



**Republic Of Yemen
Ministry of Agriculture and Irrigation
Global Agriculture and Food Security Program (GAFSP)**

Smallholder Agricultural Productivity Enhancement Project (SAPEP) (P148747)

Environmental and Social Management Framework (ESMF)

Prepared by:

Dr. Eng. Fadhl Ali Al-Nozaily, Water and Environment Consultant

January 2015

Table of Contents

Items	Page
Abbreviations and Acronyms.....	iii
Executive Summary.....	v
1 Introduction.....	1
2 Brief Project Description.....	3
3 Description of Baseline Environmental and Socioeconomic Conditions	6
3.1 Geographical Location	6
3.2 Climate and Meteorology.....	6
3.3 Biological Flora and Fauna	7
3.4 Socio-Economic Situation.....	7
4 Legal, Policy and Administrative Framework.....	10
4.1 Environmental Policy, Strategies & Law of Yemen.....	10
4.1.1 Pesticides Law	10
4.1.2 Water Law	10
4.1.3 Cooperatives Societies and Unions Law	11
4.1.4 International and Regional Environmental Legislations.....	11
4.2 Key policies, strategies, and plans most relevant to SAPEP.....	12
4.3 World Bank Safeguard Policies	15
4.4 Justification and analysis of World Bank Policies triggered by SAPEP.....	16
5 Methodology for the Preparation, Approval, and Execution of Sub-projects.....	19
5.1 Types of Sub-projects to be supported by the project.....	19
5.2 Prioritization and Selection Criteria for Sub-projects.....	19
5.3 Incorporating EA Process into the Design of Sub-projects.....	20
5.4 Environmental Screening Process.....	20
5.4.1 Environmental and Social Screening Criteria for Subprojects.....	21
5.5 Preparation and Application Forms.....	24
5.6 Institutional and Implementation Arrangements.....	24
5.7 Assessments and Documentation	28
5.8 Grievance System.....	28
5.9 Key Impact Areas and Indicators.....	29
5.10 Thresholds for Environmental Impacts of Project Activities.....	30
5.11 Environmental Impacts Assessment and Mitigation Measures.....	31
5.11.1 Assessment of Project Impacts.....	31
5.11.1.1 Positive List of Sub-projects.....	31
5.11.1.2 Negative List of Sub-projects.....	34
6 Analysis of Alternatives.....	36
7 Elaboration of an Environmental and Social Management Plan.....	37
7.1 Environmental and Social Management Plan	37
7.2 Environmental Monitoring Plan.....	47
7.3 Sub-projects Monitoring and Evaluation.....	47
7.4 Environmental Mitigation Measures.....	48
8 Institutional Assessment & Strengthening Institutional Capacities.....	52
9 Integrated Pest Management Plan.....	54
10 Public Consultations.....	55
10.1 Consultations Strategy.....	55
 Annexes	
Annex I Tables and Maps of Proposed Geographic Focus of SAPEP.....	57
Annex II Environmental Screening Form.....	62
Annex III Standard Format for Environmental and Social Management Plan (ESMP).....	64
Annex IV Pest Management Safeguard Policy Screening Framework.....	65
Annex V Public Consultations Report.....	72

List of Tables

1	World Bank Safeguard Policies.....	X
2	Example of Environmental and Social Management Plan Matrix.....	XIII
3	Proposed Indicative Financing for SAPEP.....	5
4	Safeguard Policies that Might Applied to SAPEP.....	15
5	Summary of Justification for the Triggered Policy.....	16
6	Positive List of Subprojects.....	31
7	Negative List of Subprojects.....	34
8	Environmental and Social Management Plan Matrix.....	38
9	Environmental Monitoring Plan Matrix.....	49
10	Set up of Consultations.....	56

List of Figures and Maps

1	Map of Areas Targeted by SAPEP	8
2	Proposed Project Structure Chart.....	27

ABBREVIATIONS AND ACRONYMS

ACAP	Agro-biodiversity and Adaptation Project
ACU	Agricultural Cooperative Union
AIP	Agriculture Improvement Program
AREA	Agricultural Research and Extension Authority
BQ	Bill of Quantities
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
EA	Environmental Auditing
EIA	Environmental Impact Assessment
EMP	Environmental Monitoring Plan
EPA	Environnemental Protection Authority
EPL	Environment Protection Law
ESMF	Environmental and Social Management Framework
EPL	Environnemental Protection Law
ESMP	Environmental and Social Management Plan
ESR	Environmental and Social Responsiveness
GAFSP	Global Agriculture and Food Security Program
GDP	Gross Domestic Product
GDPP	General Directorate of Plant Protection
GEF	Global Environment Facility
GSC	Governorate Steering Committee
GSCP	Groundwater and Soil Conservation Project
IDA	International Development Association
IFAD	International Fund for Agricultural Development
IPM	Integrated Pest Management
LDC	Least Developed Countries
M&E	Monitoring and Evaluation
MAI	Ministry of Agriculture and Irrigation
MAI-BO	Ministry of Agriculture and irrigation Branch office
MSAL	Ministry of Social Affairs and Labor
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
PAC	Projects' Approval Committee
PAPs	Project Affected Persons

PCU	Project Coordination Unit
PF	Process Framework
PO	Project officer
PPCR	Pilot Program for Climate Resilience
PRA	Participatory Rural Appraisal
PWP	Public Works Project
RALP	Rain-fed Agriculture and Livestock Project
SA	Social Assessment
SAPEP	Smallholder Agricultural Productivity Enhancement Project
SC	Steering Committee
SFD	Social Fund for Development
SPD	Sub project Proposal Document
TA	Tender Announcement
TAC	Technical Advisory Committee
TORs	Terms of Reference
UNCCD	United Nations Convention on Combating Desertification
UNFCCC	United Nations Framework Convention on Climate Change
UWSS	Urban Water Sector Support
WB	World Bank
YPIUs	Yemen Project implementation Units
YWU	Yemeni women union
DCC	District Coordination Committee
FUs	Fields Units
CDA	Community Development Associations
GCC	Governorate Coordination Committee

Executive Summary

Preamble

1. This Environmental and Social Management Framework (ESMF) is prepared for the Smallholder Agricultural Productivity Enhancement Project. This proposal to support the Republic of Yemen's efforts to achieve food security for the Yemeni people has been prepared by government and is presented to the Global Agriculture and Food Security Program (GAFSP) Secretariat with a view to obtaining grant financing for the priority program proposed.

Introduction

2. Situated on the southern part of the Arabian Peninsula, Yemen is one of the poorest countries in the Arab region, with a per capita GDP of US\$1,473 in 2013. Over half of the population of 25 million lives below the poverty line of US\$2 a day. Poverty is especially high in rural areas, which is home to about 68 percent of the population and 84 percent of the poor. Yemen ranks 160 out of 187 countries in the 2013 Human Development Index, and its socio-economic indicators are alarming; Yemen is among the ten countries in the world with the highest rates of food insecurity (nearly 45 percent of the population in 2012), and the country has the third highest level of malnutrition in the world (almost 60 percent of children under the age of five have chronic malnutrition, 35 percent are underweight, and 13 percent have acute malnutrition). The problem of stunting is predominantly rural, affecting more than a third of children in rural areas. The country has one of the highest population growth rates in the world, placing increasing pressure on its limited institutional capacity and outreach of the government services, limited and rapidly depleting water resources, poor infrastructure, significant rural-to-urban migration, and acute gender inequality.

3. Agriculture is a key sector in the Yemeni economy. The agriculture sector produced 19.5 percent of Yemen's GDP in 2012, is the main source of income for 73 percent of the population [either directly (33 percent) or indirectly through the services and industries connected to the agricultural economy], and employs more than half (54 percent) of the labor force. Yemen is an arid country and agriculture accounts for some 90 percent of water use. Over the last thirty years, the rapid growth of demand for higher value products and the transformational role of groundwater have driven growth and employment in agriculture. More recently however, productivity has been stagnating and water availability is declining. This emphasizes the need to boost productivity whilst conserving water. Food security and the agriculture sector are closely linked in Yemen. The country's diverse agro-ecological zones include highlands, plateaus, deserts, and seacoasts. The poor mountainous agriculture areas of the highlands are a particular challenge, with two thirds of all Yemen's food insecure living in dry highland areas. The agriculture sector is also a key factor in efforts to reduce internal migration and related social and economic problems.

4. The Yemeni agricultural sector faces several challenges. Among them are low productivity, resource constraints, inadequate marketing systems, low human resources capacity, lack of infrastructure, insufficient availability of inputs (including high yielding seed varieties), post-harvest losses and inefficient top-down agricultural research and extension services. Ground water on which more than half of outputs now depend are fully exploited and reserves are being overdrawn and are dwindling fast. Particularly small and fragmented agricultural holdings are another constraint that prevents the sector from making a larger contribution to rural incomes, national GDP, and addressing the trade imbalance in

food items. Following a decade of declining public expenditures in the sector, the role of government in the agriculture sector has also been decreasing and many common functions of a Ministry of Agriculture are absent. In spite of several successive agriculture development projects supported by external donors, agricultural services provided by the MAI have suffered from the lack of sustainability in the absence of adequate local financing of performance-based staff incentives. External factors such as social conflicts and lack of security are also having a significant impact on the agriculture sector.

5. A National Agriculture Sector Strategy NASS update (2013-2017) completed in 2013 provides for new emphasis in production on: (a) improving productivity in rainfed agriculture; (b) more efficient agricultural water management; (c) an increased recognition of the role of rural women in meeting food needs, improving nutrition and protecting the environment; (d) a strong focus on improving productivity and sustainability of livestock production (as livestock is the principal asset and economic activity of the poorest and landless); and (e) diversification of cropping patterns into new or revived cash crops and into more nutritious foods. The NASS update also promotes for a new institutional emphasis on: (a) demand-driven and participatory approach factoring in the needs and views of the farmers, particularly the poorest from the bottom up, (b) a decentralized approach; (c) increased reliance on the private sector and on public/private partnerships wherever feasible, and (d) efficient use of scarce public finances. The NASS update is also consistent with the National Water Sector Strategy and Investment Program (NWSSIP, 2008-2015) which has its goal for agricultural water to maintain a profitable, economically efficient, equitable and sustainable agriculture. The proposed Smallholder Agricultural Productivity Enhancement Project (SAPEP) approved for funding from the Global Agriculture and Food Security Program (GAFSP) on September 6, 2013, would be a major vehicle for implementing the “priority investment plan” of the NASS update.

Project Description

6. The proposed project will contribute to the World Bank’s twin goals of eliminating extreme poverty by 2030 and boosting shared prosperity, measured as the income of the bottom 40 percent in any given country. In Yemen, low agricultural productivity is partly to blame for the country’s alarming poverty and food insecurity statistics cited in the preceding sections of this concept note. The project proposes to target more than 800,000 people living in areas among the poorest of rural Yemen. By raising agricultural productivity in poor, rural areas, the Project would assist the Government in reducing extreme poverty in rural Yemen.

7. The proposed development objective of the project is to increase the use of productivity-enhancing crop and livestock practice by smallholders in targeted project areas. The Project is expected to result in the following outcomes:

- ✓ Increase in number of direct and indirect beneficiaries (of which percent female) receiving services through agricultural offices;
- ✓ Expanded area under which productivity-enhancing land and water management practices;
- ✓ Increase in percentage of smallholders adopting improved measures to improve livestock productivity;
- ✓ Higher crop and livestock productivity;
- ✓ Community based organizations actively participating in national/regional level technical and policy discussions on food security.

The proposed project will consist of the following three components:

8. Component 1: Community Sub-Projects and Investment Program : The objective of this component is to support community sub-projects and investments that will protect land and water assets, thus raising productivity, and adding value in both crop and livestock production. The subprojects and investments, which will be selected and implemented through a participatory process with target communities, will be carried out in the following areas:

(a) Community land and water management:

(i) rehabilitation of existing terraces (associated with existing or new water storage);

(ii) construction and rehabilitation of water harvesting structures;

(iii) wadi bank protection;

(iv) check dikes in wadi beds;

(v) vegetative measures;

(vi) roof-top rainwater harvesting;

(vii) small scale spate using traditional techniques;

(viii) canal structures; and

(ix) improved supplemental irrigation from rainwater harvesting as part of qat substitution initiative successfully experimented under GSCP

(b) Livestock production:

(i) improved veterinary services;

(ii) systematic vaccination campaigns;

(iii) expanding the availability of male and female community health workers,

(iv) improving animal nutrition;

(v) improving animal husbandry and breeding; and

(vi) grants for livestock income-generating micro-projects for poor women, such as beekeeping, small ruminant fattening and backyard poultry.

(c) Community-based research and extension:

(i) research, development and extension on high value rainfed crops, including for qat substitution

(ii) applied-research and community-based research on drought-tolerant and high-nutritional value food and fodder crops;

(iii) testing and possibly introducing the Farmer Field Schools (FFS) approach in Yemen;

(iv) multiplication and dissemination of improved landrace seeds through Rural Seed Banks (RSB);

(v) enhanced access for women to inputs and extension, and promotion of nutrition awareness on nutrition-sensitive agriculture and linkage to community nutrition programs; and

(vi) plant protection with focus on Integrated Pest Management (IPM).

(d) Adding value to agriculture:

(i) activities increasing the smallholder farmers' share of high value crops (coffee, honey, livestock products) through: formation of community and multi-community producer associations and groups, which would get startup equipment as well as technical and business training (under component 2.1); development of quality

control processes; promoting partnership with traders and exporters; reducing the cost of animal feed through production of animal rations from local material;

(ii) activities increasing the farm-gate value and nutritional content of agricultural products through: introduction of high value crops (coffee, almonds, and possibly quinoa); and improving honey quality through improved beekeeping and processing and plantation of *Ziziphus*¹ *Spina Christi* trees;

(iii) supporting income generating initiatives proposed by existing cooperatives, associations, Community Based Organizations (CBO) such as village level micro-enterprises with particular emphasis on youth and women's initiatives (wool and food processing, processing of vegetable oils and herbs, rural festival and agricultural fairs, input sales, etc.).

9. Component 2: Capacity Building and Institutional Strengthening: The objective of this component is to support capacity building activities for community based organization, local and central government, and key stakeholders involved in service provision. The component would finance consulting services, training and capacity building, and study tours (South-South exchanges). This includes (a) *Community organization, capacity building and participatory planning*; (b) *Capacity building and institutional strengthening for Government agencies, NGOs, and key stakeholders*:

10. Component 3: Program Administration, Monitoring and Evaluation: This component would finance the provision of support to the Agricultural Improvement Program (AIP) of MAI as implementing agency of SAPEP through the provision goods, consultant services, training, non-consultant services, and incremental operating costs associated with the responsibility of coordination, administration and management of project implementation.

Implementation Arrangements

11. The implementing agency will be the Ministry of Agriculture and Irrigation (MAI). MAI will be responsible for project preparation, coordination, and implementation. MAI is planning on establishing an Agriculture Improvement Program (AIP), similar to the National Irrigation Program (NIP), and would be supported, as needed, by consultants, selected under WB Guidelines, and financed by GAFSP. The Government's long-term vision is for the AIP to serve as the implementation arm of MAI for SAPEP and future operations supporting the NASS. The Project will support the AIP to move away from a top-down approach to research and extension to a demand-driven community-based approach successfully developed by IFAD Projects, the Social Fund for Development under RALP and AREA Rapid Impact Program. This shift in implementation approach reflects the need for MAI to make the transition in its structure and function to reflect the broader decentralization agenda in Yemen. The functions of the AIP would include, inter alia: preparation of annual programs and budgets, day to day management and coordination of the project activities; fiduciary responsibility (financial management, procurement); review and approval of community sub-projects proposals; preparation of TORs and technical specifications; environmental and social safeguards reviews; technical supervision of sub-project implementation; monitoring and evaluation; and reporting to the National Steering Committee and IDA. At governorate

¹ Honey produced from the flowers of *Zizifus Spina Christi* commands a high price premium on regional markets

level, the AIP would implement the project activities through the Field Units (FUs) of MAI Agricultural Offices.

12. As SAPEP is promoting the participation of communities and beneficiaries in the development and implementation of investments, proposals for sub-projects under component 1, would be submitted to AIP by the communities, through the MAI/AIP Agricultural Offices and Field Units. MAI/AIP Agricultural Offices and FUs would have adequate staff and consultants to facilitate the mobilization of communities and assist communities to form committees that would develop and review proposals for sub-projects through a participatory approach. Final approval, and safeguard policies enforcement, of proposals for sub-projects and investments at the community level would be the responsibility of the AIP.

Objectives of the Environmental and Social Management Framework (ESMF)

13. The purpose of the ESMF is to ensure that environmental and social management is integrated into the development cycle of individual subprojects. The SAPEP will be implemented as a community-led effort, where communities will be empowered to enable them in identifying their available resources and priority needs. Since exact sub-projects are not determined at the onset of project and will be decided during project implementation based on demand and consultations with the concerned communities, the instrument of the Bank Operational Policy OP 4.01 on Environmental Assessment is determined as an ESMF. The ESMF is intended to serve as a practical tool to guide identification and mitigation of potential environmental and social impacts of proposed investments and 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. The ESMF will be also applicable towards the Bank's Operational Policy on Pest Management (OP 4.09). In order to undertake an Integrated Pest Management (IPM) approach, the ESMF outlines the capacity building required to elaborate on an IPM framework for the preparation of an IPM. The ESMF identifies the policy triggers for the project, the screening criteria of 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 which will be determined after sub projects design.

World Bank Safeguard Policies

14. The SAPEP 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 4.09) are triggered by the SAPEP as outlined in the table below:

Table (1) World Bank Safeguard Policies

Safeguard Policies	Policy Triggered	Justification
Environmental Assessment OP 4.01	Yes	Policy is triggered as the project is expected to include small-scale infrastructure and activities relating to soil and water management such as terraces, construction of water harvesting structures (e.g. cisterns), and small-scale spate irrigation sub-projects. Activities will build on MAI's success in these areas over the last fifteen years. Since the locations of the sub-projects are not known at this stage, an Environmental and Social Management Framework (ESMF) including a checklist for the screening of sub-projects has been prepared and will be disclosed before project appraisal. Site/sub-project specific Environmental and Social Management Plan (ESMP) will be prepared during implementation and before implementation of sub-projects/construction as required.
Natural Habitats OP 4.04	No	The policy is not triggered. The project activities will not cause conversion or degradation of natural habitats or critical natural habitats as defined by the policy.
Forests OP 4.36	No	Policy is not triggered as the project will not be implemented in any forested areas.
Pest Management OP 4.09	Yes	Policy is triggered as the project could include sub-projects relating to the enhancement of agricultural productivity and introduction of high value crops, support seed banks and bee keeping. These activities could result in the use of pesticides and therefore OP4.09 is triggered, which will be covered within the scope of the ESMF. The ESMF includes a screening tool to identify subprojects that could need to prepare a simple integrated pest management plan (IPM). Such subprojects will prepare the IPM before they are approved for implementation. The Project will include relevant training at the field level such as in IPM, selecting disease free seeds, bee keeping, etc.
Physical Cultural Resources OP 4.11	No	Policy is not triggered as the project will not be implemented in areas of cultural heritage sites. However, chance finds procedures will be included in Project as is standard practice.
Indigenous Peoples OP 4.10	No	Policy is not triggered as indigenous people as defined in the policy are not present in project areas.
Involuntary Resettlement OP 4.12	No	Policy is not triggered. No involuntary resettlement is anticipated in the Project. The project will not finance any activities which involve involuntary taking of land and involuntary restriction of legally designated parks and protected areas. Land for project activities will be free of squatters/encroachers. It is expected that land needed for any subprojects will be in small scale and owned by the government. In case of private owned land, the project will obtain the land through voluntary donation by local communities. The guidelines for safeguards screening, voluntary land donation and negative project list will be developed and included in the Operational Manual and the PAD, and a GRM for land donation

		will be put in place. The client will conduct due diligence to ensure that no involuntary settlements will take place. Verification of the voluntary nature of land donation will be obtained and reviewed by the Bank.
Safety of Dams OP 4.37	No	Policy is not triggered as the proposed community sub-projects will not include construction or rehabilitation of dams as defined by the policy.
Projects on International Waterways OP 7.50	No	Policy is not triggered as the project will not undertake any activities in the catchment areas of international waterways and shared aquifers.
Projects in Disputed Areas OP 7.60	No	Policy is not triggered as project activities will not be implemented in any disputed areas.

Public Consultations and Disclosure

15. The World Bank requires that stakeholder consultations be undertaken during planning, implementation and operation phases of the project. As part of the SAPEP preparation, consultations have been an ongoing process with key stakeholders and other beneficiaries. However, the project design including the environmental/social aspects were shared and consulted with key stakeholders during consultations that were held during June 1 to 17, 2014. Annex (V) of the report contains a summary of stakeholder consultations where points and concerns of stakeholders were documented. The annex also includes a list of participants. The executive summary of the ESMF will be translated into Arabic and the final the ESMF including the Arabic executive summary will be disclosed in-country (on the website of GAFSP) and on the Bank's website.

16. The ESMF outlines the identification and evaluation of the potential environmental and social impacts of sub-projects 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. The ESMF further describes the process through which communities will determine the potential impact, requirements for further analysis and development of individual ESMP as required.

16. The ESMF presents the methodology for the preparation, approval, and execution of sub-projects, which are based on the following selection criteria:

- Community ranking
- Positive cost/benefit ratio including environmental and social cost benefit
- Sustainability (Eco-system co-benefits, environmental impacts, equity, O&M costs)
- Effectiveness (robustness, reliability)
- Implementation complexity (public acceptability, sustainable funding sources, capacity of information, technology, supervising staff)
- Minimal environmental impacts as per checklist
- Final decision is made by National Steering Committee (NSC) based on project focal point recommendation

17. The ESMF elaborates on the procedures that will be used to prepare Environmental and Social Management Plans (ESMP) for sub-projects consisting of a set of mitigation, monitoring and institutional measures to be taken during different stages of the project (design, implementation and operation) to mitigate potential adverse environmental impacts, offset them, or reduce them to acceptable levels. In addition, the ESMF proposes cost effective mitigation measures, the cost of which should be a part of the project cost. The ESMP matrix below shows example of sub-projects, potential environmental impacts, proposed mitigating and monitoring measures with institutional responsibilities.

