain periodically vehicles and equipment to prevent leaks; Maintain records and procedures for equipment maintenance, handling and storage of liquid fuels and chemicals; lab regular testing for ground and surface water quality.<br><br>**Waste Water**<br>Encourage using composting toilet rather than flushing ones; Use of bio-treatment to prevent land disposal; Septic tanks for excess treated wastewater should be lined.<br><br>**Biological Resources- Flora & Fauna**<br>Applying environmental operational standards within the legal, policy and management | | | | | |

| Sub-Projects Measures | Potential Environmental or Social Impacts | Proposed Mitigation Measures | Monitoring Requirements (including supervision) | Means of insurance and compliance | Institutional Responsibility (including enforcement/ coordination) | Time Frame or Schedule for Monitoring | Cost Estimate for Mitigation |
|---|---|---|---|---|---|---|---|
| | the project activities and/ or sub-projects during both construction and operation.<br><br>**Biological Resources-Flora & Fauna**<br>Removal or disturbance of natural vegetation, A loss or disturbance to a unique, rare or threatened plant community, A reduction in the numbers or restriction in the range of any unique, rare or threatened species of plants wildlife habitat, Introduction of any factors (light, fencing, noise, human presence and/or domestic animals) which could hinder the normal activities of wildlife. | framework of the project to minimize the negative impact on the environment using the comparative advantage of the different project counterparts. Compliance with SAPREP area is critical for the conservation of biodiversity. Coordination with relevant stakeholders is very important, Proper selection of sites as to avoid damaging natural habitat. Tender document will have to include provisions for site specific ESMP. | | | | | |

| Sub-Projects Measures | Potential Environmental or Social Impacts | Proposed Mitigation Measures | Monitoring Requirements (including supervision) | Means of insurance and compliance | Institutional Responsibility (including enforcement/ coordination) | Time Frame or Schedule for Monitoring | Cost Estimate for Mitigation |
|---|---|---|---|---|---|---|---|
| **Small-scale spate irrigation using traditional techniques** | The above parameters are applicable here in addition to special concern for alteration or damaging natural habitat during construction, contamination may occur from building materials, run-off surface water obstacles and divert to cause other flooding hazards.<br><br>Generation and improper dumping of construction waste<br><br>More possibility of accidents | Some of the above measurements are applicable here. Avoiding damaging natural habitat, cultural, historical, religious places during constructions or minimize it (proper site selection, use mooring system, use environmentally friendly materials, prepare materials off-site, etc.). Tender document will have to include provisions for site specific ESMP. Good practice in design to be observed.<br><br>Collect generated solid waste and transport them to locally designated and authorized dump site<br><br>Provide workers with proper protective clothing. | FAO with SFD monitor the design and supervision consultant's reports to ensure safeguards compliance, World Bank 3rd party advisers will also conduct monitoring to ensure safeguards compliance, undertaking field visits or further investigations as necessary. | FAO/SFD | FAO/SFD with support from Governorate Units | Monthly | Cost of mitigation measures to be covered as part of the construction cost |
| **Rooftop rainwater harvesting** | If small workshops are required to be constructed to produce water harvesting materials, the potential impact can be damage of natural habitats due small constructions and construction waste. | Proper selection of sites as to avoid damaging natural habitat. Tender document will have to include provisions for site specific ESMP. | FAO with SFD; World Bank will also conduct its own monitoring | FAO/SFD oversee construction and operation activities | FAO/SFD with support from Governorate Units | Weekly/Monthly | Cost to be covered as part of the design cost |

| Sub-Projects Measures | Potential Environmental or Social Impacts | Proposed Mitigation Measures | Monitoring Requirements (including supervision) | Means of insurance and compliance | Institutional Responsibility (including enforcement/ coordination) | Time Frame or Schedule for Monitoring | Cost Estimate for Mitigation |
|---|---|---|---|---|---|---|---|
| **Terraces construction and rehabilitation** | Above parameters with special attention to alteration or damaging natural habitat during construction, contamination may occur from constructions materials, run-off surface water obstacles and divert to cause other flooding hazards<br><br>More possibility of accidents | Above measures are applicable here. With special concern for avoiding damaging natural habitat during constructions or minimize it (proper site selection, use environmentally friendly materials, prepare materials off-site, etc.)<br>Tender document will have to include provisions for site specific ESMP. Good practice in design to be observed.<br><br>Protect site from trespassers. Provide proper support for terraces sides to avoid collapsing. Provide workers with protective clothing | FAO with SFD<br>World Bank will also conduct its own monitoring | FAO/SFD oversees construction and operation activities | FAO/SFD with support from Governorate Units | Monthly | To be covered as part of the construction cost |
| **Beekeeping, small ruminant fattening and, backyard poultry** | - introduction of alien species<br>- change biological balance<br>- waste<br>- Odor<br>- storage and handling of veterinary drugs (vaccines) | Site specific ESMP will be developed under each component, and will include: Measures taken to minimize pollution (on-site water/soil quality monitoring, ensure proper design of the fencing, etc.). No alien species are allowed; Regular monitoring of species; Use a warning system with environmental monitoring indicators. Measures taken to treat waste using biological methods. Apply best environmental practice to avoid | FAO with SFD;<br>World Bank will also conduct its own monitoring | FAO/SFD oversees construction and operation activities | FAO/SFD with support from Governorate Units | As required | 60,000 USD/Year for Environmental and Social Consultant |

| Sub-Projects Measures | Potential Environmental or Social Impacts | Proposed Mitigation Measures | Monitoring Requirements (including supervision) | Means of insurance and compliance | Institutional Responsibility (including enforcement/ coordination) | Time Frame or Schedule for Monitoring | Cost Estimate for Mitigation |
|---|---|---|---|---|---|---|---|
| | | odor and diseases; Apply proper feeding practices for ruminant. Safe management of veterinary drugs. Tender document will have to include provisions for site specific ESMP<br><br>Provide workers with protective clothing. | | | | | |
| | More possibility of accidents | | | | | | |
| Access to natural resources (applies to all measures) | Access to natural resources may be changed, and some beneficiaries could see their access negatively affected (particularly water). This could result in conflict. | Before sub-project implementation starts, a beneficiary committee is established which consists of sheiks, Water Users Associations (WUA), and farmers, etc. The role of this committee is to ensure no activities can start unless it's free from any social conflict that could hinder the project implementation. They prepare a consent form among beneficiaries to clarify the land ownership and any potential social conflict, especially with regard to water resources. | FAO with SFD monitor the sub project interventions will not result in negative impacts to any of the stakeholders. | FAO/SFD | FAO/SFD with support from Governorate Units | As required | -- |
| **Total** | | | | | | **60,000 USD** | |