Table (2) Examples of Environmental and Social Management Plan Matrix

Sub-Projects Measures	Potential Environmental Impacts	Proposed Mitigation Measures	Monitoring Requirements (including supervision)	Means of insurance and compliance	Institutional Responsibility (including enforcement/ coordination)	Time Frame or Schedule	Cost Estimate
<p>Added value activities to agricultural or animal production such as wool and food processing, processing of vegetable oils and herbs</p>	<p>Air Quality and Noise Construction Construction may impact air quality and generate noise. This results mainly from excavation, site grading, vehicle loading and unloading, and other construction-related activities.</p> <p>Operation 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 Odor and heat increase may happen due to bad ventilation Deterioration of water pipe and electric cables. The placement of septic disposal systems in impermeable soils with severe constraints to disposal of liquid effluent. Decaying bi product; Vibrations from short-term operation or long-term operation, which may affect adjoining areas and building components</p>	<p>Air Quality and Noise Construction Use dust control measures onsite, such as water spraying for dust suppression; Regulate site access; Cover lorries transporting friable construction materials and spoil; Prohibit open air burning; Maintain machinery and vehicles in good working conditions to minimize emissions; and Provide adequate protective wear for workers Vehicles and equipment must be maintained regularly to avoid any emissions; Pre-treat gases emitted by boilers and generators.</p> <p>Operation Conserve energy use to reduce fuel combustion; Control emissions from wastewater treatment facility/septic tanks;</p> <p>Mitigation is the first factor that could be addressed by frequent inspection to the facilities construction and by applying required maintenance. Regular</p>	<p>The (AIP/FUs/CB Os) monitor the design and supervision consultant’s reports to ensure safeguards compliance undertaking field visits or further investigations as necessary. The World Bank (WB) will also conduct its own monitoring to ensure the project is compliant with its environment and social safeguards</p>	<p>MAI with (National Steering Committee (NSC) and Governorate Coordination Committee (GCC) oversees construction and operation activities and conducts visual inspection with the assistance of a representative of the local community Contracts and NSC coordinator ensures that contractors implement environmental management plans/regulations and that</p>	<p>AIP with support from Governorate Units in addition to Governorate Coordination Committee (GCC)</p>	<p>Quarterly</p>	<p>To be determine after design</p>

	<p>Handling Operations & Occupational health</p> <p>Exposure of the food products to dust and other contamination sources, or similar hazards. Exposure to germs and virus during food handling, classification, freezing and loading due improper handling by workers. Transmission of diseases may occur due to affected personnel working in handling of food products during the different steps inside the site.</p> <p>Soil Quality and Surface/Ground water Pattern/contamination Construction</p> <p>Impacts on soil quality may result from the following construction activities: Site clearance, site grading, excavation, infrastructure, and oil leaks from vehicles and/or equipment.</p> <p>Operation</p> <p>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;</p>	<p>inspection and examinations for mentioned impacts, and address them through repairing and replacement of spoiled materials. Minimizing entrance of heavy machines to reduce vibration impact. For handling and occupational health, applying strict hygiene regulation and occupational health measurements is critical and a separate EMP could be required to parts of operational stages for handling, washing, classification, freezing, backing up to loading and distribution to consumption.</p> <p>Soil Quality and Surface/Ground water pattern/contamination Construction</p> <p>Apply, inspect and maintain temporary/permanent erosion and sediment control measures (e.g. silt fences, rapid growth vegetation, erosion control matting) to exposed areas; Restrict movement of vehicles to designated tracks.</p> <p>Operation</p> <p>Maintain periodically vehicles and equipment to prevent leaks; Maintain records and procedures for equipment maintenance, handling and storage of liquid fuels and chemicals; laboratory regular testing for ground and surface water quality.</p>		<p>contractors perform continuous inspection and monitoring of areas of potential pollution and/or uses with the potential to result in soil contamination.</p> <p>Complaints from local community</p> <p>Review of tender and bid documents by AIP</p>			
--	--	---	--	---	--	--	--

	<p>Discharge into surface waters, or alteration of surface water quality, including but not limited to temperature, dissolved oxygen, turbidity, solids</p> <p>Waste water Potential generation of waste water resulting for the project activities and/ or sub-projects during both construction and operation.</p> <p>Biological Resources- Flora & Fauna 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</p>	<p>Waste Water Use of bio-treatment to prevent land disposal; Septic tanks for excess treated wastewater should be lined;</p> <p>Biological Resources- Flora & Fauna Applying environmental operational standards within the legal, policy and management framework of the project to minimize the negative impact on the environment using the comparative advantage of the different project counterparts. Compliance with SAPEP 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 need to include provisions for site specific EMP as necessary.</p>					
--	--	---	--	--	--	--	--

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	Some of the above measures are applicable here. Avoiding damage to natural habitats, cultural, historical, religious places during construction; or minimizing negative impacts (proper site selection, use mooring system, use environmentally friendly materials, prepare materials off-site, etc.). Tender document will need to include provisions for site specific EMP as necessary. Good practice in design to be integrated.	The (AIP/FUs/CB Os) will monitor the design and supervision consultant's reports to ensure safeguards compliance. WB will also conduct its own monitoring to ensure safeguards compliance, undertaking field visits or further investigations as necessary.	MAI with MAI with (NSC) and (GCC)	AIP with support from Governorate Units in addition to (GCC)	Monthly	To be determine after design
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 habitats. Tender document will need to include provisions for site specific EMP as necessary.	The (AIP/FUs/CB Os) WB will also conduct its own monitoring	MAI with (NSC) and (GCC) oversees construction and operation activities	AIP with support from Governorate Units in addition to (GCC)	Weekly/ Monthly	To be determine after design
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	Above measures are applicable here. With special concern for avoiding damage to natural habitats during constructions or minimizing impacts (proper site selection, use environmentally-friendly materials, prepare materials off-site, etc.). Tender	The (AIP/FUs/CB Os) WB will also conduct its own monitoring	MAI with (NSC) and (GCC) oversees construction and operation activities	AIP with support from Governorate Units in addition to (GCC)	Monthly	To be determine after design

		document will need to include provisions for site specific EMP as necessary. Good practice in design to be followed.					
Beekeeping, small ruminant fattening and, backyard poultry.	Introduction of alien species Change biological balance Waste Odor	Site specific EMP to be developed under each sub-project, and to include: Measures taken to minimize pollution (on-site water/soil quality monitoring, ensure proper design of the fencing, etc.). No alien species 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 odor and diseases; Apply proper feeding practices for ruminants. Tender document will need to include provisions for site specific EMP as necessary.	The (AIP/FUs/CB Os) WB will also conduct its own monitoring	MAI with (NSC) and (GCC) oversees construction and operation activities	AIP with support from Governorate Units in addition to (GCC)	As required	To be determine after design

18. The ESMF concluded some points in the relation to assessment of institutional capacities and elaborated on some recommendations to strengthen the institutional capacities and required training, information, and public awareness. These include managing the gaps through the design and implementation of capacity building for government agencies, to be carried out as part of Component 2 of the project; and activities to strengthen the knowledge and guidance to AIP in participatory approach. Regarding the capacity in MAI to supervise implementation of environmental and social safeguards and relevant mitigation measures, MAI has some capacity because of implementing other World Bank projects; however, the project will build their capacity for undertaking adequate safeguards supervision to ensure compliance with the environmental and social measures.

19. The ESMF will estimate cost of the implementation of ESMP after design stage and training cost that will be round US\$250,000, needed to address the improving the capacity of stakeholders for ESMF implementation.

1. Introduction

1. Yemen's economy relies mostly on agriculture and rain-fed agriculture in the highlands represents more than half of the total cultivated area of Yemen. Agriculture contributes more than 19.5 to GDP in 2012 and is the main source of income for 73 percent of the population [either directly (33 percent) or indirectly through the services and industries connected to the agricultural economy], and employs more than half (54 percent) of the labor force. The communities in the highlands retain important agro-biodiversity and traditional knowledge related to the utilization of their agro-biodiversity resources. Yemen is well known for its agro-biodiversity based on the large number of landraces of barley, wheat, sorghum, millet, lentil, and cowpea which have evolved over more than two thousand years, and for the construction and management of terraces which help minimize land degradation and improve water use efficiency. Most of these landraces have accumulated adaptive attributes for coping with the adverse environmental and climatic conditions and to the need of local communities. In addition, many wild relative species of these crops and many other plant species having forage and medicinal values are still found in field edges and remnant natural habitats. These landraces and their wild relatives and the associated local knowledge constitute important components of the traditional farming systems prevailing under harsh environments of the rainfed mountainous regions.

2. As response to the Government of Yemen requested the Global Agriculture and Food Security Program (GAFSP) Steering Committee approved the Smallholder Agricultural Productivity Enhancement Project (SAPEP). The focus of the (GAFSP) is on the longer-term agenda to improve the income and food security of poor people in developing countries through more and better country-led public and private sector investment in raising agricultural productivity, linking farmers to markets, reducing risk and vulnerability, and improving non-farm rural livelihoods, and through technical assistance. The main feature of this project was to address the major challenges identified in the overall National Agriculture Sector Strategy (NASS) and its associated investment plan, including food security, smallholder agricultural productivity, climate resilience, and program coordination. This project was in line with the 2013 updated NASS that reflected the strong focus on participatory approaches in design, implementation, and monitoring; strong linkages to poverty reduction, nutrition, and food security enhancement; linkages to climate adaptation; enhanced readiness for implementation; and a comprehensive risk analysis. The project is also in line with other national strategies including the National Food Security Strategy (NFSS), and the National Water Sector Strategy and Investment Program (NWSSIP).

3. The Rationale for public sector provision/financing is the fact that the project is part of a nationally developed and owned National Agriculture Sector Strategy (NASS), which is under the mandate of the MAI. GAFSP financing would allow Yemen to capitalize on past successful experience in area-based integrated poverty reduction programs and to launch the first phase of a long-term national program for integrated community-based delivery of investments and services. The World Bank has been selected by the Government of Yemen as the supervising entity in view of a long and fruitful development partnership in agriculture. Since the 1970's, the World Bank has been actively involved in the agriculture and rural development of Yemen involving dialogue and investment relevant to all components of the proposed project over almost four decades. The Bank's investments in the agriculture sector initially focused on irrigated areas, but increased its engagement to include supporting national projects targeting rainfed areas and promoting the improvement of livelihoods of

poor farmers, and their broader involvement through formal and informal organizations. The World Bank has reviewed the NASS Update and GAFSP financing proposal and on this basis has issued a letter of readiness to act as supervising entity.

4. The proposed methodology for the outcome is the project's economic impacts will be calculated through a quantitative cost-benefit analysis of the incremental incomes accruing to farmers through the gains in agricultural productivity and the reduction of risks associated with climate change. In addition, a qualitative analysis will evaluate the indirect economic, environmental, and social benefits of the project.

Implementation Approach of the SAPEP

5. This project is a demand-driven program, and farmer organizations and user associations will be principal partners, building on successful experience e.g. under RALP, ACAP, GSCP and IFAD-funded projects. Community ownership and program accountability will be achieved through participatory, local level programming and through social accountability mechanisms such as participatory M&E. Broad participation of beneficiary groups is also a risk-mitigating factor to ensure effective implementation, as has been demonstrated by other similar interventions in the past years. Civil society will be implicated, including through their CBOs contracting for extension and livestock services. In addition, cooperatives and the private sector will participate in key activities, bringing energy and entrepreneurship to, for example, provision of extension services, training and marketing. The proposed progressive privatization of the veterinary service, the use of private village extension agents will further involve the private sector, improving targeting, reducing public cost and promoting sustainability. SAPEP approach is to be implemented through the MAI-AIP structure, and proposing that beneficiaries take an active part in identifying and undertaking sub-projects.

6. The proposed project development objective is to increase the adoption and use of productivity-enhancing agricultural practices by smallholders in targeted project areas.

The project has the following key outcomes:

- Increase in number of direct and indirect beneficiaries (of which percent female) receiving services through agricultural offices;
- Expanded area under which productivity-enhancing land and water management practices have been adopted and used;
- Increase in percentage of smallholders adopting improved measures to improve livestock productivity;
- Higher crop and livestock productivity;
- Community based organizations actively participating in national/regional level technical and policy bodies or project implementation related to food security or agriculture programs.

2. Brief Project Description

The project will consist of the following three components:

Component 1: Community Sub-Projects and Investment Program (US\$30 million):

7. The objective of this component is to support community sub-projects and investments that will protect land and water assets, thus contributing to crop and livestock productivity. Subprojects and investments will be selected and implemented through a community-based and participatory development approach. Proposals for subprojects will be developed by the target communities, with support from MAI branch offices, for approval by the project coordination unit within the central MAI office. Funding for approved projects will flow from the central MAI office to the branch offices, which will support the communities to implement the approved subprojects. Subprojects and investments will be undertaken in the following areas: (a) Community land and water management: (i) rehabilitation of existing terraces (associated with existing or new water storage); (ii) construction and rehabilitation of water harvesting structures; (iii) wadi bank protection; (iv) check dikes in wadi beds, (v) vegetative measures; (vi) roof-top rainwater harvesting; (vii) small scale spate using traditional techniques; (viii) canal structures; and (ix) improved supplemental irrigation from rainwater harvesting as part of qat substitution initiative successfully experimented under GSCP (b) Livestock production: (i) improved veterinary services; (ii) systematic vaccination campaigns; (iii) expanding the availability of male and female community health workers, (iv) improving animal nutrition; (v) improving animal husbandry and breeding; and (vi) grants for livestock income-generating micro-projects for poor women, such as beekeeping, small ruminant fattening and backyard poultry. (c) Community-based research and extension: (i) research, development and extension on high value rainfed crops, including for qat substitution (ii) applied-research and community-based research on drought-tolerant and high-nutritional value food and fodder crops; (iii) testing and possibly introducing the Farmer Field Schools (FFS) approach in Yemen; (iv) multiplication and dissemination of improved landrace seeds through Rural Seed Banks (RSB);(v) enhanced access for women to inputs and extension, and promotion of nutrition awareness on nutrition-sensitive agriculture and linkage to community nutrition programs; and (vi) plant protection with focus on Integrated Pest Management (IPM). (d) Adding value to agriculture: (i) activities increasing the smallholder farmers' share of high value crops (coffee, honey, livestock products) through: formation of community and multi-community producer associations and groups, which would get startup equipment as well as technical and business training (under component 2.1); development of quality control processes; promoting partnership with traders and exporters; reducing the cost of animal feed through production of animal rations from local material; (ii) activities increasing the farm-gate value and nutritional content of agricultural products through: introduction of high value crops (coffee, almonds, and possibly quinoa); and improving honey quality through improved beekeeping and processing and plantation of *Ziziphus² Spina Christi* trees; (iii) supporting income generating initiatives proposed by existing cooperatives, associations, Community Based Organizations (CBO) such as village level micro-enterprises with particular emphasis on youth and women's initiatives (wool and food processing, processing of vegetable oils and herbs, rural festival and agricultural fairs, input sales, etc.).

² Honey produced from the flowers of *Zizifus Spina Christi* commands a high price premium on regional markets

Component 2: Capacity Building and Institutional Strengthening (US\$4 million):

8. The objective of this component is to support capacity building activities (through consultant services, goods, training, and non-consultant services) for communities, local and central government, and key stakeholders involved in service provision. This includes: (a) Community organization, capacity building and participatory planning: The project would provide financing to support community mobilization and organization, community-based planning to prioritize investments, implementation and management. Building on mobilization initiatives that have been successful in a number of areas, the project will support training that will strengthen the overall capacity of producer groups and community-based organizations (cooperatives, community land and water management associations etc.) directly involved and supported in Component 1. In agricultural extension, nutrition themes will be enhanced and demand-side nutrition awareness will be targeted to women and households to complement household gardens and other measures to diversify and improve diets; and (b) Capacity building and institutional strengthening for Government agencies, NGOs, and key stakeholders: Support under this activity will strengthen the capacity of services providers involved in implementing Component 1. It would include financing for consulting services and training that will: (i) strengthen capacity of Government agencies at central, regional and local levels for applied research, demonstration and training; (ii) develop capacity for community-based extension and farmer field schools; (iii) develop systems and capacity for multiplication and dissemination of improved landrace seeds; and (iv) develop capacity for public, NGO, academia to provide support to community-based groups. At the national level, eligible activities would also build upon past successful livestock initiatives to strengthen national veterinary services (surveillance, diagnostic, vaccinations) and to establish a public-private partnership for veterinary services and inputs.

Component 3: Program Administration, Monitoring and Evaluation (US\$2 million):

9. This component would finance the provision of support to the Agricultural Improvement Program (AIP) of MAI as implementing agency of SAPEP through the provision goods, consultant services, training, non-consultant services, and incremental operating costs associated with the responsibility of coordination, administration and management of project implementation. This would include: (i) support to program management, coordination, and supervision, including fiduciary activities (procurement, financial management), environmental and social assessments, reporting and audits; (ii) strengthening MAI Branch Offices through training, equipment, technical assistance (including with deployment of male and female community mobilizers); (iii) monitoring and evaluation, including the cost of establishing and operating and M&E system for the project with adequate baseline and project impact assessment studies. Incremental costs to be financed include incremental contractual staff costs, office equipment and operations, operating cost of transport equipment and travel (domestic and international).

Proposed SAPEP Budget

Table (3) Proposed indicative financing for SAPEP (US\$36 Million)

Components	Total cost	Government	Beneficiaries	GAFFSP
Component 1: Community Sub-Projects and Investments				
1.1 Land and water management and improvement	14.20	1.45	1.35	11.40
1.2 Livestock	9.45	0.95	0.90	7.60
1.3 Rainfed agriculture, including cereals and fodder	5.20	0.55	0.45	4.20
1.4 Adding value to the agriculture of the poor	7.70	0.70	0.80	6.20
<i>Sub-total Component 1</i>	<i>36.55</i>	<i>3.65</i>	<i>3.50</i>	<i>29.40</i>
Component 2: Capacity Building and Institutional Strengthening				
2.1 Community organization, capacity building and planning	3.30	0.70	-	2.60
2.2 Strengthening services to improve the productivity of rain-fed farming and livestock	1.85	0.35	-	1.50
<i>Sub-total Component 2</i>	<i>5.15</i>	<i>1.05</i>	<i>-</i>	<i>4.10</i>
Component 3: Project Administration, Monitoring and Evaluation	<i>3.10</i>	<i>0.60</i>	<i>-</i>	<i>2.50</i>
TOTAL	44.80	5.30	3.50	36.00

3. Baseline Environmental and Socio Economic Conditions

3.1. Geographical location

10. The following lists the administrative areas proposed as project sites for SAPEP, based on a set of criteria including poverty levels, food insecurity, population, and implementation capacity:

- Hajjah Governorate: Wash'hha, Qarah, Kushar, Al Jamimah, Kuhlan Ash Sharaf
- Shabwah Governorte: Baihan, Markha Al-Olya, Markhah Assufla, Nisab, Hateeb
- Sana'a Governorate: Bani Matar, Al Haymah Ad Dakhili, Al Haymah Al Khariji, Manakhah, Sa'fan
- Hadramout Alwadi: Al Qatn, Shibam, Say'un Tareem, As Saoum

For the SAPEP geographical coverage at country level see below map and for more details at governorate level see (Annex I).

3.2. Climate and meteorology

11. The climate of Yemen is characterized as semi-arid, where rainfall is generally limited but with significant variations depending on the elevations. Temperatures are generally high, particularly in the coastal regions. The highlands enjoy a temperate, rainy summer with an average high temperature of 21 °C (69.8 °F) and a cool, moderately dry winter with temperatures occasionally dipping below 0 °C (32.0 °F) at some places. Some areas of the western highlands receive about 1,000–1,500 mm (39.4–59.1 in) of rain each year.

12. Clearly the balance of activities and resource use found in the project area is directly related to the availability of natural resources and the agro-ecological zone. The location of the project areas in relation to the agro-ecological zoning of Yemen are presented in annex 1. While both Wadi Hadramaut and Shabwa are on the margins of the desert, the difference between the two areas is due to the fact that Wadi Hadramaut has access to significant ground water. Its groundwater supplies depend on three main aquifers. The shallow aquifer is saline to very saline in nature (EC 1.5 to 7.5mmhos/cm). The second aquifer rests in a rather compact conglomerate layer, is low yielding and of little economic importance. The third aquifer is in the Mukalla sandstone. In recent years, agriculture and other activities have put pressure on the aquifer due to over pumping; average pumping per year reached to 575 mm³, while the yearly charge only 500 mm³.

13. By contrast, the project areas in Shabwa are far more dependent on spate and thus on direct rainfall, which significantly reduces the potential for cultivation. Markha al Uliya and Hateeb have rainfall over 200mm/year, while the other project areas have only 50-100mm/year. Hence while Wadi Hadramaut has both cultivation and livestock as main resources, Shabwa are far more a livestock area as its soils and water situation mean that it has rangeland but far less cultivation.

14. Hajja, on the western slopes of the mountain range, has a more favorable rainfall pattern than Shabwa or Hadramaut, and its highlands are similar to Sana'a. Hajja Governorate is characterized by arid tropical climate with the mean temperatures ranging from 25 °C to 35 °C, and the relative humidity of 60-80%. This climate covers the coastal plains region and the lower mountain slopes in the west and south. The rainfall in this area ranges from 70 to 400 mm. The eastern part of Hajja has more chance of rain during the

monsoon season (summer), and rarely in the winter with less quantity. However the selected project areas are in the western mid-low lands, with altitudes ranging from 500 m asl to 1696 masl [Kuhlan al Sharaf]. The latter's circumstances can be assimilated to those prevailing in Sana'a governorate. Other, midland type areas are more similar to Shabwa though they benefit from significantly higher rainfall. The similarity is demonstrated by the comparative importance of livestock living off the range land, and the cropping pattern based on rain fed and spate irrigated cereals, with only very limited well irrigation, mainly as supplementary irrigation and with very little in the way of high value cash crops, either vegetables or other. However the higher rainfall and significantly higher access to water mean that qat is an important crop in some parts of the governorate.

15. Sana'a governorate is located in the scope of the internal climate of the highlands with cold winter in the districts of high altitudes exceeding 2000 meters above sea level and rainfall of about 200-450 mm on average in Sa'fan as well as parts of Bani Matar, Hayma ald Kharijiya and Hayma al Dakhiliya. Rainfall is 350-650 mm in Bani Matar, parts of Hayma Al Dakhiliya, Hayma al-Kharijiya and parts of Manakha. Unlike the other project areas, Sana'a depends mainly on rainfall for its agriculture.

3.3. Biological Flora and Fauna

16. *Flora in Yemen:* Yemen plants belong to the of Sudanian and Somalian region. Some of which belong to the Arabian desert region or Sindi Desert, which extends to Egypt, Palestine and southern Iraq and southwestern Iran and Syria and called Holanigtse and little ones belong to the of the Mediterranean region and toranian Iranian. The African region Plants exist in the western highlands and some plains of high elevations (Hajjah and Sanaa) and the eastern mountains and desert plains, eastern and northern (Shabwa and Wadi Hadramout). The plants of Arabian Desert regions spread through Marib and Shabwa till Al-Maharah, while some of the Iranian region plants spread through the Hadhramout governorate and in Wadi Sharis in Hajjah governorate and in Haraz and Khawlan in Sana'a governorate.

17. *Fauna in Yemen:* The Environments of the project areas could be classified into Mountainous Environments as Hajjah and Sana'a, and Desert environment as Shabwa and Hadramout. The most common livestock in the area are goats and sheep. People raise also cows, camels and birds. There are also varieties belong to the wild animals in some governorates including, but not limited to the following: in Hajjah, there is hyena, lynx, Arabian leopard, wild dogs, mongoose, especially in protected area of Sharis- Hajjah. In Sanaa, there is hyena, lynx, wild dogs. In Shabwa, there is green turtles, wild dogs, caribou at the border areas with Hadramout. In Wadi Hadramout, there is caribou, lynx, hyena. Moreover, there are different types of animals, but due to the limited studies on animal life in Yemen, which is originally limited as a result of the unknown scarce varieties and species of these animals. Also the species of these animals vary depending on environments in which they live.

3.4. Socio-economic Situation

✓ Population

18. Population of the proposed projects governorates is as shown in the table below:

Population of the proposed project governorates

Governorate	Total population 2013	Total households
Hadramaut	448 258	36 317
Shabwa	176 645	19 759
Hajja	328 317	24 556
Sana'a	442 803	65 116
Total	1 396 023	145 748

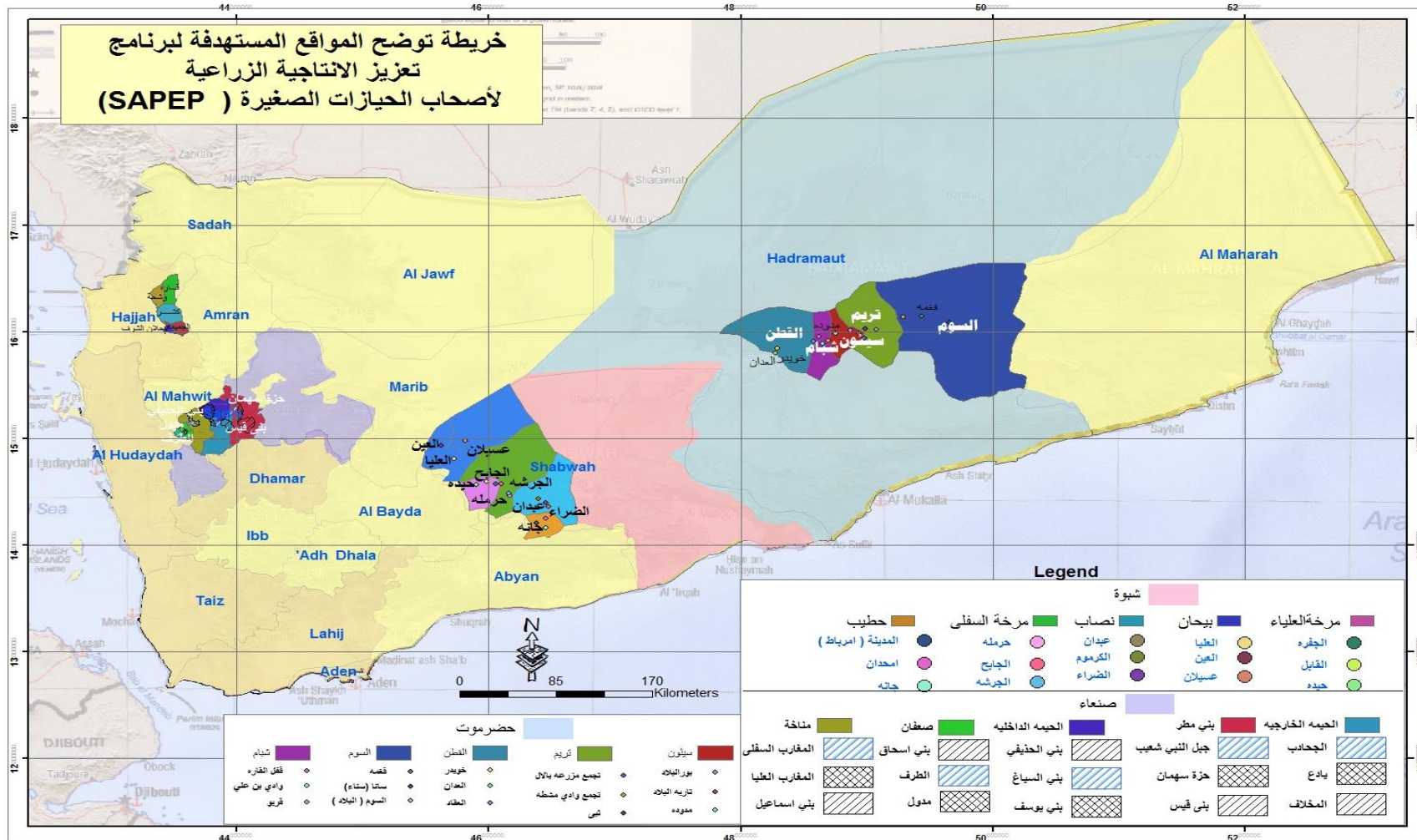
Source: Central Statistical Organization, updated for each governorate according to its growth rate, 2004 Census

✓ Livelihoods

19. Livelihoods in the project area are based on a household mixed economy, including a broad range of sources of income. The balance of the mix and the quality and quantity of each type of activity, the asset base of the household, as well as the number of working members of the household are what determine the level of poverty. A range of activities is the following:

- cultivation [on own land or sharecropped], irrigated, spate or rainfed, producing mostly for the household in the case of basic staples [sorghum, maize, wheat] and for cash [coffee, vegetables, fruit, qat]
- livestock [small ruminants and poultry everywhere, cattle in Sana'a and Hajja, camels in the other two governorates, bee keeping which is an increasingly important activity everywhere],
- off-farm micro enterprises like mechanical work, carpentry etc.
- cash labour locally or in nearby towns/cities [in agriculture, building, anything else available]
- government employment in civil or military jobs
- for some, international migration [legal or otherwise] to the Kingdom of Saudi Arabia (KSA), United Arab Emirates (UAE), or Oman. This migration provides immediate income to households for short term migrants. In the case of long term migration, which is usually legal, to the same destinations, the income remitted decreases over the decades as new households and commitments are made in the country of settlement
- women's income generating activities, ranging from the sale of animals and/or their produce like processed milk [ghee, buttermilk], eggs and also income from handicrafts.

Map of Areas Targeted by SAPEP in the Country



20. It is reported that non-agricultural activities are acquiring an increasing share of household incomes. These activities range from large numbers of government employees, whether in the civil service [primarily education and health] or in a range of military jobs, to casual labor locally or beyond within Yemen and abroad. Except in Sana'a governorate, immigration to neighboring countries, plays a major role in supporting households.

The four governorates are all primarily agricultural, but there are significant differences:

- Sana'a is in the medium to high rainfall highland area and where rain-fed agriculture is most viable and is part of the rain-fed highlands agro-ecological zone
- The other three areas are effectively part of the 'middle plateau' zone although in different geographical zones; they share low rainfall, and are either primarily dependent on well irrigation [Wadi Hadramaut] or on spate flows [Hajja and Shabwa districts]. These differences affect the relative roles of agriculture and livestock, as well as the livestock husbandry systems.

21. The importance of livestock husbandry for all sectors of society in the proposed governorates has been confirmed by field work (MAI, 2014). Almost all households own small ruminants, and even the poor have them, though obviously in much smaller numbers. Larger ruminants are present according to the agro-ecological zone: mainly cattle in Sana'a and Hajja Governorates, while camels are more prevalent in Shabwa and Hadramaut. These are considered as wealth indicators as the very poor do not own them; however their milk production is relatively low and there is plenty of scope for improvement, which would positively impact family nutrition.

- ✓ Gender aspects in relation to livelihoods

22. Women in Yemen do not have equality with men with respect to rights. By contrast when it comes to duties, they have more than their fair share. In rural areas, women are extremely active and certainly spend many more hours than men working in both crop production and livestock husbandry, let alone household domestic tasks which are their exclusive responsibility. While the benefits of crop production are shared reasonably evenly with respect to consumption within the home, when it comes to cash incomes, men have the upper hand as they are the ones who go to market and sell produce. They even usually sell the animals which are the personal property of women, and can thus appropriate the income if they wish to do so, even though that would be considered inappropriate behavior.

4. Legal, Policy and Administrative Framework:

4.1. Environmental Policy, Strategies & Law of Yemen

23. The environmental related polices and laws in Yemen include inter alia: The Environment Protection Law (EPL) number 26 of 1995 forms the basis for the protection of the environment, issuance of permits, and Environmental Impact Assessments (EIAs). The provisions of this law are implemented through Executive Regulations (By-Law 148-2000), issued by a decree of the Council of Ministers to protect the environment, natural resources, society, and health. In addition, the law is designed to protect the national environment from activities practiced beyond national boundaries and to implement international commitments ratified by the Republic of Yemen in relation to environmental protection, control of pollution, conservation of natural resources, and the protection of such globally important environmental issues such as the ozone layer depletion and climate changes. The law equally stipulates the incorporation of environmental considerations in economic development plans at all levels and stages of planning for all sectors. It also requires the preparation of EIAs for projects proposed by the public and private sectors. However, to date there is still no regulatory framework to support the implementation of the EPL and the provision of undertaking EIAs for projects is not strictly enforced. EIAs studies should be undertaken by an independent authority.

24. Equally important, environmental standards and specifications have been prepared by the former Environment Protection Council as annexes to the Executive Regulations, covering potable water quality, wastewater quality for agriculture, and ambient air quality, emissions, noise, biodiversity and protected areas. These include standard application forms intended for use by all relevant government bodies. Also there are other policies, strategies and programs in Yemen to safeguard the Environment. The list of these policies, strategies and programs are:

- ✓ National Environmental Action Plan
- ✓ Environment & Sustainable Investment Program
- ✓ Biodiversity Strategy
- ✓ Environmental Impact Assessment Policy for the Republic of Yemen
- ✓ Reports on the State of Environment (by EPA)
- ✓ Evaluation of Future Development of the EIA System in Yemen

4.1.1. Pesticides Law

25. The Pesticides Law was decreed in 1999 (Law No. 25 of 1999) and includes seven chapters and 36 articles. Executive regulations for enforcement are to be issued by resolution of the Minister of Agriculture. A registration guide and executive regulations were prepared to facilitate enforcement. Penalties for violations are stated. The law's objectives are to regulate the handling, registration, and inspection of pesticides and to avoid the poisonous effects on humans, and animals, the environment, and economically beneficial insects. The competent authority for enforcing the law is the General Directorate of Plant Protection (GDPP) of the Ministry of Agriculture and Irrigation (MAI), and the Directorate is to coordinate its work with the Environmental Protection Authority (EPA). The Pesticides Law provides the national legal basis for the application of the World Bank's Pest Management Safeguard Policy (OP 4.09) in SAPEP interventions.

4.1.2. Water Law

26. The Water Law was issued in 2002 (Law No. 33 of 2002), and modified in 2006 after the creation of Ministry of Water and Environment (MWE). Its by-law was issued in 2011 by the

Cabinet decree. The law defines water resources as any water available in the republic's territory and its share of common waters jointly owned with neighboring countries. This is comprised of ground water, surface water, wastewater after purification, and saline water after desalination. The law's main objective is to regulate, develop, sustain and increase efficiencies in water utilization, protect from pollution, transport, and engage the beneficiaries of water installations in participatory management, investment, development, operation, maintenance and preservation at the various stages of development. Water is considered as a common property accessible to all.

27. Management of water resources is entrusted to the National Water Resources Authority (NWRA), which assesses the resources, classifies water basins and zones, and prepares the national water plan, which is considered as one of the components of national economic and social planning. Priorities of water use are: drinking and domestic use shall have absolute priority. Then in declining priority, watering livestock, public utilities, irrigation, industrial purposes, minimal level of environmental needs. For these uses water distribution and transport should be done according to safe sanitary means.

28. The responsibility of sustainable water management in the irrigation sector and the setting up of operation and maintenance of irrigation structures is delegated to the Ministry of Agriculture and Irrigation (MAI). Moreover, MAI should provide protection from floods, soil and wadi banks erosion, maintain agricultural terraces and prevent the expansion of industrial or other infrastructure at the expense of wadi or rainwater runoff channels. Existing and acquired water rights prior to the issuance of the law will be maintained, except in special cases when fair compensation will be ensured. Traditional water rights of rainwater harvesting and natural runoff flow in relation to irrigation shall be maintained. The same applies for the traditional rights on natural springs, streams, and creeks. The Water Law and its by-law are a notable achievement in Yemeni legislation and provide important legislation for environmental management of SAPEP activities.

4.1.3. Cooperatives Societies and Unions Law (Law No. 39 of 1998)

29. Law 39 of 1998 concerning Cooperative Societies and Unions, which is the organizational and legal reference for all cooperatives and cooperative unions in the Republic of Yemen. This law is seen of relevance to the SAPEP since it addresses community mobilization in terms of collective actions that would lead to better community involvement in the design, implementation and operation and maintenance of the coping measures and the income generation activities.

30. Law no. 39 of 1998 grants a relevant Ministry and its departments and branches in the governorates the right to supervise and assure compliance with relevant laws, and provide advice and technical assistance to the cooperatives to plan their activities as well as to attend their General Assembly meetings. It defines five specific types of cooperatives. Any other type of cooperative, such as Agricultural Cooperative Union (ACU) and its branches in the country can be created according to the provision of Article 142, which states that it is lawful to establish other cooperative societies, according to provision of this Law, in other services. More specifically, Article 142 stipulates that a decree of establishment under appropriate line Ministry shall be developed and forwarded to the Ministry of Social Affairs and Labor for approval and issuance.

31. WUAs which were supported by water law are eligible under the law 39 of 1998. These associations have the privileges granted to it by law, as well as the support of the Water Law

4.1.4. International and Regional Environmental Legislations

32. The Yemeni Government has ratified multilateral environmental agreements on agro-

biodiversity and natural resources, oceans and seas, hazardous materials and chemicals, atmosphere and air pollution, and health and workers safety. The following list provides the multilateral agreements relevant to the project activities:

33. Yemen is party to a number of international environmental agreements, the most important of which are:

- The Convention on Biodiversity (CBD) signed on 1/12/2005
- The Convention on the Conservation of Migratory Species (CMS); starting on the 1st of December, 2006; Yemen is party No.100.
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). *Signed at Washington, D.C., on 3 March 1973 and amended at Bonn, on 22 June 1979*
- the United Nations Framework Convention on Climate Change (UNFCCC)
- Kyoto Protocol
- The United Nations Convention on Combating Desertification (UNCCD)
- Environmental Modification
- Hazardous Wastes
- World Cultural & Natural Heritage, Paris 1982
- Civil Responsibility for Damage from Oil Pollution, Paris 1979
- Convention on Wetlands of International Importance Especially as Waterfowl Habitat 1971
- Law of the Sea
- Ozone Layer Protection. On December 19, 1994, the United Nations General Assembly proclaimed 16 September the International Day for the Preservation of the Ozone Layer, commemorating the date in 1987, on which the Montreal Protocol on Substances that deplete the Ozone Layer was signed
- Yemen has also signed Stockholm Convention on Persistent Organic Pollutants (Signed: 12/05/2001; Ratified: 01/09/2004), which is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically and accumulate in the fatty tissue of humans and wildlife.

4.2. Key policies, strategies, and plans most relevant to SAPEP

Those relevant for the proposed project are listed as follows

✓ National Adaptation Plan of Action (NAPA)

34. Key national policy, yet more recent and climate specific though, is the NAPA. As stipulated by the UNFCCC, NAPAs provide a process for Least Developed Countries (LDCs) to identify priority activities that respond to their urgent and immediate needs to adapt to climate change – those for which further delay would increase vulnerability and costs at a later stage. On 31 March 2009, Yemen's NAPA was endorsed by Cabinet Decree. The legal promulgation of the NAPA marks a major step for the Yemen and enhances the chances of the country to be eligible to priority development support under the LDC schemes, e.g. through the Global Environment Facility (GEF).

✓ National Biodiversity Strategy and Action Plan of Yemen (NBSAP)

35. The goal of the NBSAP is to reverse present negative trends by mobilizing the resourcefulness of the Yemeni people and applying international technical and financial support. Yemen aims at nothing less than the restoration and rehabilitation of its diversity of species, genetic

resources and ecosystems. Specific objectives were identified to govern the thrust of the action plan. These objectives spell out the principles to preserve and use in a sustainable way the irreplaceable biodiversity and natural resources of Yemen. The principles include: a) striving to maintain the integrity of Yemen's land and marine resources and their biotic wealth; b) respect for the intrinsic value of all forms of life, while uses need to be made both sustainable and equitable; c) pursuit of collaborative management agreements and institutions; d) indigenous natural resource management systems of the Yemen people will be supported, protected, utilized and seen as a rich natural heritage; e) responsible public management based on accountability, transparency, participation in decision making and a full analysis of impacts; and, f) the Precautionary Principle (as defined in the Rio Declaration on Environment and Development). The NBSAP currently is under ongoing update.

✓ **National Food Security Strategy**

36. In response to Yemen's alarming food insecurity situation, the Yemeni government developed its National Food Security Strategy (NFSS), which was adopted by the Council of Ministers in February 2011. The NFSS key objectives are to reduce food insecurity by one third by 2015, to make 90 percent of the population food secure by 2020, and to reduce child malnutrition by 1 percent annually. The NFSS is multi-sectoral and includes measures for restructuring the national budget, promoting rapid economic growth, improving risk management, investing in agricultural development and natural resource management, strengthening service delivery particularly for health, family planning, nutrition, and promoting women's empowerment. Because of the prevalence of food insecurity in rural areas, and the strong linkages between agricultural production and food security, a large part of the implementation of the NFSS is through the investment program for agriculture. In particular, the agricultural sector is to contribute to several key elements of the action plan, including goals to: (a) increase incomes through higher productivity and development of value chains; (b) promote high value alternatives to Qat; (c) improve targeting of public investments and improved service provision for agriculture and poverty-reducing rural development; and (d) promote women's empowerment through better access to agricultural assets and services.

✓ **National Agriculture Sector Strategy**

37. To tackle the persistent challenges of the Yemeni agriculture sector, the Government adopted in March 2012 a National Agriculture Sector Strategy (NASS) for 2012-2016. In line with the overall objectives of the NFSS, the NASS aims to increase growth, sustainability, and equity by raising agricultural output, and to increase rural incomes, particularly for the poor. Four specific goals are outlined: i) increase domestic food production through improving input supply, increased farmer awareness, and greater availability of agricultural credit; ii) fight rural poverty through increasing income of farmers, especially women, and continued promotion of rural development; iii) preservation of the environment and natural resources, and activating the role of community participation to ensure sustainability; and iv) improving market efficiency, lessening post-harvest losses and developing the capacity to export.

✓ **NASS update (2013-2017)**

38. Completed in 2013 and provides for new emphasis in production on: (a) improving productivity in rainfed agriculture; (b) more efficient agricultural water management; (c) an increased recognition of the role of rural women in meeting food needs, improving nutrition and protecting the environment; (d) a strong focus on improving productivity and sustainability of livestock production (as livestock is the principal asset and economic activity of the poorest and

landless); and (e) diversification of cropping patterns into new or revived cash crops and into more nutritious foods. The NASS update also promotes for a new institutional emphasis on: (a) demand-driven and participatory approach factoring in the needs and views of the farmers, particularly the poorest from the bottom up, (b) a decentralized approach; (c) increased reliance on the private sector and on public/private partnerships wherever feasible, and (d) efficient use of scarce public finances. The NASS update is also consistent with the National Water Sector Strategy and Investment Program (NWSSIP, 2008-2015) which has its goal for agricultural water to maintain a profitable, economically efficient, equitable and sustainable agriculture.

✓ **National Water Sector Strategy and Investment Program (NWSSIP)**

39. The Government of Yemen is aware of the challenge that the country's water problems pose for water supplies and achieving food security, and has taken some significant institutional steps over the past years. Strategic planning began in the early 1990s. In 1996, the National Water Resources Authority (NWRA) was created to implement an integrated approach. A water law was enacted in 2002, and in 2003 the Ministry of Water and Environment (MWE) was established. MWE prepared a consolidated strategy, action plan, and an investment Program 2005-2009 (NWSSIP), adopted and published by the government in 2004. In late 2007, the government decided to prepare an update on NWSSIP 2009-2015 to adjust policy and program measures, and particularly focus on incorporating irrigation more fully into an integrated water resources management and regulatory framework.

40. The National Water Sector Strategy and Investment Program (NWSSIP) update for 2009-2015, prepared by the MWE, has been formulated to deal comprehensively with the water sector related issues. It also addressed discrepancies in the sub-sector (water resources, Urban Water Sector Support (WSS), rural WSS and irrigation) in order to harmonize and promote the interests of all the stakeholders. The objectives of the NWSSIP are to:

- Ensure coordination among all partners working in urban and rural water supply and sanitation sub-sectors, within and outside the MWE.
- Ascertain that policies in each of these two sub-sectors are unified and that investments are equitably allocated among governorates according to unified rules and that no projects are duplicated, especially in rural areas, so as to ensure that investments complement each other.
- Ascertain integration of water policies and national policies of sustainable growth and poverty reduction.
- Ensure that sector financing effectively supports sector goals.
- Monitor and evaluate performance.

41. A summary can be drawn from the previous discussion is that SAPEP is going to meet the objectives contained in the strategies of the agricultural sector (NASS, NFSS, NAPA, NABSAP, NWSSIP, either to meet part of those goals or integrates with outputs to meet some of the goals of the such strategies. It is worth mentioning that the SAPEP targets will be executed in parallel at the same periods specified for other strategies, as it does not have a conflict with the goals of the strategies rather there is integration in the implementation and achievement of the of the objectives in the framework of the concept of comprehensive and integrated development, sustainable operated by AIP for the improvement of agricultural production and achieving food security- both plant and livestock - along with poverty reduction.

4.3. World Bank Safeguard Policies

42. The World Bank safeguard policies are designed to help ensure that projects proposed for Bank financing are environmentally and socially sound and sustainable, and thus improve decision-making. These operational policies include:

- OP 4.01 Environmental Assessment
- OP 4.04 Natural Habitats
- OP 4.09 Pest Management
- OP 4.11 Physical Cultural Resources
- OP 4.12 Involuntary Resettlement
- OP 4.10 Indigenous People
- OP 4.36 Forests
- OP 4.37 Safety of Dams
- OP 7.50 Projects on International Waterways
- OP 7.60 Projects in Disputed Areas

43. SAPEP activities are financed by the GAFSP with the World Bank as supervising entity, and are therefore subject to the Bank's Safeguard Policies. The safeguard policies were checked against the proposed components and their activities. The following discussion of the Policies is aimed to indicate which ones are triggered as a result of project activities. In preparing this ESMF, all categories of subprojects were screened against the Bank safeguard policies and it was determined that the following two policies are triggered by SAPEP: OP 4.01 on Environmental Assessment and OP 4.09 on Pest Management. For further details on World Bank safeguard policies, please refer www.worldbank.org

World Bank Safeguard Operational Policies and their applicability to SAPEP are shown in Table 4.

Table (4) Safeguard Policies that Might be Applied to SAPEP

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04		X
Forests OP/BP 4.36		X
Pest Management OP 4.09	X	
Physical Cultural Resources OP/BP 4.11		X
Indigenous Peoples OP/BP 4.10		X
Involuntary Resettlement OP/BP 4.12		X
Safety of Dams OP/BP 4.37		X
Projects on International Waterways OP/BP 7.50		X
Projects in Disputed Areas OP/BP 7.60		X

44. **Environmental Assessment Safeguard Policy (OP 4.01):** The project is expected to have significant positive environmental social impacts, in particular in most activities, with only relatively minor negative impacts. The OP 4.01 has been triggered because there is the potential that implementation of SAPEP sub projects may lead to some environmental impacts. The ESIA has however determined that there will be no potential large-scale, significant or irreversible environmental impacts associated with the project. The potential impacts identified are mainly localized impacts associated with activities to be financed under component 1 of the project (i.e.,

involvement of communities on a purely voluntary and demand basis), which can be effectively mitigated and are addressed using the screening criteria and environmental management plan. For any minor negative impacts, the SAPEP will be in compliance with this OP 4.01, provided the actions prescribed in the Environmental Management Plan are implemented. The Bank requires ESIA of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making. ESIA is a process whose breadth, depth, and type of analysis depend on the nature, scale, and potential environmental and social impact of the proposed project. ESIA evaluates a project's potential environmental risks and social impacts in its area of influence; examines project alternatives; identifies ways of improving project selection, sitting, 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. The Bank favors preventive measures over mitigation or compensatory measures, whenever feasible.

45. **Pest management Safeguard Policy (OP 4.09):** The Integrated Pest Management (IPM) approach, including biological pest control, has become the main alternative to control by chemical means. In order to control the quality of imported pesticides, the government established the "Pesticides Formulation Laboratory". In 1999, Parliament approved the Agricultural Pesticides Act. Procurement of pesticides is not envisaged under the project. However, farming is expected both to improve and to change cropping patterns to adapt to climatic changes. These changes are in turn not expected to increase the use of agricultural chemicals, fertilizers and pesticides, due to the project activities stressing on encouraging traditional and local practices in using organic fertilizers. However, due to some negligence and improper storage of seeds or importing new infected crops with would require some remedies and precautions. Precautions to avoid excessive and improper pesticide use are required. A mechanism will be put in place to demonstrate Integrated Pest Management procedures and to develop a farmer education program that stresses good and safe practices for storage and application of pesticides. The SAPEP thus has triggered this policy and the ESMP has recommended relevant training on IPM and preparation of IPM using screening tool (see Annex IV).

4.4. Justification and Analysis of WB Policies that will be triggered by SAPEP

46. The following Table 5. Shows the justification and analysis of WB policies that will be triggered by SAPEP:

Table (5) Summary of justification for the triggered policy

Safeguard Policies	Triggered	Explanation
Environmental Assessment OP 4.01	Yes	Policy is triggered as the project will include small-scale infrastructure and activities for soil and water management such as terraces, construction of water harvesting structures (e.g. cisterns), and small-scale spate irrigation sub-projects. Activities will build on MAI's success in these areas over the last fifteen years. Since the locations of the sub-projects are not known at this stage, an Environmental and Social Management Framework (ESMF) including a checklist for the screening of sub-projects will be prepared and disclosed before project appraisal. Site/sub-project specific Environmental and Social Management Plan (ESMP) will be

		prepared during implementation and before implementation of sub-projects/construction as required.
Natural Habitats OP 4.04	No	Policy is not triggered as the project will not result in loss, conversion or degradation of natural habitats or critical natural habitats as defined by the policy.
Forests OP 4.36	No	Policy does not apply as the project will not be implemented in any forested areas.
Pest Management OP 4.09	Yes	Policy is triggered as the project could include sub-projects relating to enhancement of agricultural productivity and introduction of high value crops, support seed banks and bee keeping. These activities could result in the use of pesticides and therefore OP4.09 is triggered, which will be covered within the scope of the ESMF. The ESMF will include a screening tool to identify subprojects that could need to prepare a simple integrated pest management plan (IPM). Such subprojects will prepare the IPM before they are approved for implementation. The Project will include relevant training at the field level such as in IPM, selecting disease free seeds, bee keeping, etc.
Physical Cultural Resources OP 4.11	No	Policy is not triggered as the project will not be implemented in areas of cultural heritage sites. However, chance finds procedures will be included in EMP as is standard practice.
Indigenous Peoples OP 4.10	No	Policy is not triggered as indigenous people as defined in the policy are not present in project areas.
Involuntary Resettlement OP 4.12	No	Policy is not triggered. No involuntary resettlement is anticipated by the project. The project will not finance any activities which involve involuntary taking of land and involuntary restriction of legally designated parks and protected areas. Land for project activities will be free of squatters/encroachers. It is expected that lands needed for any subprojects will be in small scale and owned by the government. In case of private owned land, the project will manage to obtain the land through voluntary donation by local communities. The guidelines for safeguards screening, voluntary land donation and negative project list will be developed and included in the Operational Manual and the PAD, and a GRM for land donation will be put in place. The client will conduct due diligence to ensure that no involuntary settlements will take place. Verification of the voluntary nature of land donation will be obtained and reviewed by the task team.
Safety of Dams OP 4.37	No	Policy is not triggered as the proposed community sub-projects will not include construction or rehabilitation of dams as defined by the policy.
Projects on International Waterways OP 7.50	No	Policy is not triggered as the project will not undertake any activities in the catchment areas of international waterways and shared aquifers.
Projects in Disputed Areas OP 7.60	No	Policy is not triggered as project activities will not be implemented in any disputed areas.

47. An analysis of the WB OP 4.01 (EA) safeguard policy and the national environmental law and regulations shows similarities with regards to the requirement for categorizing, screening and assessing environmental impacts for any new project with potential negative impacts on the environment. Nevertheless, main gaps between the national law and WB OP 4.01 includes requirement for monitoring and public participation. An analysis of the WB OP 4.09 (PM) and the national pesticides law shows similarities with regards to requirements for handling, registration, and inspection of pesticides, nevertheless, the WB 4.09 is more specific in the requirement and triggering of IPM application. Therefore any gaps as mentioned above will be covered by applying the WB safeguard policies OP 4.01 and OP 4.09. In summary, the SAPEP triggers the following two Safeguard Policies: OP 4.01 on Environmental Assessment and OP 4.09 on Pest Management, and WB requirements are reinforced and mandated by corresponding Yemeni legislation.

5. Methodology for the Preparation, Approval, and Execution of Sub-projects

5.1. *Types of sub-projects expected to be supported by the Project are listed below:*

- Terraces construction and rehabilitation
- Soil erosion control (gully-plugs, wadi bank protection, etc.)
- Small-scale spate irrigation sub-projects
- Slowing flows, encouraging infiltration and small reservoirs (cisterns)
- Rooftop rainwater harvesting
- Anti-desertification measures
- Horticulture marketing, selling improved livestock products
- Village seed banks,
- Small-scale cold storage
- Post-harvest technology, food processing, grading and packaging.
- Demonstration plots,
- Production of agricultural inputs such as locally adapted seeds for higher-productivity cereals cultivation,
- Small ruminants, apiculture, backyard poultry, and micro-fattening units
- Household gardens
- Qat replacement (coffee and almonds)
- Plant protection, with focus on IPM
- Animal health and nutrition
- Other activities could be considered as soft interventions, which are expected to have low or no negative environmental impact. The ESMP which represents the principal tool for the ESMP will include the above mentioned subprojects for which expected impacts and mitigation and monitoring measures will be outlined.

5.2. *Prioritization and selection criteria for sub-projects*

48. Sub-projects will be ranked according to their contribution to poverty reduction and to support the poorest in general, women as well as the marginalized poor. To be included a subproject will have to be submitted by a family or a beneficiary based group composed primarily of target group members. Benefits will have to accrue primarily to the poor and total benefits for the poor will have to be greater than those for others. Detailed selection criteria and procedures will be outlined in the Participatory Management Procedures Manual which will also provide mechanism for social and economic prioritization. Implementing staff and agencies will be provided with detailed training in targeting at the beginning of the project.

49. Selection of sub-projects would stem from the nature of the issues/problems to be addressed by the sub-project. The interventions/sub-projects criteria to be applied are listed below:

- Societal acceptance and community ranking of the project
- Positive cost/benefit ratio including environmental and social cost benefit
- Sustainability (Eco-system co-benefits, environmental impacts, equity, O&M costs)
- Effectiveness (robustness, reliability)
- Implementation complexity (public acceptability, sustainable funding sources, capacity of information, technology, supervising staff)
- Within Project financing ceiling.

- Minimal negative environmental impacts
- Large positive environmental impact
- Final decision is made by PCU based on NIP/AIP field units recommendation

50. Criteria for prioritization could be outlined as follows:

- Community ranking, involvement and participation in the sub –project. Public consultations are necessary throughout the development of the sub-project from its early identification through design and the subsequent steps. Stakeholders must be involved also in monitoring and evaluation of the sub-project
- Cost- benefit analysis indicative of economic feasibility
- Sustainability of the sub-project in terms of generating sources for continuity
- Impact on the environment
- Effectiveness and simplicity in implementation
- Decentralizing decision- making processes
- Institutional capacity for managing the sub-project at community and family levels

5.3. Incorporating EA processes into the design of sub-projects

51. The project will undertake the necessary institutional arrangements to enable public participation in the design, preparation and implementation of sub-projects. Local communities will be trained to carry out environmental analysis in order to assess potential environmental impacts of sub-projects. They will also be able to acquire technical assistance by requesting appropriate consultants to carry out site specific ESMPs for particular types of sub-projects. The MAI is expected to designate an environmental specialist to work with the (AIP/FUs) and closely work with local communities to identify potential positive and negative environmental and social impacts of sub-projects. They will be advised to revisit proposals, or setup required mitigation measures in order to minimize any potential environmental impacts to acceptable levels. (Annex III) Standard Format for Environmental and Social Management Plan will assist in articulating ESMP parameters for specific site sub projects. While form A (Annex II) will help in screening at design and operational phase.

52. The environmental and social screening process will be incorporated into the planning of sub-projects as follows:

- Local communities assisted by Agriculture Improvement Program (AIP) at local level and Field Units (FUs) jointly will identify basic requirements, and will present ranked options to PIU for approval.
- PIU using environmental and social screening checklists will assist communities and individuals screen sub-projects and identify any potential environmental impacts that would result from sub-project activities.

5.4. Environmental Screening Process

53. The objective of the screening criteria and procedures is to ensure review of individual sub-projects to be financed under the SAPEP in order to identify and address (minimize or eliminate) potential adverse environmental and social impacts. All subprojects under SAPEP (Component 1) will be undertaken purely on a voluntary and demand basis, and implemented by the communities (farmers and residents) themselves. Some minor infrastructure could be included such as: terrace

rehabilitation, construction of small flood protection structures, soil protection structures, facility for seed storage (provision of shelving in existing sheds), construction of water storage structures, establishment of model farm, etc. Component 1 would support community sub-projects and investments that would increase production and food security by protecting land and water assets, raising productivity and add value in both crop and livestock production. Subprojects could include: terrace rehabilitation; wadi bank protection; rangeland management; family small cattle raising backyard poultry; construction of small nurseries/home-gardens with a preference for those using grey water and other conservation methods (to produce plants, vegetables, fruits, aromatic and medicinal plants); planting, preparation and packaging of medicinal herbs (aromatic and spices); small home-based catering business specializing in traditional recipes; agro-processing; beekeeping; planting of almond trees; improved coffee husbandry; and producing traditional ceramic ware for conservation purposes (to house seeds, etc.).

54. Subprojects to be funded under the SAPEP will exclude ANY subprojects that could be of environmental category A in nature, or trigger the Bank's involuntary resettlement policy (OP 4.12). Additionally, environmental and social screening will be incorporated into the regular subproject development cycle that will identify any such projects, which will then be excluded from the community agro-biodiversity plans.

✓ Use of Screening Criteria for Subprojects

55. Due to the nature of subcomponents under component 1, community based village priority plans will be developed in consultation with the communities, building on their indigenous and traditional knowledge. During the subproject identification stage, MAI Community Mobilizers and technical staff/consultants will work with the communities in order to identify potential projects for funding using the screening criteria. Once the subprojects are screened and satisfy all criteria, they will be approved for funding. Community sub-grants are not anticipated to be large, and are likely to be in the range of \$20,000-\$30,000 (for rehabilitation activities) and less than \$2,000 for income generating activities. Because activities carried out by SAPEP will be relatively small and simple in nature, they are not expected to require formal EPA review and approval. The preventative actions and mitigation measures outlined in the ESMP should be used to address any potential adverse environmental and social impacts.

5.4.1. *Environmental and Social Screening Criteria for Subprojects*

Title of the subproject:

Sector and Type of subproject:

Department implementing subproject:

Governorate and District where subproject is to be implemented:

Number of villages/settlements who will benefit from the subproject:

Estimated cost of subproject:

Screening Checklist Completed By (Name and Title):

Date:

Class of subproject (Class A, B or C):

Name of Approving Authority:

1. Brief Description of Subproject

Please provide information on the type and scale of subproject (subproject area, area of required land, approximate size of total building floor areas, etc.)

2. The Natural Environment

(a) Describe the land formation, topography, vegetation in/adjacent to the subproject area (e.g. is it a low lying land, water logged, rocky, swampy or wetland, etc.)

(b) Estimate and indicate whether vegetation might need to be cleared.

(c) Are there any environmentally sensitive areas or threatened species that could be adversely affected by the subproject (specify below)?

(i) Intact natural forests Yes _____ No _____

(ii) Riverine forest Yes _____ No _____

(iii) Wetlands (lakes, rivers, seasonally inundated [flooded] areas) Yes _____ No _____

(iv) If yes, how far are the nearest wetlands (lakes, rivers, seasonally inundated [flooded] areas)? _____ km

(v) Habitats of endangered species for which protection is required under Yemeni laws and/or international agreements Yes _____ No _____

(vi) Others (describe) (e.g. cultural sites, burial places, etc.) Yes _____ No _____

3. Fauna and Flora

- Will subproject involve the disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes)? Yes _____ No _____

- Will the subproject lead to the destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development? Yes _____ No _____

- Will the subproject lead to the disruption/destruction of wildlife through interruption of migratory routes, disturbance of wildlife habitats, and noise-related problems? Yes _____ No _____

4. Destruction/Disruption of Land and Vegetation

- Will the subproject lead to unplanned use of the infrastructure being developed? Yes _____ No _____

- Will the subproject lead to long-term or semi-permanent destruction of soils in cleared areas not suited for agriculture? Yes _____ No _____

- Will the subproject lead to the interruption of subsoil and overland drainage patterns (in areas of cuts and fills)? Yes _____ No _____

- Will the subproject lead to landslides, slumps, slips and other mass movements in road cuts? Yes _____ No _____

- Will the subproject lead to erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains? Yes _____ No _____

- Will the subproject lead to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles? Yes _____ No _____

5. Protected areas

- Does subproject area (or components of the project) occur within/adjacent to any protected areas designated by government (national park, national reserve, world heritage site, etc.)

Yes _____ No _____

- If subproject is outside of, but close to, any protected area, is it likely to adversely affect the ecology within the protected area (e.g. interference with the migration routes of mammals or birds)

Yes _____ No _____

6. Geology and Soils

- Based upon visual inspection or available literature, are there areas of possible geologic or soil instability (erosion prone, landslide prone, etc.)?

Yes _____ No _____

- Based upon visual inspection or available literature, are there areas that have risks of large-scale increase in soil salinity?

Yes _____ No _____

7. Historical, archaeological or cultural heritage site

Based on available sources, consultation with local authorities, local knowledge and/or observations, could the subproject alter any historical, archaeological or cultural heritage site or require excavation nearby?

Yes _____ No _____

8. Resettlement and/or Land Acquisition

- Will the subproject require land acquisition?

Yes _____ No _____

- If so, will this land acquisition be involuntary?

Yes _____ No _____

- If so, will this involuntary land acquisition lead to relocation or loss of shelter, loss of assets, or access to assets?

Yes _____ No _____

- If so, will this involuntary land acquisition lead to loss of income sources or means of livelihood (whether or not affected persons must move to another location)?

Yes _____ No _____

- Will subproject lead to involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on livelihoods of displaced persons?

Yes _____ No _____

9. Loss of Household Infrastructure

- Will subproject result in permanent or temporary loss of household infrastructure (such as granaries, outside toilets and kitchens, etc.)?

Yes _____ No _____

10. Noise pollution during Construction and Operations

Will the operating noise level exceed the allowable (ambient) noise limits?

Yes _____ No _____

11. Solid or Liquid Wastes, including Medical Waste

- Will subproject generate large amounts of residual wastes (solid or liquid wastes), including medical waste?

Yes _____ No _____

- If "Yes", does subproject include a plan for collection/disposal?

Yes _____ No _____

12. Pesticides, Insecticides, Herbicides or any other Poisonous or Hazardous Chemicals.

- Will the subproject require the use of such chemicals?

Yes _____ No _____

- If, "Yes", does subproject include a plan for safe handling, use and disposal?

Yes _____ No _____

13. Water and Soil Contamination

- Will subproject require large amounts of raw materials/construction materials? Yes No
- Will subproject generate large amounts of residual wastes, construction material waste or cause soil erosion? Yes No
- Will subproject result in soil or water contamination (e.g. from oil, grease and fuel from equipment)? Yes No
- Will subproject lead to contamination of ground and surface water bodies by herbicides for vegetation control and chemicals for dust control? Yes No
- Will subproject lead to an increase in suspended sediments in streams affected by road cut erosion, decline in water quality and increased sedimentation downstream? Yes No
- Will subproject lead to the destruction of vegetation and soil in the right-of-way; borrow pits, waste dumps, and equipment yards? Yes No
- Will subproject lead to the creation of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquitoes? Yes No

Signature of representative:

Date:

5.5. *Preparation and application forms*

56. As SAPEP is promoting the participation of communities and beneficiaries in the development and implementation of investments, proposals for sub-projects will be submitted by the community, through the MAI/AIP Agricultural Offices and Field Units. MAI/AIP Agricultural Offices or FUs will have adequate staff (Male and Female Community Mobilizers) to facilitate the mobilization of communities and assist communities to form committees that will develop and review proposals for sub-projects through a participatory approach. Final approval of proposals for sub-projects and investments at the community level will be the responsibility of MAI.

57. Sub-project ideas have been developed during the SAPEP preparation. The approval of sub-projects will take place on the basis of the proposed sub-projects' technical and socio-economic viability as well as environmental sustainability. Sub-project applicants shall be required to provide sufficient data and analytical reports regarding the project development, to allow for a detailed evaluation of the prospects. If the applicant (e.g. a family, a small informal group, an NGO or a CBO such as a farmers' cooperative) cannot prepare an application; assistance and training of the applicant in preparing documents is included as part of the SAPEP subproject cycle.

5.6 *Institutional and Implementation Arrangements*

✓ **National Level**

58. A Project Implementation Unit (AIP) will be responsible for overall project management and coordination. The AIP will be staffed with long term local consultants for administrative and

fiduciary capacity (financial management, procurement, environmental and social safeguards, etc.), and technical subject specialists from MAI. In addition, short-term local and international consultants will assist MAI AIP and FU staff. Governorate Coordination Committees (GCC) and District Coordination Committees will ensure coordination with other projects (SFD, OEP, etc).

59. The functions of the PCU will include, inter alia, day to day management and coordination of the project activities; review and approval of sub-projects proposals; procurement and disbursement processes and supervision of the work such as monitoring project performance and implementation progress in accordance with the targets and indicators agreed upon with the IDA; preparation of quarterly/half yearly work plans and progress reports, updated procurement plans and FMRs. The quarterly/half yearly reports will be sent to the Minister who is the member of the Supreme Council of the High Supreme Committee for food security (SCFS) and submitted to IDA.

60. A National Steering Committee (NSC) for the project will be established to provide overall supervision and to ensure coordination and accountability during project implementation. The Committee would be chaired by the Minister, MAI, and will comprise representatives from MOF, MOPIC and MWE, Deputy Minister for production MAI, General Director of Planning MAI, General Director of Projects MAI, Department of Rural Women, General Director of Veterinary and Animal Production, representative of Ministry of Water and Environment (MWE), Chairman AREA, representative from Agriculture Cooperative Union (ACU) , EOF, IFAD, SFD and donors will also be invited for participation if necessary. The PCU Director will serve as a Secretary to the Steering Committee. The functions of the Steering Committee include: (a) ensure consistency of activities with the achievement of Project development objectives, and (b) review annual monitoring reports and audits to validate recommendations for improvement for appropriate actions in support of implementation; all in accordance with the Project Implementation Manual (PIM).

61. At national level, NASS implementation is coordinated with the Supreme Council for Food Security (SCFS) and with the Food Security Technical Secretariat and Steering Committee within MOPIC. MAI works with the Ministry of Planning and International Cooperation (MOPIC) and the Ministry of Finance (MOF) on investment programming and financing, and coordinates with MWE on implementation of the joint agriculture and water program.

✓ Governorate level

62. At governorate level, project activities will be implemented through MAI Agricultural Offices, and Field Units (FU). The land and water subcomponent will be implemented by already existing NIP Field Units (NIP/FUs) established under NIP or under the previous GSCP project when they are still operating. The livestock subcomponent and the adding value to agriculture sub-component will be implemented by AIP Field Units (AIP/FUs) with support of consulting services. The community-based research and extension subcomponent will be contracted to AREA, as well as Sana'a and Hadramout Universities and local NGOs.

63. MAI Governorate offices will serve as the frontlines for implementation of SAPEP activities. They will be strengthened by Social Mobilization Teams consisting of a male and of a female Community Mobilizers and by an Environmental Specialist. Adequate budget and strong management and supervision (beyond technical and financial supervision) are essential, and will also comprise backup and support to ensure good staff performance. Conditional financial compensation will be provided to motivate MAI staff, with annual performance-based contracts and clear ToRs, as successfully tested under the IFAD-financed DPRDP and ADCRMP and GSCP.

✓ **Governorate Steering Committee (GSC)**

64. In each Governorate would be chaired by the Governor. Membership will include: the General Secretary of the Local Council; the General Manager of the Agriculture and Irrigation (MAI); representative of MoPIC; the General Manager of the Loan and Grant Department of the MOPIC; the General Manager of the Women Development Department; the Community Mobilizers, representatives of selected District Local Councils, and the Head of the FU.

The main responsibilities of each GSC would include:

- Approve the Annual Work Plan and Budget for the governorate;
- Ensure coordination between all stakeholders for the implementation of Project's activities;
- Ensure coordination with Governorate and district development plans;
- Review progress reports and performance of project's activities;
- Resolve any implementation issue.

✓ **District level**

District Coordination Committees (DCC)

65. DCC would be located at every district of the four targeted governorates monitoring the progress of implementation of the various components of the project in cooperation and coordination with the FU. It would be headed by the General Secretary of the Local Council of the District (LCD). They would also include: (i) District MAI Staff; (ii) Community Mobilizers; and (iii) representatives of the Village/Communities supported in the SAPEP annual plan.

The main responsibilities of the District Coordination Committee would include:

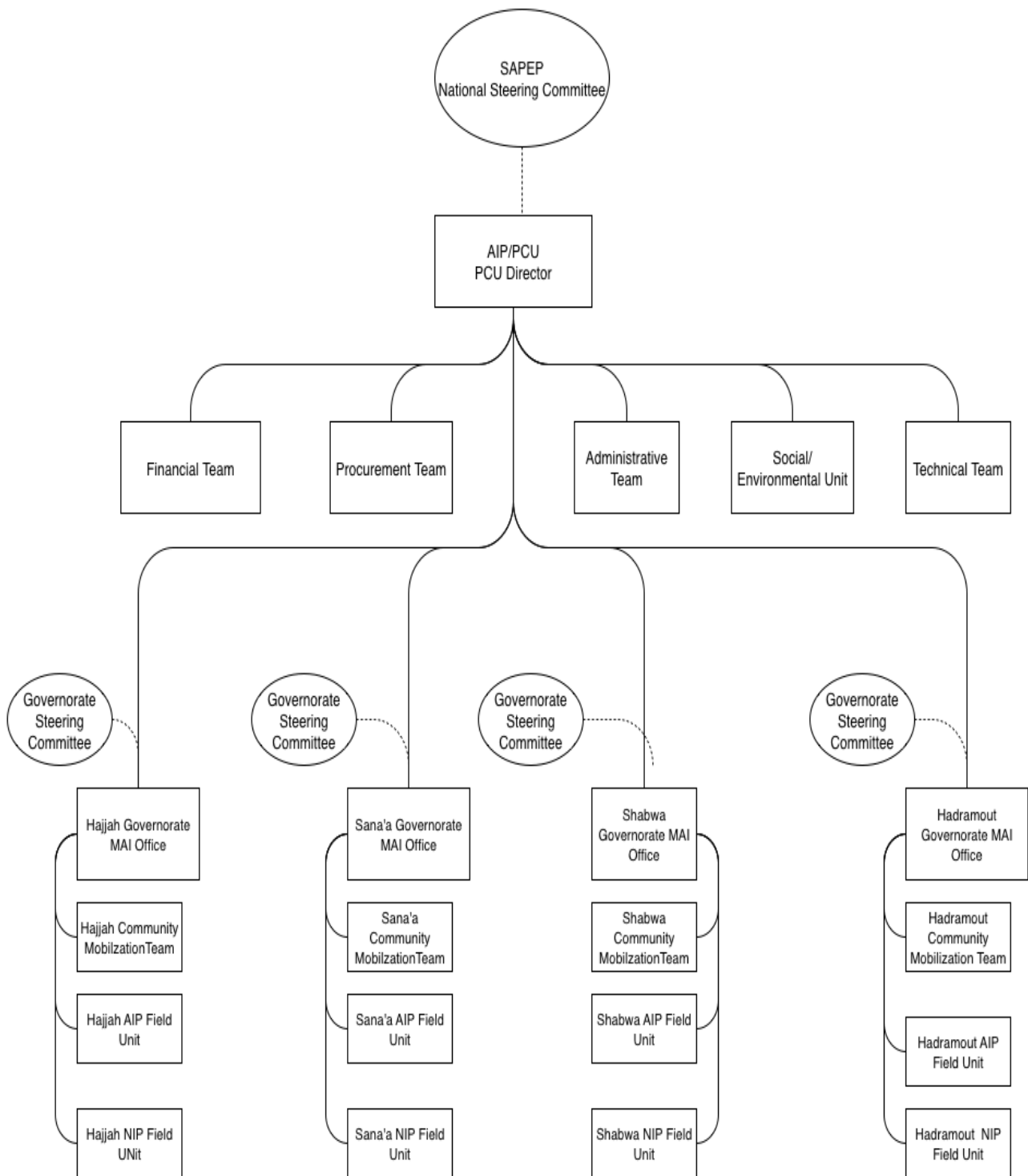
- Ensure inclusion of activities implemented by the Project in the District Development Plan;
- Ensure coordination between Project's stakeholders and local partners from the public and private sectors;
- Resolve any implementation conflict.

Community Organization, Planning and Governance

66. Rural communities (villages or group of villages) are addressed as coherent units and seen comprehensively, with communities represented by democratically-constituted committees with sound governance, and activities programmed within a community development planning process. The project is demand-driven and offers a range of investments and services, which will be discussed and agreed jointly with community-based organizations and formulated in a costed community-level plan. The agreed plans will be reviewed regularly and systematically, and annual work programs will translate the plans into budgets and action. Participatory M&E will measure results against targets in plans and programs. Community contributions (usually in kind) will be required for all income-generating investments except those that target the very poorest.

67. As SAPEP is promoting the participation of communities and beneficiaries in the development and implementation of investments, proposals for sub-projects will be submitted by the community, through the MAI/AIP Agricultural Offices and Field Units. MAI/AIP Agricultural Offices or FUs will have adequate staff to facilitate the mobilization of communities and assist communities to form committees that will develop and review proposals for sub-projects through a participatory approach. Final approval, and safeguard policies enforcement, of proposals for sub-projects and investments at the community level will be the responsibility of the AIP. See below project structure chart.

Figure (2) Proposed Project Structure Chart



68. Sub-project ideas will be developed during the first stage of SAPEP. Implementation of sub-projects will take place on the basis of the proposed sub-projects' technical and socio-economic viability as well as environmental sustainability. Sub-project applicants shall be required to provide sufficient data and analytical reports regarding the project development, to allow for a detailed evaluation of the prospects. If the applicant (e.g. an NGO or a CBO such as a farmer's cooperative) could not prepare the application assistance and training of the applicant in preparing documents should be made/arranged by the SAPEP.

69. To facilitate the process, a Subproject Proposal Document (SPD) should be developed to be used. The SPD must be flexible enough to accommodate all different types of potential sub-projects. Eligibility for funding of sub-project proposals will be determined and approved through the project management structure based upon reviews of the proposals submitted and consultation with the local communities.

5.7 *Assessments and Documentation*

▪ **Preliminary Screening**

70. During the identification and preparation of sub-projects, MAI through the AIP/PCU will apply screening check-lists designed for the project. The AIP/PCU will review and approve its findings. If right of access to natural resources is expected, a preliminary assessment to identify the types, degree and scale of potential social impacts of the activity will be undertaken via the check-list. In cases where the preliminary assessment indicates that the potential adverse impact of the proposed sub-projects will be significant; these sub-projects are considered ineligible under this project. When the sub-projects are expected to have a positive impact, the extent of that impact will be one of the criteria for prioritization, alongside social and poverty reducing aspects. For example a project with high positive environmental impact but low poverty alleviation impact [e.g. rehabilitation of terraces owned by a single large landowner] will get a lower priority scoring than a similar one with high poverty alleviation contents [e.g. wadi bank protection works which benefit a whole village of poor people].

▪ **Activity Preparation**

71. Preparation and design of project activities will be carried out by AIP/PCU in direct consultation with local community and screening tools should be prepared in advance. Criteria for identifying targeted beneficiaries should be paid particular attention in order not to include outside users of water and rangeland resources. All data should be maintained on computerized data management system to facilitate analysis and M&E.

5.8 *Grievance system*

72. There are three main types of conflicts which occur in the proposed project areas (MAI, 2014). They are:

- Feuds, carried from one generation to the next, which plague life for tribes people throughout Yemen. These are primarily relevant to tribe people as in theory neither *sadah* (*ashraf*) nor the lower status groups are involved in such feuds as they are supposed to be under the protection of the tribes. During field work this problem was mentioned systematically in Shabwa governorate where it is a major problem

- Disputes over land ownership were mentioned everywhere as the main cause of conflict at the community level. These arise primarily at the time of inheritance, when different family members claim lands. They also occur between neighbors when there are claims of infringement of land by neighbors or others
- Disputes over water rights and access to water are increasingly important and frequent and were mentioned in all the project areas. People taking more water than their entitlement from irrigation wells or spate diversion canals are the main occurrences.

73. Everywhere people said that the way of dealing with these disputes was to refer them to local community leaders. All the communities participating in the fieldwork have hereditary community leaders [described above]. In addition, some individuals gain social status within communities due to their wisdom and behavior which attracts respect from others. These are the people who are called upon to solve problems within the communities. Indeed many people obtain their status through their ability to solve such problems. Some people mentioned that if these mechanisms fail, then conflicts are referred to State institutions.

74. In addition in Wadi Hadramaut, special ‘conflict resolution committees’ are set up on an ad hoc basis when a dispute warrants it, and sometimes they are ‘standing committees’ which are assembled as needed. They are composed of respected individuals who may or may not include the traditional hereditary community leaders. Conflicts about pasture lands including those on water use are traditionally solved through the tribal *muqaddam* who forces both parties to elect a representative through consultation with the head of the tribe and the agreed solution must compulsorily be accepted by both parties.

5.9 *Key Impact Areas and Indicators*

75. The following major impact areas and indicators are suggested for assessment of Project Affected Persons (PAPs) concerns and social risks.

a) Cultural Characteristics

- Relationships with areas where they live: relating to cultural affinity with the ancestral lands, existence of livelihood opportunities, etc.
- Presence of customary social and political organizations: characteristics indicating internal organization and cohesion of the communities, and their interaction with those of the non-native population.
- Interactions and relationships with other outsider peoples’ groups in the same and other areas.
- Presence of organizations, like NGOs and CBOs, working with community development issues, and their relationships with mainstream organizations engaged in community development activities.
- Identification of any cultural aspects likely to be affected or made vulnerable because of the proposed development works.

b) Settlement Pattern

- The extent to which the settlements are physically separated from those of outside sub projects sites, indicating interactions and mutual tolerance between the groups.

- Characteristics indicating physical organization of homesteads, and the existing community facilities, such as schools, water supply, etc.

c) Economic Characteristics

- Prevailing land tenure: indicating legal ownership and other arrangements that allow them to reside in and/or cultivate the lands in their areas.
- Access to common property resources: prevailing conditions under which they may have been using natural resources like forests, water bodies, and others that are considered important sources of livelihood.
- Occupational structure: indicating relative importance of household's present economic activities, and the extent to which they might be affected or benefited because of the proposed activity.
- Level of market participation: engagement in activities that produce marketable goods and services, and how and to what extent market participation would be affected or enhanced.

5.10 Threshold for Environmental Impacts of Project Activities

76. Within the outlined variables of monitoring the sub-projects (activities) which require mitigation measures and monitoring indicators, it is useful to identify guidelines determining whether or not a sub-project may have a significant effect on the environment. This shall be based in part on thresholds of significance. These thresholds are measures of environmental change which are either quantitative, or qualitative but as specific as possible for topics which are resistant to quantification such as aesthetics, cultural resources, and biology. A project which has no effect on above threshold values individually or cumulatively shall be determined not to have any significant effect, and a negative declaration shall be prepared accordingly. Projects which have a potential effect above a threshold of significance will require special attention and rating values should be outlines to determine accepted values up to threshold point, stage of absolute damage and imposed health risk to ecosystem or human health. This value rating should be based on baseline survey and current situation of the significance impact up to the threshold rate.

77. The rating of impact may use numerical scale, for instance starts from zero to 5, where 5 may represent the threshold point which could be described as the level of impact that could lead to:

- Loss/alteration of habitat;
- Loss of human heritage/cultural& historical as well as religious places;
- Impose critical threats to human health.

The above mentioned criteria could be applicable to activities including impact on air quality, soil quality, quality of biodiversity or solid/liquid waste. The rating leading to threshold points should be determined in environmental studies and site specific EMPs prior to approval of specific activities. It shall be scaled based on international standards and regulations in using and managing the above mentioned elements. For project, identifying impact rating to thresholds points could be measured based on the levels of allowable standards of:

- ✓ Emissions, dust, and suppression of noise
- ✓ Occupational Health and Safety
- ✓ Food processing, grading and packing
- ✓ Establishing new cash crops replacing Qat
- ✓ Conservation/Erosion control
- ✓ Soil protection and prevention of compaction
- ✓ Horticulture marketing, selling improved livestock product pollution
- ✓ Waste from food processing, grading and packing pollution
- ✓ Integrated Pest Management

5.11 Environmental Impacts Assessment and Mitigation Measures

5.11.1 Assessment of Project Impacts

78. Although the project is anticipated to have low environmental and social impacts, the sensitivity of the project site within a designated area may require that environmental and social management plans be in place. In another words, the overall project outcomes are anticipated to be beneficial from environmental and social perspectives. However, risks associated with implementation of project sub-activities and/or sub-projects inside in relation to area specification which may comprise ecologically sensitive areas of high conservation values, requiring appropriate environmental management. Within these concerns many sub-projects could be implemented that would not have or only have minor negative environmental and social impacts. The following two sub-sections summarize sub-projects that could be considered by communities as a “Positive list” of eligible projects, and those that could not be considered within the project’s framework and are on a “Negative list”.

5.11.1.1 Positive List of Sub Projects

79. Communities will be offered a practical way of alleviating poverty through the sustainable use and conservation of agro-biodiversity resources by financing small sustainable projects run by farmers in the targeted rain-fed areas. Involving the communities in a participation process of implementing such activities will offer them with better tools of management, social stability and good income. However, any activity will be accompanied with impacts that may affect the outcome and the results envisaged and aimed at by the project people. Therefore, it is necessary to address the anticipated impacts, if any and the required mitigation measures in order to implement the different activities in a positive and effective manner (Table 6).

Table (6) Positive list of Sub-projects

Category	Sub-projects	Institutional Responsibilities
Food processing, grading and packing	Activities involve the preparation of food processing for preservation in the landing sites at different handling stages.	MAI/AIP and relevant CBO for screening and proposal/NSC for review and approval or as appropriate
Horticulture marketing	Small scale activities	MAI/AIP and relevant CBO for screening and

Category	Sub-projects	Institutional Responsibilities
		proposal/NSC for review and approval or as appropriate
Establishing new cash crops replacing Qat	Selection of suitable cash crop with low water consumption (Coffee and Almonds are considered appropriate)	MAI/AIP and relevant CBO for screening and proposal/NSC for review and approval or as appropriate
Conservation/Erosion control	Training and certifying community members as monitors;	MAI/AIP and relevant CBO for screening and proposal/NSC for review and approval or as appropriate
Land use and management	<ul style="list-style-type: none"> - Farmers are mainly using traditional practices of soil fertility. - Manure application and cover the land with stems, leaves and roots from harvests are some traditional practices used by involving women in the process of collection, and application on the fields. - Terraces are the main agricultural source in the rainfed highlands where Yemenis have been using these systems efficiently, maintaining them properly and depending on their production of different types of crops. The rehabilitation and maintenance of terraces would allow communities to use them more efficiently which would result in more agricultural activities, increasing income to families, and settlement of farmers. Social relationships and interaction would be positively enhanced through cooperation and participation. - Agricultural activities, increasing income to families, and settlement of farmers. 	MAI/AIP and relevant CBO for screening and proposal/NSC for review and approval or as appropriate
Water management	<ul style="list-style-type: none"> - Safe and free access to domestic water through water supply systems especially for women. - Flood protection helping the communities to avoid damages to their fields and farms means preservation of crops and farms and saving long season production costs input and sustains the livelihood of the farmers. Climate change also produces high flood flow causing damages to infrastructure, agricultural land and houses - Rehabilitation and construction of water harvesting system and springs. Water harvesting systems/WHS are used for supplementary irrigation to irrigate crops during short or/ and changes of times of rainfall. Water provided to cattle are also a great benefit during the same periods and also during rainy seasons. Yemen through past periods of time has been using WHS in all mountainous areas due to the importance of such systems to the stability of communities. 	MAI/AIP and relevant CBO for screening and proposal/NSC for review and approval or as appropriate
Crop management	<ul style="list-style-type: none"> - Varieties seed tolerant to droughts (and thermo-stress) would enable farmers to cope with the climate change through the cultivation of such varieties - Varieties will result in sustainable production, better income 	MAI/AIP and relevant CBO for screening and proposal/NSC for review and approval or as appropriate

Category	Sub-projects	Institutional Responsibilities
	<p>and social stability</p> <ul style="list-style-type: none"> - Improved crop varieties to be better adapted to shifts in climate patterns - the climate change affected the agricultural system and reducing the production of the usual crops. Introducing new varieties seed tolerant to droughts (and thermo-stress) would enable farmers to cope with the climate change through the cultivation of such varieties. Consequently, such improved varieties will result in sustainable production, better income and social stability. These improved and better seeds will result in improved crop varieties that are likely to be better adapted to shifts in climate patterns. 	appropriate
Income generation activities	<ul style="list-style-type: none"> - Communities will be offered a practical way of alleviating poverty through the sustainable use and conservation of agro-biodiversity resources by financing small sustainable projects run by farmers in the targeted rain-fed areas. - Activities will offer them with better tools of management, social stability and good income such as: <ol style="list-style-type: none"> 1. construction of small nurseries/home-gardens to produce plants, vegetables, fruits, aromatic and medicinal plants 2. planting, preparation and packaging of medicinal herbs (aromatic and spices) 3. small home-based catering business specializing in traditional recipes 4. agro-processing 5. beekeeping 6. planting of almond trees 7. producing traditional ceramic ware for conservation purposes (to house seeds, etc.) 	MAI/AIP and relevant CBO for screening and proposal/NSC for review and approval or as appropriate
Women empowerment	<ul style="list-style-type: none"> - Increasing awareness and education levels among women - It will allow women to take decisions on matters and activities that concern them and on most issues that affect both women and men - Empowerment would result in giving women better status and provide them with better opportunities to reduce hardship, alleviate illiteracy - Improve the health status of women and their children and contribute more positively to the community. <p>Increasing awareness and education levels among women especially of their rights and mobilizing them into committees and associations will enable them to recognize their strengths and to share responsibilities with the community more effectively. Additionally, it will allow women to take decisions on matters and activities that concern them and on most issues that affect both women and men. It is known that women work the hardest in Yemeni rural areas where they do most of the household works in addition to farming activities, water fetching etc. More empowerment would result in giving women better status and provide them with better opportunities to reduce hardship, alleviate illiteracy, improve the health status of women and their children and contribute more positively to the community they live in.</p>	MAI/AIP and relevant CBO for screening and proposal/NSC for review and approval or as appropriate

5.11.1.2 Negative List of Sub-projects

80. ESMF has been designed to achieve sound environmental practice providing mechanisms to allow program implementation by screening out or enhancing acceptability of sub-project proposals on the basis of environmental criteria and by simple process of elimination. A first step in the screening process could be to identify sub-project activities not suitable for funding. It is recommended that the following types of sub-projects are not financed and therefore should be considered as a "Negative List" (Table 7).

Table (7) Negative list of Sub-projects

Sub-project	Examples	Institutional Responsibilities
Activities involve use of toxic/hazardous chemicals/ pesticide	Agriculture projects are not environmentally compatible with the area due to water scarcity, soil nature, and potentially to use fertilizers and pesticides.	MAI/AIP and relevant CBO for screening and proposal/PCU for review and approval or as appropriate
Construction of large new infrastructure within sensitive areas	Roads, public sewage treatment plant, airports	MAI/AIP and relevant CBO for screening and proposal/NSC for review and approval or as appropriate
Illegal Activities as particularly identified under Yemen law	Identified by article x of law prohibited such kind of practices	MAI/AIP and relevant CBO for screening and proposal/NSC for review and approval or as appropriate
Activities result in high social impacts such as involuntary resettlement of individuals /households	Private land acquisition, dams constructions, impact on cultural heritage sites etc.	MAI/AIP and relevant CBO for screening and proposal/NSC for review and approval or as appropriate
Sensitive ecosystems <ul style="list-style-type: none"> • Activities involve use of toxic/hazardous chemicals • Activities that could dangerously lead to the exposure of sensitive/critical/vulnerable habitats 	<p>Terraces rehabilitation if involve: roads construction on agricultural land, transport of agricultural soil from agricultural land, affect historical site, religious and cultural heritage, no demand for the project.</p> <p>Agriculture projects are not environmentally compatible with the area due to water scarcity, soil nature, and potentially to use fertilizers and pesticides. Socially, the disputes between farmers on project, which will affect the social stability</p>	MAI/AIP and relevant CBO for screening and proposal/NSC for review and approval or as appropriate
Water management	<p>The absence or in-adequacy or polluted source,</p> <ul style="list-style-type: none"> - using only one source such as groundwater. - Socially, the disputes between farmers on project, which will affect the social stability - Refusal of some farmers to provide the contribution for the construction of the structures. 	MAI/AIP and relevant CBO for screening and proposal/NSC for review and approval or as appropriate

Sub-project	Examples	Institutional Responsibilities
Crop management	<ul style="list-style-type: none"> - The availability of crop diseases with the new varieties. - Refusal of farmers to provide the contribution for the establishment of the project. Contribution would make operation and maintenance more effective and water distribution and allocation more equitable resulting in social coherence and stability. 	MAI/AIP and relevant CBO for screening and proposal/NSC for review and approval or as appropriate
Women empowerment	<ul style="list-style-type: none"> - Reluctances and unwillingness of the community especially men to support women. 	MAI/AIP and relevant CBO for screening and proposal/NSC for review and approval or as appropriate

6 Analysis of Alternatives

81. A business-as-usual scenario implies maintaining the status quo of impoverished communities of the selected project sites and doing very little about it, maintaining the current poverty and livelihoods situation, and continued exploitation of the natural resources in a non-sustainable manner and compromising its biodiversity, in addition being posed to negative potential impacts on their current livelihoods due to climate change. This option would wrongfully imply that there is no urgent need for improved management target by SAPEP or for improving sustainable livelihoods in the region, that there is no urgent need to introduce the proposed development objective of the project which is aiming to increase the adoption and use of productivity-enhancing agricultural practices by smallholders in targeted project areas and improving livelihoods supported by climate resilient approaches and adaptations that can provide sustainable livelihoods to poor communities with little livelihoods opportunities.

82. Without the project, the following environmental and social impacts would be expected: continued unsustainable natural resource exploitation, continued high levels of poverty and unemployment, and reliance on governmental aid: natural resources will be put under additional stress and those that directly or indirectly exploit natural resources will either proactively change livelihoods to compensate or be forced to change because the resource base will no longer support the relevant livelihood. Moreover, Many people interviewed during social assessment carried out by the project have experienced a worsening of poverty and an increasingly inability to finance their basic needs, in the most extreme cases, their basic food and nutritional needs. At the community level, poverty is noticeable in the absence of basic services such as domestic water supply, medical facilities, schools and electricity. On the other hand- project sub projects being proposed- this option indicates that all defined potential adverse impact sources during the construction, implementation and operation phases will not occur.

83. Nevertheless, adverse potential environmental impacts identified are very limited as compared to the positive impacts anticipated from the project as since little work has been supported in this area, the project will not support wholesale change but rather pilot a number of promising change to better livelihoods through productivity-enhancing agricultural practices by smallholders in targeted project areas and improving their living conditions (i.e. the targeted beneficiaries involved wholeheartedly move to the new livelihood), that the livelihood is as environmentally and socially sustainable as originally hoped, and that profitability will be maintained even as the climate changes. On account of the reasons listed above, a no-project alternative should not be considered.

7 Elaboration of an Environmental and Social Management Plan

7.1 Environmental and Social Management Plan

84. The screening checklist outlined under Section 5 will determine if an ESMP is needed or whether the mitigation measures contained in Table 8 suffices. While the nature, magnitude, reversibility, and location are main elements used in the screening sub-projects, expert judgment will also be a factor in determining the need for a site specific ESMP. For sub-project that requires an ESMP, the sub-project proposals must contain as part of the sub-project proposal an ESMP that will consist of a set of mitigation measures, monitoring and institutional measures to be taken during the implementation and operation of the sub-projects to eliminate adverse environmental and social impacts, offset them or reduce them to acceptable levels. The ESMP should also include the actions needed to implement these measures, including the following features:

-**Mitigation:** Based on the environmental and social impacts identified from the use of the checklists, the ESMP should describe with technical details each mitigation measures, together with designs, equipment descriptions and operating procedures as appropriate.

-**Monitoring:** Environmental and social monitoring during the implementation of the sub-projects, in order to measure the success of the mitigation measures. The ESMP should include monitoring objectives that specify the type of monitoring activities that will be linked to the mitigation measures. Specifically, the monitoring section of the ESMP provides:

- (i) A specific description and technical details of monitoring measures that include the parameters to be measured, the methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions, e.g. the need for on-site construction supervision.
- (ii) Monitoring and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures and to furnish information on the progress and results of mitigation, e.g. by annual audits and surveys to monitor overall effectiveness of this ESMF.

85. The ESMP should also provide a specific description of institutional arrangements, i.e. who is responsible for carrying out the mitigating and monitoring measures (for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting and staff training). Additionally, the ESMP should include an estimate of the costs of the measures and activities recommended so that the community can budget the necessary funds and include it in the proposal. The mitigation and monitoring measures recommended in the ESMP should be developed in consultation with all affected groups to incorporate their concerns and views in the design of the ESMP. The ESMP matrix is shown in Table 8, while the environmental monitoring plan matrix is indicated in Table 9.

Table (8) Environmental and Social Management Plan

Sub-Projects Measures	Potential Environmental Impacts	Proposed Mitigation Measures	Monitoring Requirements (including supervision)	Means of insurance and compliance	Institutional Responsibility (including enforcement/coordination)	Time Frame or Schedule	Cost Estimate
<p>Added value activities to agricultural or animal production such as wool and food processing, processing of vegetable oils and herbs</p>	<p>Air quality and noise Construction Construction may impact air quality and generate noise. This results mainly from excavation, site grading, vehicle loading and unloading, and other construction-related activities.</p> <p>Operation 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 Odor and heat increase may happen due to bad ventilation Deterioration of water pipe and electric cables. The placement of septic disposal systems in impermeable soils with severe constraints to disposal of liquid effluent. Decaying bi product Vibrations, from short-term</p>	<p>Air quality and noise Construction Use dust control measures onsite, such as water spraying for dust suppression; Regulate site access; Cover lorries transporting friable construction materials and spoil; Prohibit open air burning; Maintain machinery and vehicles in good working conditions to minimize emissions; and provide adequate protective wear for workers; Vehicles and equipment must be maintained regularly to avoid any emissions; Pre-treat gases emitted by boilers and generators.</p> <p>Operation Conserve energy use to reduce fuel combustion; Control emissions from wastewater treatment facility/septic tanks. Mitigation is the first factor could be addressed by frequent inspection to the facilities construction and apply the required maintenance. Regular inception and examinations for mentioned impacts and address them through repairing and</p>	<p>The (AIP/FUs/CBOs) will 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 conduct its own monitoring to ensure the project is compliant with its environment and social safeguards</p>	<p>MAI with (NSC) and (GCC)</p>	<p>AIP with support from Governorate Units in addition to (GCC)</p>	<p>Quarterly</p>	<p>Will be determined after design</p>

	<p>operation or long-term operation, which may affect adjoining areas and building components.</p> <p>Handling Operations & Occupational health Exposure of the food products to dust and other contamination sources, or similar hazards. Exposure to germs and virus during food handling, classification, freezing and loading due improper handling by workers. Transmission of diseases may occur due to affected personnel working in handling of food products during the different steps inside the site.</p> <p>Soil quality and surface/groundwater pattern/contamination Construction Impacts on soil quality may result from the following construction activities: Site clearance, site grading, excavation, infrastructure, and oil leaks from vehicles/equipment.</p> <p>Operation Contamination of soils and groundwater with oils and chemicals may result from vehicles and equipment. Spills and leaks at liquid impoundment areas for fuels,</p>	<p>replacement of materials spoiled. Minimizing entrance of heavy machines to reduce vibration impact. For handling and occupational health applying restrict hygiene regulation and occupational health measurements is critical and a separate EA is required to parts of operational stages form handling, washing, classification, freezing, backing up to loading and distribution to consumption.</p> <p>Soil quality and surface/groundwater pattern/contamination Construction Apply, inspect and maintain temporary/permanent erosion and sediment control measures (e.g. silt fences, erosion control matting) to exposed areas; Restrict movement of vehicles to designated tracks;</p> <p>Operation 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</p>					
--	---	--	--	--	--	--	--

	<p>solvents, waste and from infrastructure pipelines, may infiltrate through soil pores, under gravitational forces, and contaminate ground water aquifers; Discharge into surface waters, or alteration of surface water quality, including but not limited to temperature, dissolved oxygen, turbidity, solids.</p> <p>Wastewater Potential generation of waste water resulting for the project activities and/ or sub-projects during both construction and operation.</p> <p>Biological resources- Flora & Fauna 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</p>	<p>Wastewater Use of bio-treatment to prevent land disposal; Septic tanks for excess treated wastewater should be lined.</p> <p>Biological resources- Flora & Fauna Applying environmental operational standards within the legal, policy and management framework of the project to minimize the negative impact on the environment using the comparative advantage of the different project counterparts. Compliance with SAPEP 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 EMP.</p>					
--	---	---	--	--	--	--	--

<p>Small-scale spate irrigation using traditional techniques</p>	<p>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, runoff surface water obstacles and divert to cause other flooding hazards</p>	<p>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 EMP. Good practice in design</p>	<p>The (AIP/FUs/CBOs) will monitor the design and supervision consultant's reports to ensure safeguards compliance. The WB will also conduct its own monitoring to ensure the project is compliant with its environment and social safeguards.</p>	<p>MAI with (NSC) and (GCC)</p>	<p>AIP with support from Governorate Units in addition to (GCC)</p>	<p>Monthly</p>	<p>To be determined after design</p>
<p>Rooftop rainwater harvesting</p>	<p>If small workshops are required to be constructed to produce water harvesting materials, the potential impact is minor than the cases mentioned above but at least impact on soil and water waste , due small constructions and construction waste, expected leakage can be damage building during operation Conducive to diseases vectors</p>	<p>Proper selection of specification as to avoid damaging building. Measures to control diseases vectors. Site specific EMP. Good practice in design</p>	<p>The (AIP/FUs/CBOs) monitor the design and supervision consultant's reports to ensure safeguards compliance, The World Bank will also conduct its own monitoring to ensure the project is compliant with its environment</p>	<p>MAI with (NSC) and (GCC)</p>	<p>AIP with support from Governorate Units in addition to (GCC)</p>	<p>Weekly/ Monthly</p>	<p>Will be estimate during design</p>

			and social safeguards				
Multiplication and dissemination of improved landrace seeds through Rural Seed Banks (RSB);	<ul style="list-style-type: none"> -Avoid conflicts between the farmers -Adapted seeds should be accepted by local community 	<ul style="list-style-type: none"> - The new species have been selected and proved to be suitable to the community's environment. - Lands where the new species will be planted are identified and agreed with the farmers. - - - Monitoring and evaluation schedule and budget are developed and incorporated in the proposal. - Dissemination plan and budget were developed and incorporated in the proposal report. - The community will be got high production crops , high income 	<p>The (AIP/FUs/CBO s) monitor the design and supervision consultant's reports to ensure safeguards compliance,</p> <p>The World Bank will also conduct its own monitoring to ensure the project is compliant with its environment and social safeguards</p>	MAI with (NSC) and (GCC)	AIP with support from Governorate Units in addition to (GCC)	Weekly/ Monthly	Will be estimate during sign

Check dikes in wadi beds	<p>Construction may impact air quality and generate noise. Potential impacts on ambient air quality would result from odors, solid waste.</p> <p>Impacts on soil quality may result from the following construction activities: Site clearance, site grading, excavation, infrastructure, and oil leaks from vehicles/equipment.</p> <p>Potential generation of waste water resulting for the project activities both construction and operation.</p>	<p>Air quality , use dust control measures onsite, such as water spraying for dust suppression; Regulate site access</p> <p>Soil impact - maintain periodically vehicles and equipment. Lab regular testing for ground and surface water quality</p> <p>Proper handling of waste Proper selection of sites as to avoid damaging natural habitat.</p> <p>Site specific EMP. Good practice in design</p>	<p>The (AIP/FUs/CBOs) monitor the design and supervision consultant's reports to ensure safeguards compliance,</p> <p>The World Bank will also conduct its own monitoring to ensure the project is compliant with its environment and social safeguards</p>	MAI with (NSC) and (GCC)	AIP with support from Governorate Units in addition to (GCC)	Weekly/ Monthly	Will be estimate during design
Terraces construction and rehabilitation	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	<p>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.) Tender document will have to include provisions for site specific EMP. Good practice in design</p>	The (AIP/FUs/CBOs) will monitor and the World Bank as well.	MAI with (NSC) and (GCC)	AIP with support from Governorate Units in addition to (GCC)	Monthly	To be determined after design
Beekeeping, small ruminant fattening and, backyard poultry.	<ul style="list-style-type: none"> - introduction of alien species - change biological balance - waste -Odor 	Site specific EA and EMP will be developed under each component, and will include: Measures taken to minimize pollution (on-site water/soil quality monitoring, ensure proper	The (AIP/FUs/CBOs) will monitor and the World Bank as well.	MAI with (NSC) and (GCC)	AIP with support from Governorate Units in addition to GCC	As required	To be determined after design

		<p>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 odor and diseases; Apply proper feeding practices for ruminant Tender document will have to include provisions for site specific EMP.</p>					
Canal structures	<p>Construction may impact air quality and generate noise related activities.</p> <p>Impacts on soil quality may result from the following construction activities: Site clearance, site grading, excavation, infrastructure, and oil leaks from vehicles/equipment</p> <p>Potential generation of waste water resulting for the project activities and/ or sub-projects during both construction and operation.</p> <p>Handling Operations & Occupational health</p> <p>Damage to habitat or constraining wild life</p>	<p>Air quality and noise on construction use dust control measures onsite, such as water spraying for dust suppression; Regulate site access. Impact on soil should be maintain the equipment, handling and storage of liquid fuels and chemicals; lab regular testing for ground and surface water quality</p> <p>Solid waste proper handling Use of bio-treatment to prevent land disposal;</p> <p>For handling and occupational health applying restrict safety regulation and occupational health measurements is critical and a separate EA is required to part of EMP Proper planning for avoiding</p>	<p>The (AIP/FUs/CBOs) monitor the design and supervision consultant's reports to ensure safeguards compliance,</p> <p>The WB will also conduct its own monitoring to ensure the project is compliant with its environment and social safeguards</p>	MAI with (NSC) and (GCC)	AIP with support from Governorate Units in addition to (GCC)	Weekly/ Monthly	To be determined after design

	movement	damaging habitats and wild life routes					
Replacement of Qat	<ul style="list-style-type: none"> - Most of the farmers will not accept to remove completely the Qat tree and replace it with the new cash crop. - They are afraid of losing almost monthly revenue, while the new cash crop will take years to start giving revenues. - New cash crops seedlings that will depend on many factors including climate, economic, environmental social factors 	<ul style="list-style-type: none"> - New cash crops seedlings will be saved water requirement. - Every household is given equal chance to have the new cash crops seedlings depending on the available land and water sources. - The replacement should be accepted by local community. - The proposal should be to encourage the farmers to plant the new cash crop beside the Qat tree and let them figure out the benefits of the new cash crop and decide to remove 	<p>The (AIP/FUs/CBOs) monitor the design and supervision consultant's reports to ensure safeguards compliance,</p> <p>The WB will also conduct its own monitoring to ensure the project is compliant with its environment and social safeguards</p>	MAI with (NSC) and (GCC)	AIP with support from Governorate Units in addition to (GCC)	Weekly/ Monthly	To be determined after design
Wadi Bank Protection	<p>Air Quality and Noise Construction Construction may impact air quality and generate noise. This results mainly from excavation, site grading, vehicle loading and unloading, and other construction-related activities.</p> <p>Operation Potential impacts on ambient air quality would result from gaseous emissions generated by vehicles and generators and trucks</p> <p>Soil Quality and Ground</p>	<p>Air Quality and Noise Construction Use dust control measures onsite, such as water spraying for dust suppression; Regulate site access; Cover lorries transporting friable construction materials and spoil; Prohibit open air burning; Maintain machinery and vehicles in good working conditions to minimize emissions; and Provide adequate protective wear for workers</p> <p>Vehicles and equipment must be maintained regularly to avoid any emissions;</p>	<p>The (AIP/FUs/CBOs) monitor the design and supervision consultant's reports to ensure safeguards compliance,</p> <p>The World Bank will also conduct its own monitoring to ensure the</p>	MAI with (NSC) and (GCC) FUs	AIP with support from Governorate Units in addition to (GCC)	Quarterly	To be determined after design

	<p>water contamination</p> <p>Construction Impacts on soil quality may result from the following construction activities: Site clearance, site grading, excavation, and oil leaks from vehicles/equipment.</p> <p>Operation Potential contamination of soil and groundwater with oils and chemicals from heavy 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 groundwater aquifers.</p> <p>Biological Resources- Flora & Fauna</p> <p>Construction & Operation 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, A deterioration of existing wildlife habitat, Introduction of any factors (light, fencing, noise, human presence and/or domestic animals) which could hinder the normal activities of wildlife.</p>	<p>Pre-treat gases emitted by generators;</p> <p>Operation Conserve energy use to reduce fuel combustion;</p> <p>Biological Resources- Flora & Fauna Applying environmental operational standards within the legal, policy and management framework of the project to minimize the negative impact on the environment using the comparative advantage of the different project counterparts. Compliance with SAPEP 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 EMP.</p>	<p>project is compliant with its environment and social safeguards</p>				
--	---	--	--	--	--	--	--

86. The site specific ESMP will be prepared by the FU if the capacity to do so is available. Otherwise a consultant would be hired by the PCU to undertake this task. The ESMP will be reviewed by PCU then reviewed by the World Bank for final approval prior to implementation. Subproject specific TOR for ESMP is to be tailored according to local context of each sub project (using standard format, see Annex II).

7.2 *Environmental and Social Monitoring Plan (ESMP)*

87. Environmental monitoring is an integral part of an ESMP, which outlines the specific information to be collected to ensure the environmental quality at different stages of project implementation. The parameters and their frequency of monitoring should be provided along with cost of monitoring plan and institutional arrangements for conducting monitoring. Reporting formats should be provided along with a clear arrangement for reporting and taking corrective action. Table (9) below outlines examples for monitoring a sub-project. Monitoring costs are included within the budgets for the project components at% of subproject cost, to be financed from the GAFSP grant and will be budgeted in the goods and services contracts related to the activities when more detail is available. The site specific ESMP will be translated into action on the ground. Contract documents will be incorporated with clauses directly linked to the implementation of mitigation measures. The total estimated costs for the plan implementation could be approximately \$250,000, which will be included in the cost of the contracts.

7.3 *Sub-projects Monitoring and Evaluation*

88. Environmental monitoring needs to be carried out during all phases including operation and maintenance of sub-projects in order to measure the success of the mitigation measures implemented. Monitoring provides opportunities:

- 1- To alert SAPEP and provide timely information about the success or otherwise of the screening process, to enable changes to be made to the system, if required; and
- 2- To determine whether the mitigation measures set out in/for the sub-projects have been successful.

89. Subproject design must include a monitoring framework, together with indicators. The responsibilities for monitoring and evaluation of the mitigation measures adopted under the sub-projects would be assigned as follows: The FU/AIP will be responsible for the implementation of the monitoring framework and reporting of feedback throughout the life of the subproject, specifically:

- 1- Monitoring of the environmental and social assessment work to be carried out
- 2- Monitoring of environmental issues and the supervision of any works during the implementation process
- 3- Monitoring of environmental issues during operations and maintenance of any infrastructure and facilities when handed over to communities after implementation
- 4- Submission of monitoring reports to the AIP/NSC for review
- 5- The report will include inter alia progress towards achieving the overall project objectives and specific objectives of the sub-projects using indicators identified by the community with support of PIU technical staff. The reporting may be as appropriate on monthly, quarterly and annually basis.

90. This monitoring and reporting will be supervised by trained AIP/FUs staff, under the supervision of the concerned project body. Members of the community, through their representatives, should be trained to undertake both compliance monitoring and effects monitoring. This will be done throughout the sub-project cycle namely:

- 1- During the planning phase, communities will participate in the identification of indicators for monitoring the mitigating measures;
- 2- During the implementation phase, monitoring the execution of any works with respect to environmental aspects,
- 3- During the operation and maintenance phase, the overall environmental monitoring (including monitoring human-natural resources conflict) and alerting on any emerging environmental hazards in conjunction with the ongoing sub-project activities. Communities will pass on their observations and concerns through the local AIP/FUs Project staff.

7.4 *Environmental Mitigation Measures*

91. By design, the project is expected to have far greater environmental benefits than adverse environmental impacts. The potential adverse environmental impacts from the project are likely to be small and limited. Spatial and temporal distribution of impacts that would result from the project activities, as well as the sub-projects requires the attention especially during screening.

92. However, it is recognized that such 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 provides direct and significant potential impacts due to project actions. Given the fact that minimum impact sub-projects are eligible and the level of available fund, such impacts could be mitigated using sensible site selection criteria, good construction practices in harmony with the local culture and diligent management practices in the operational phase.

93. Sub-projects such as small scale water harvesting, etc., that require mitigation procedures will be defined in the ESMP. Here below, as an example of an initial impact and mitigation matrix. Table 9 below identifies some of the possible environmental impacts that could arise in each selected sub-projects, proposed mitigation measures, responsibilities, and rough cost estimate. As mitigation measures must be taken into account the project design and costs, some aspects of the ESMP do not need a separate budget allocation. However, it is imperative that activities' costs reflect the incremental effort necessary to fully implement the ESMP.

Table (9) Environmental Monitoring Plan Matrix

Mitigation Aspects	Mitigation Measures	Monitoring Indicators	Monitoring Methods	Implementing Agency	Monitoring Agency	Monitoring Frequency
Reduce emissions, dust, and suppression of noise	<p>Construction Phase:</p> <ul style="list-style-type: none"> Covering waste disposal trucks with tarpaulins Ensuring that ambient air quality limits are not exceeded: vehicles and machinery should comply with emission standards. Construction activity noise levels will be maintained below limits. <p>Operation Phase:</p> <ul style="list-style-type: none"> Adopting composting practices to reduce the amount of solid waste produced and reduces the need for waste collection vehicles. 	Complaints from local community and occupants Dust deposition on vegetation and rocks Loud noise can be heard from a distance Change in natural habitats within surroundings	<ul style="list-style-type: none"> Monitoring devices to ensure compliance of noise and emissions Field observations Interaction with local community: use indigenous knowledge to understand impact on wildlife 	<ul style="list-style-type: none"> Contractor during food processing, grading and packing structures construction AIP during operation phase 	AIP/FUs with relevant CBOs	Daily/Weekly
Occupational Health and Safety	<p>Construction Phase:</p> <ul style="list-style-type: none"> Compliance with General rules and regulations on Occupational Health and Safety. Provision of protective gear for workers including helmets, boots, gloves, masks, and earplugs. Provision of first aid kit at work sites and necessary information on rescue during emergency. Prohibiting admission of children, guests, or dependents of legal employees or underage workers to construction site. Provision of appropriate training and emergency response procedures. <p>Operation Phase:</p> <ul style="list-style-type: none"> Provision of fire extinguishers and first-aid kits in the food processing, grading and packing structures and camp sites. An operational manual will also be developed for the building facilities management. 	Complaints from labourers, occupants, and local community Number of incidents/accidents Adoption level of OHS	<ul style="list-style-type: none"> Construction site inspection Review of incidents records 	<ul style="list-style-type: none"> Contractor during food processing, grading and packing construction AIP during operation phase 	AIP/FUs with relevant CBOs	Monthly

Solid Waste Management	<p>Construction Phase:</p> <ul style="list-style-type: none"> • Construction waste will be stored and disposed of in an environmentally safe manner. • A suitable location will be designated for the safe storage of construction waste onsite. The designated location should be void of vegetation, natural habitats, and distant from depressions or surface drainage. • Onsite waste shall be covered with tarpaulin to prevent dust clouds from forming. • Waste will be carted away from the onsite storage location to a location identified by for filling purposes. <p>Operation Phase:</p> <ul style="list-style-type: none"> • Spaces should be designated for on-site separation for paper, glass, aluminium, steel and plastics. • Adopting a garbage prevention strategy: recycle for reuse or recycled back into the environment through biodegradation where possible • Final disposal of waste through landfills should be remote from population and properly designed in accordance with global and national specifications. 	<p>Complaints from local community and occupants</p> <p>Improper disposal of waste products</p>	<ul style="list-style-type: none"> • Construction site inspection 	<ul style="list-style-type: none"> • Contractor during food processing, grading and packing structure/ seed bank construction PIU during operation phase 	AIP/FUs with relevant CBOs	Weekly during construction phase
Sewage Waste Management	<p>Construction Phase:</p> <ul style="list-style-type: none"> • Recommended use of pit latrines during the construction stage of food processing, grading and packing/ seed bank structures and in the remote camping areas. Pit latrines should not be located in runoff areas, in depression, or near water resources. <p>Operation Phase:</p> <ul style="list-style-type: none"> • Adopting composting strategy of solid sewage waste and use compost for greenery. • Use of composting toilets not flush toilets. • Recommended use of biological treatment technologies of sewage waste that does not involve land disposal. • Recommended use of biological systems to purify wastewater. 	<p>Construction specifications and infrastructure design</p> <p>Improper disposal of waste products</p> <p>Soil and water quality measurements reflecting Contamination of nearby areas from sewage waste products.</p>	<ul style="list-style-type: none"> • Review of tender and contractor bid documents • food processing, grading and packing/ seed bank structures site inspection • Water and soil quality monitoring 	AIP	AIP/FUs with relevant CBOs	Annually
Soil protection and prevention	<p>Construction Phase:</p> <ul style="list-style-type: none"> • Soil removed through excavation should be used as 	Indication of rill or inter-rill erosion	<ul style="list-style-type: none"> • Field observations 	<ul style="list-style-type: none"> • Contractor during food 	AIP/FUs with relevant	Weekly during construction

8. Institutional Assessment and Strengthening Institutional Capacities

94. Ministry of Agriculture and Irrigation (MAI) will be the project implementing agency through its different organs at different government level. MAI will be responsible for project preparation, coordination, and implementation. To this end, MAI is expected to establish an Agriculture Improvement Program (AIP), and supported by a Project Coordination Unit (AIP/PCU) with adequate staff (technical and subject specialists from the ministry) and administrative and fiduciary capacity (financial management, procurement, environmental and social safeguards, etc.) at both central and governorate levels. The Government's long-term vision is for the AIP to serve as the implementation arm of MAI for SAPEP and future operations supporting the NASS. The Project will support the AIP to move away from a top-down approach to research and extension to a demand-driven community-based approach successfully developed by IFAD Projects, the Social Fund for Development under RALP and AREA Rapid Impact Program.

95. The AIP/PCU will be responsible for the day-to-day coordination and implementation of the proposed SAPEP project and possibly other donor-funded projects in the future dealing with agricultural services. At governorate level the AIP/PCU will implement the project activities through the Agricultural Offices or already existing Field Units (FUs) such as the ones established under NIP or under the previous GSCP project when they are still operating. These field offices will serve as the frontlines for implementation of SAPEP activities. Adequate budget and strong management and supervision (beyond technical and financial supervision) are essential, and will also comprise backup and support to ensure good staff performance. Conditional financial incentives will be provided to motivate MAI staff, with annual performance-based contracts and clear ToRs. The proposed implementation arrangements will build upon existing implementation structures in MAI for ongoing or recently completed projects such as the RALP, the Agro-biodiversity and Climate Adaptation Project (ACAP), Groundwater and Soil Conservation Project (GSCP) and IFAD financed projects.

96. As SAPEP is promoting the participation of communities and beneficiaries in the development and implementation of investments, proposals for sub-projects will be submitted by the community, through the MAI/AIP Agricultural Offices and Field Units. MAI/AIP Agricultural Offices or FUs will have adequate staff to facilitate the mobilization of communities and assist communities to form committees that will develop and review proposals for sub-projects through a participatory approach. Final approval of proposals for sub-projects and investments at the community level will be the responsibility of MAI. The project financing plan includes the GASFP grant funding, beneficiaries' in-kind contribution to water and land development work, and the Government's performance-based incentives for MAI staff.

97. Also the project concept note assessed the project stakeholders, as GAFSP financing is not enough for an immediate nation-wide approach; it is proposed to select a target area comprising specific governorates and districts with a high concentration of poor and food-insecure households. The main target population will thus be food-insecure households in target districts and communities in four governorates (Hajjah, Sana'a, Shabwa and Wadi-Hadramout) and in districts where poverty is severe and where institutional structures are in place for rapid scaling up of delivery of services to the poor. This population will be primarily composed of: (i) smallholders, tenants and sharecroppers; (ii) landless livestock

farmers; and (iii) households dependent largely on casual labor. The secondary target population will be all other farmers in the target area. It is expected that about 128,000 households will benefit, with total beneficiaries of 880,000. About 170,000 women will be direct beneficiaries.

98. This is a demand-driven program, and farmer organizations and user associations will be principal partners, building on successful experience e.g. under RALP. Community ownership and program accountability will be achieved through participatory, local level programming and through social accountability mechanisms such as participatory M&E. Broad participation of beneficiary groups is also a risk-mitigating factor to ensure effective implementation, as has been demonstrated by other similar interventions in the last two years. Civil society will be implicated, including through NGO contracting for extension and livestock services. In addition, cooperatives and the private sector will participate in key activities, bringing energy and entrepreneurship to, for example, provision of extension services, training and marketing. The proposed progressive privatization of the veterinary service, the use of private village extension agents will further involve the private sector, improving targeting, reducing public cost and promoting sustainability. However, the implementing agency risks is rated as high/ substantial due to lack of capacity within MAI to undertake the participatory approach proposed in SAPEP may undermine achievement of results.

99. Although MAI has a track record of successful implementation of agriculture operations, the ministry has been unable to sustain the results of past projects due to lack of resources. In the past, agriculture operations have been implemented through Project Coordination Units (PCUs) using a top-down approach. The proposed SAPEP, however, presents a novel approach by routing implementation through the MAI structure, and proposing that beneficiaries take an active part in identifying and undertaking sub-projects. This could pose a risk if the required change in culture with MAI is not undertaken. Furthermore, as a stand-alone project supported by GAFSP trust funds, no project preparation advance is available to the Government from the GAFSP. This may hinder timely preparation of the project.

100. However the risk will be managed through the design and implementation of capacity building for government agencies, to be carried out as part of Component 2 of the project, will include activities to strengthen the knowledge and guidance to AIP in participatory approach. Regarding capacity in MAI to supervise implementation of environmental and social safeguards put in place, the main challenge may result in ineffective mitigation measures, the project will build capacity and experience of project safeguards supervision teams, ensure adequate supervision to meet safeguards standards, and develop relevant safeguards-related guidelines in project manuals. Building the capacity of the AIP on environmental monitoring will be through training course, on-job training and through collaboration with and guidance from the World Bank staff. A study tour may be another option if resources are made available. For performing specialized monitoring functions, outsourcing might be considered.

9. Integrated Pest Management Plan (IPM)

101. The project will use the screening framework provided in Annex IV for identifying the need to prepare IPM. A separate IPM is needed if expected quantities of pesticides to be used are significant from health and environment standpoint; or if pesticide use or other non-indigenous biological control into an area will be introduced; or if hazardous products (WHO Class Ia and Ib) are expected to be financed. Besides using the Pest Management Safeguard Policy Screening framework (Annex IV) for outlining the parameters of the IPM, it is important to strengthen national capacities in implementing the PMP. The PMP has been designed to build on, and to some extent strengthen, existing national capacities for the promotion and implementation of IPM. It consists of the following components: (i) Activities of the Integrated Pest Management Plan; (ii) Actors and partners; (iii) Institutional arrangements for implementation of the PMP; (iv) Phasing plan; and (v) Cost estimates.

102. The activities of the PMP are designed to ensure that implementation of the SAPEP project complies with the World Bank's Safeguard Policy on Pest Management, OP 4.09.

Activity 1 - *Study tours* will be organized to similar programs/agency where farmer participatory IPM programs have been successfully implemented. The study tour will be organized for representatives of selected areas. A national IPM workshop will be organized to share experiences gained during the study tour and to facilitate the implementation of the PMP.

Activity 2 - *Promoting the adoption of /IPM practices*

- Supporting activities of the Community IPM Action Committees
- Developing IPM training capacity in the extension services at
- Developing IPM capacities amongst PIU and farmer Groups
- Production of field brochures, IPM posters, field guides and other IPM promotional materials; purchase of various IPM Extension Guides publications.
- Public awareness programs and IPM networking amongst the project stakeholders

Activity 3 - *Training in pesticides management; safe use of pesticides*

- Making decisions to use pesticides
- Transport, storage, handling and distribution of pesticides
- Safe application of pesticides
- Risks in the handling and use of pesticides
- Managing risks and pesticide poisoning
- Protective gear; use and maintenance
- Public awareness on safe use of pesticides; radio talks, etc

Activity 4 - *Strengthening national regulatory frameworks and institutional capacities*

- Support PIU to assist with national coordination of IPM activities of the SAPEP project.
- Support to the MAI to participate effectively in the implementation of the PMP

Activity 5 - *Integrated Vector Management: surveillance of disease vector populations in the environment of small irrigation schemes*

- Surveillance teams to be set up in villages around the water sources and irrigation sites to conduct regular surveys on the incidence of water borne diseases.
- Training in environment management for the control of water borne diseases

10. Public Consultations

103. This is a demand-driven program, and farmer organizations and user associations will be principal partners, building on successful experience e.g. under RALP. Community ownership and program accountability will be achieved through participatory, local level programming and through social accountability mechanisms such as participatory M&E. Broad participation of beneficiary groups is also a risk-mitigating factor to ensure effective implementation, as has been demonstrated by other similar interventions in the last two years. Public consultations proved to be successful approach to ensure genuine participation and engagement of all stakeholders in different project phases and steps which requires developing consultations strategy.

10.1 Consultation Strategy

104. As known the project will be managed through MAI/NSC/PCU respectively and NIP/AIP field unit's personnel at the ground have overall coordination with strong ties to higher levels. This ensures smooth flow of information in both ways between the community and the managing bodies of the project. A basic step in this regard is public consultations with the local communities and all other relevant stakeholders during the screening process. These consultations should identify key issues and determine how the concerns of all parties will be addressed. The concerns of local people, vulnerable and marginalized groups must be taken into account fully in sub-project planning. Annex V reflects local communities and other relevant stakeholders that were met in the consultations sessions.

105. To facilitate meaningful consultations, SAPEP subproject planners will provide all relevant material and information concerning the sub-projects in a timely manner prior to the consultation, in a form and language that are understandable and accessible to the groups being consulted. Once a proposed subproject has been reviewed by PCU s and approved, the NIP/AIP field units will inform the public about the results of the review.

106. For all sub-projects that will be implemented at the community level, the NIP/AIP field units will be responsible for disclosing the findings and recommendations of the environmental and social screening process to the communities. NIP/AIP field units' staff will be responsible for taking minutes of the public disclosure meetings and will produce and distribute copies of the minutes to offices at the community level. A summary of the outcome of this public disclosure meeting will be posted at appropriate places in communities. To ensure that an appropriate public consultation mechanism is developed, the environmental and social screening process includes such a requirement:

- 1- Development of individual sub-project ESMP (if required) include such a requirement;
- 2- Once the sub-project activities have been cleared by the PCU, the NIP/AIP field units will inform the communities about the results of the review through the Local Implementation Unit, LIU;
- 3- In the context of the Monitoring Program, the project PCU supported by the NIP/AIP field units will undertake both compliance monitoring and effects monitoring throughout the subproject cycle.

The table below explains the setup of these consultations:

Table (10): Set up of consultations

Phase role	Responsible body
Design phase - through environmental checklists, assist each participant to identify potential environmental and social impacts resulting from proposed sub-projects, and to subsequently redesign proposals to avoid such impacts or include mitigation measures	AIP field unit and FUs under coordination of the social mobilizer team [male and female] to ensure that both men and women are consulted with the community committee/community facilitator
Screen proposals - based on environmental checklists, either approve sub-project proposals for implementation, or stipulate that an EMP is necessary	AIP with support of relevant CBOs
Draft an EMP if necessary	AIP with support of consultant
Review and approve EMP and implementation arrangements	AIP with support of NSC and GSC
Monitoring the implementation of sub-projects	AIP with support of FUs and relevant CBOs

Annex (I)

Table and Maps of Proposed geographic focus of SAPEP

The following areas are proposed as project sites for SAPEP, based on a set of criteria including poverty levels, food insecurity, population, and implementation capacity:

Governorate	Targeted Districts
Hajjah	Wash'hha Qarah Kushar Al Jamimah Kuhlan Ash Sharaf
Shabwah	Baihan Markha Al-Olya Markhah Assufla Nisab Hateeb
Sana'a	Bani Matar Al Haymah Ad Dakhili Al Haymah Al Khariji Manakhah Sa'fan
Hadramout Alwadi	Al Qatn Shibam Say'un Tareem As Saoum

Maps for Geographical implementation of ESMF SAPEP

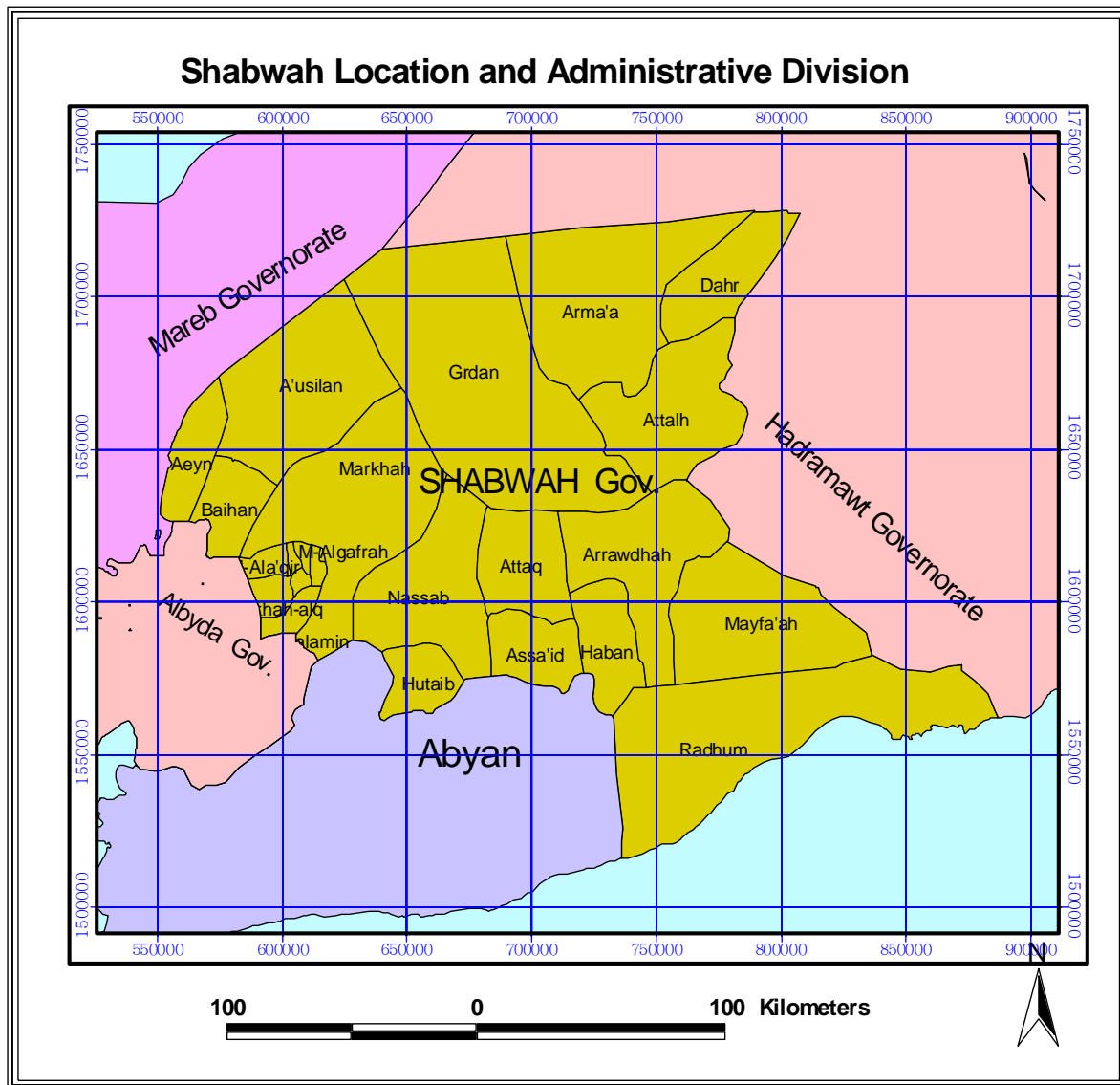


Figure (1): Site Location and Administrative Division, Shabwah Governorate
The Targeted Districts (Baihan, Markha Al-Olya, Markhah Assufla, Nisab and Hateeb)

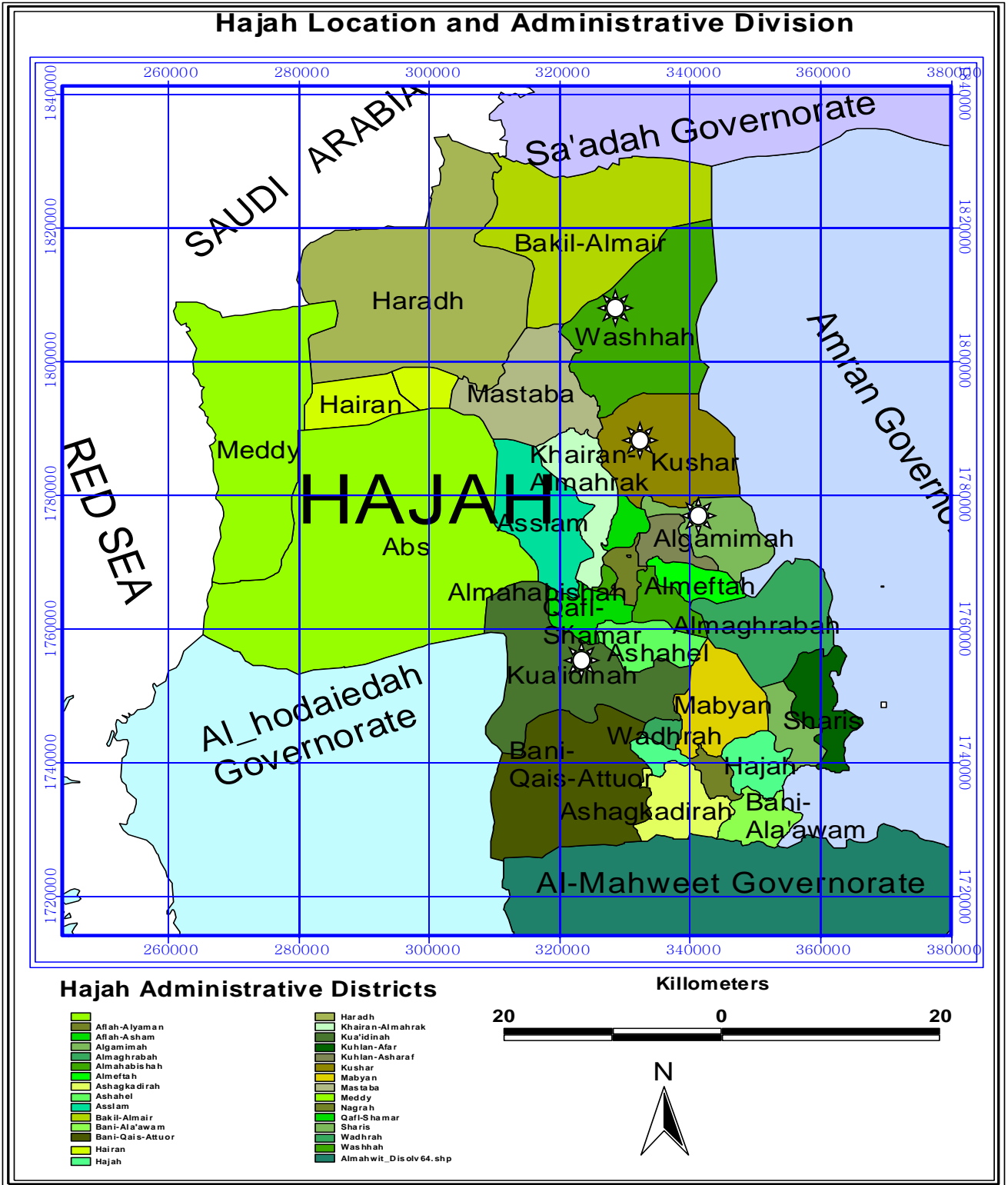


Figure (2): Hajah Location and Administrative Division
 The Targeted Districts (Wash'hha, Qarah, Kushar, Al Jamimah, and Kuhlan Ash Sharaf)

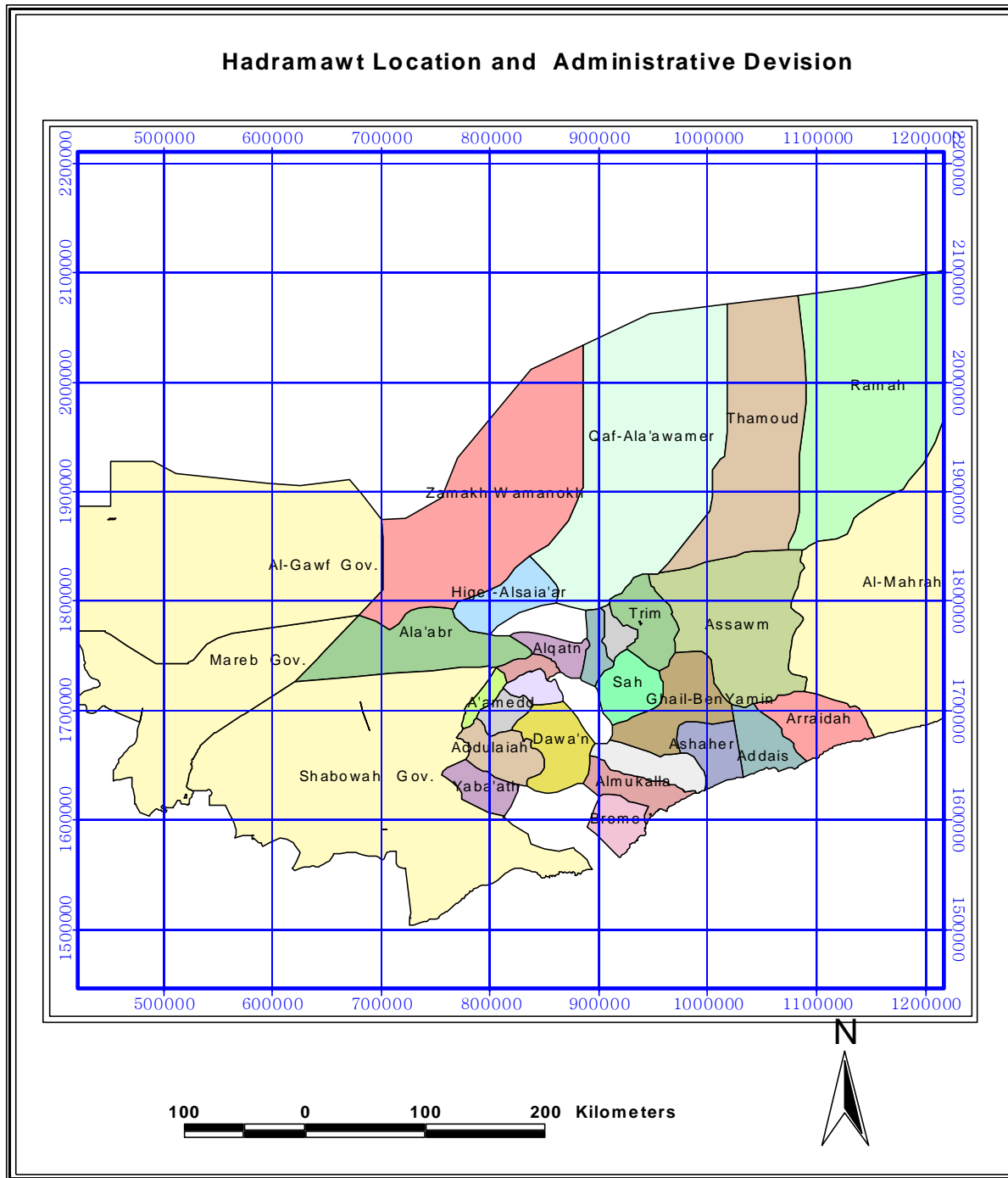


Figure (3): Location and Administrative Districts, Hadramawt Governorate
 The Targeted Districts are (Al Qatn, Shibam, Say'un, Tareem and As-Saoum)

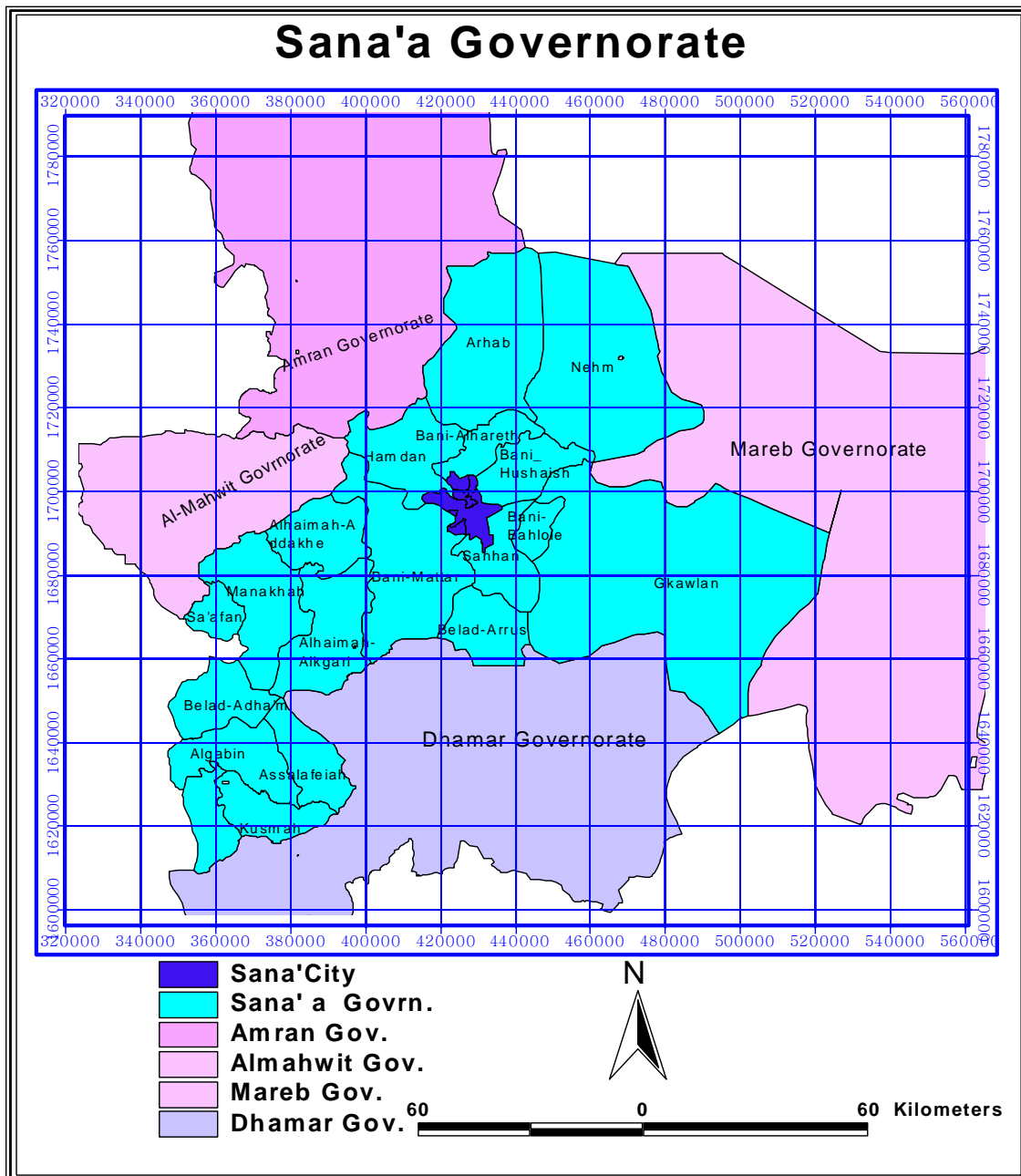


Figure (4): Location Map and Administrative Division, Sana'a Governorate
 The Targeted Districts are (Bani Matar, Al Haymah Ad Dakhili, Al Haymah Al Khariji, Manakhah and Sa'fan)

Annex (II)

Environmental Screening Form

1. Projects Name:

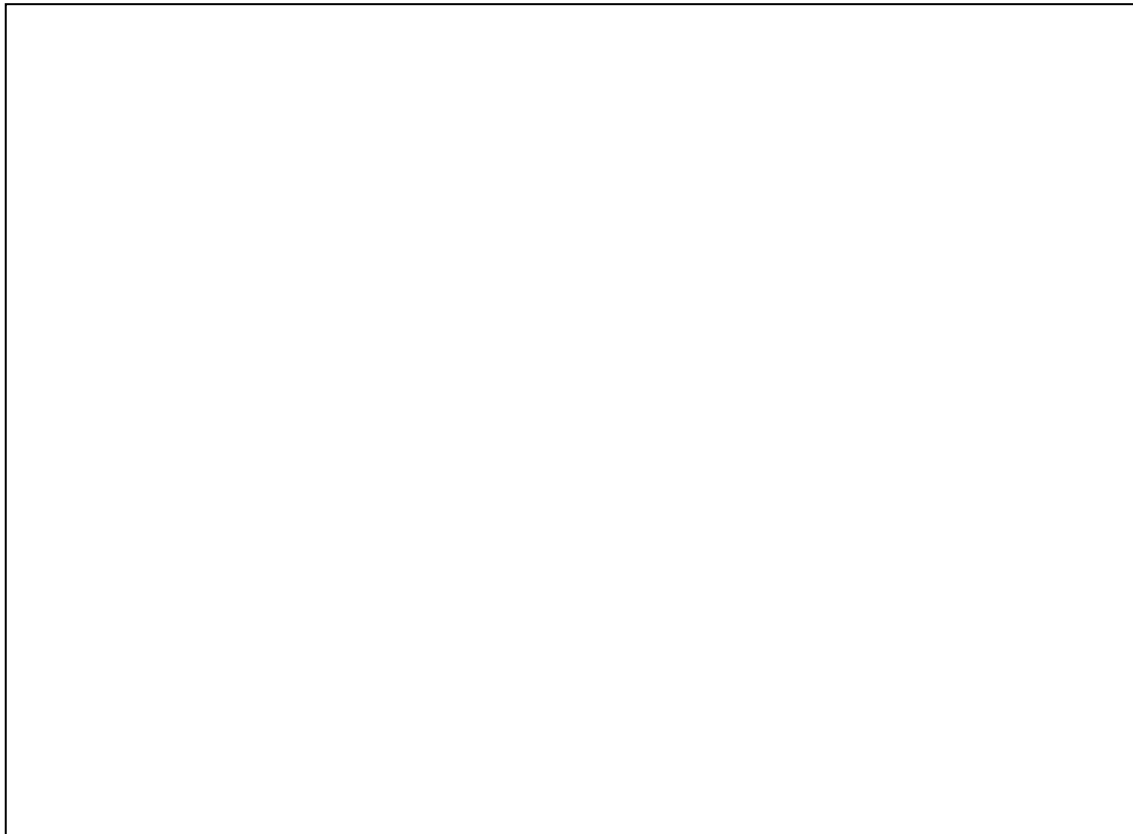
2. Project's Type:

3. Brief description of the project (project's components including assisting services, scope of service, number of beneficiaries, number of workers, etc.)

4. Brief description of the project's location (nature of location: rocky or dusty, the previous usage of the location):

5. Description of the surrounding area: for a circle of 50m radius from the drainage point, especially locations of environmental sensitivity (utilities, constructions, land usage, water sources) etc).

(Sketch drawing of the of the project)



6. Environmental Impacts & Mitigation Measures * (Construction & Operation Phase)

Project's Phase	Parameter	Influencing Factor	Mitigation Measure	Institution Responsibility For Execution
Design				
Construction				
Operation				

* Example for design phase: Parameter: Water, influencing factor: Disposal of wastewater, mitigating measure: design proper wastewater treatment, Responsibility: Consultant

7. Does the project need monitoring during its operation? (in case there is a probability of polluting water resources, or soil or air) yes No

8. In case the answer is yes, mark the monitoring issues applicable to your project:

- Monitoring water sources
- Monitoring the performance of health care waste disposal
- Monitoring the performance of sanitary drainage system
- Monitoring the cleanness of the building's yard
- Monitoring the planting of trees in the building's yard

Table for Environmental monitoring during project operation

Parameter	Indicator	Location	No. of samples	Intervals	Responsibility

Annex (III) Standard Format for Environmental and Social Management Plan (ESMP)

EXECUTIVE SUMMARY

1 PROJECT DESCRIPTION

- 1.1. Overview of the Local Government where the sub-project are located
- 1.2. List of Selected Sub-projects
- 1.3. Environmental Screening Category

2 POLICY AND ADMINISTRATIVE AND LEGAL FRAMEWORK

3 SUB-PROJECT -SPECIFIC ESMPs (FOR EACH SUB-PROJECT):

- 3.1. Location
- 3.2. Proposed Works
- 3.3. Estimated Cost
- 3.4. Baseline Data
 - 3.4.1. Land Resources
 - 3.4.2. Hydrology and Water Resources
 - 3.4.3. Air and Noise
 - 3.4.4. Biological Resources
 - 3.4.5. Socio-Economic and Cultural
- 3.5. Potential Impacts
 - 3.5.1. Land Resources
 - 3.5.1.1. Construction Phase
 - 3.5.1.2. Post Construction Phase
 - 3.5.2. Hydrology and Water Resources
 - 3.5.2.1. Construction Phase
 - 3.5.2.2. Post Construction Phase
 - 3.5.3. Air Quality and Noise
 - 3.5.3.1. Construction Phase
 - 3.5.3.2. Post Construction Phase
 - 3.5.4. Biological Resources
 - 3.5.4.1. Construction Phase
 - 3.5.4.2. Post Construction Phase
 - 3.5.5. Socio-Economic and Cultural
 - 3.5.5.1. Construction Phase
 - 3.5.5.2. Post Construction Phase
- 3.6. Analysis of Alternatives
- 3.7. Mitigation Measures
- 3.8. Monitoring and Supervision Arrangements
- 3.9. Summary ESMP Table

4 Annexes

- 4.1. Photos
- 4.2. Summary of Consultations and Disclosure
- 4.3. Other

Annex (IV)

Pest Management Safeguard Policy Screening Framework

The proposed development objective of SAPEP project is to increase the adoption and use of productivity-enhancing agricultural practices by smallholders in targeted project areas. The following project is expected to result in the following outcomes:

- ✓ Increase in number of direct and indirect beneficiaries (of which percent female) receiving services through agricultural offices;
- ✓ Expanded area under which productivity-enhancing land and water management practices have been adopted and used;
- ✓ Increase in percentage of smallholders adopting improved measures to improve livestock productivity;
- ✓ Higher crop and livestock productivity;
- ✓ Community based organizations actively participating in national/regional level technical and policy bodies or project implementation related to food security or agriculture programs.

1. In assisting borrowers to manage pests that affect either agriculture or public health, the Bank supports a strategy that promotes the use of biological or environmental control methods and reduces reliance on synthetic chemical pesticides. In Bank-financed projects, the borrower addresses pest management issues in the context of the project's environmental assessment

- Does the project assist the borrower in any form of pest management? e.g.:
- What type of assistance is provided?
 - Strengthening of extension systems which cover pest management
 - Strengthening of vector control
 - Funding of pest management related research
 - Direct pesticide purchasing
 - Strengthening of pest management policy issues
- Will the implementation of the project have an indirect effect (influence) pest management? e.g.:
- Promotion of agricultural intensification
- Promotion of credit systems that may result in increased pesticide use
- Promotion of agricultural irrigation with impact on public health issues
- Which level of EA is required for the project?
 - Has an EA been made?
 - See World Bank BP 4.01 Annex C for more specific assessment issues on the need for a comprehensive Pest Management Plan and the Screening of Pest Control Products.
- Does the project support / promote the use of biological or environmental control and reduce the reliance on synthetic chemical pesticides?
 - See 4 below for more specific questions

2. In appraising a project that will involve pest management, the Bank assesses the capacity of the country's regulatory framework and institutions to promote and support safe, effective, and environmentally sound pest management. As necessary, the Bank and the borrower incorporate in the project components to strengthen such capacity.

- Has an assessment been made (in the PAD or other official project appraisal document) of the country's capacity to regulate pest management?
 - What pest management legislation is in force in the country?
 - What related legislation is in force that influences pest (and pesticide) management? (e.g. environmental, economic, health, etc.)
 - Is legislation operational and effectively being enforced?
 - Is legislation effective?
 - What are the gaps in legislation and enforcement compromising provision 2 of OP 4.09?

In case gaps have been identified, what activities have been included in the project to improve pest management legislation and enforcement?

- What is the timeline of these activities in comparison with the pest management activities in the project (e.g. does it allow large scale pesticide use before legislation is effective?)

3. The Bank uses various means to assess pest management in the country and support integrated pest management (IPM) and the safe use of agricultural pesticides: economic and sector work, sectoral or project-specific environmental assessments, participatory IPM assessments, and adjustment or investment projects and components aimed specifically at supporting the adoption and use of IPM.

Which means have been used, in preparing the project, to assess pest management issues in the country?

Which means have been proposed or used, in preparing and executing the project, to support IPM and safe use of pesticides.

What data were assessed before project implementation, and have been collected during project execution, on:

- Agricultural productivity of the crops covered by the project?
- Crop losses due to agricultural pests?
- Use of pest management practices, including pesticides?
- Impact of project activities on agricultural productivity?
- Impact of project activities on crop losses?
- Impact of project activities on pesticide use or other pest management practices?
- Impact of project activities on farmer revenues?
- Environmental and health impact of pest management practices?

4. In Bank- financed agriculture operations, pest populations are normally controlled through IPM approaches, such as biological control, cultural practices, and the development and use of crop varieties that are resistant or tolerant to the pest. The Bank may finance the purchase of pesticides when their use is justified under an IPM approach.

Which pest management approaches will be developed, promoted or used in the project?

- What technical recommendations and/or extension packages will be developed in the project? What is their (potential) impact on pest management (practices).
- Have any surveys been carried out by the project to assess farmer needs and requirements? What type of pest management problems do they encounter?
- What farmer (demonstration) field trials have been or will be carried out? Were pest management techniques involved?
- What research has been or will be carried out within the framework of the project? What is its (potential) impact on pest management (practices)?

Will pesticides be financed (directly or indirectly) by the project?

- Is the proposed financing/procurement of pesticides or other pest control products justified under an IPM approach?
- Use Questionnaire on Pesticides and IPM for more detailed screening in the case of proposed financing/procurement of pesticides or other pest control products.

POSSIBLE INDICATORS FOR SCREENING AND MONITORING FOR COMPLIANCE WITH IPM POLICIES

Here are some examples of indicators that could be used to screen for Pest management related issues and monitor compliance in Country projects and programs. This list is indicative only, and needs further development. Any individual project/program would normally only use a limited number of indicators.

Policy indicators

Policy indicators would measure the degree to which appropriate national policies and legislation have been put into place to promote sound pest management. They may cover such aspects as:

- ✓ the presence of a national pest management (IPM) policy and strategy;
- ✓ the presence of a national vector-borne diseases management (IVM) strategy;
- ✓ the presence of pest management legislation, (addressing plant protection, plant quarantine, pest management research , farmer training and extension)
- ✓ the presence of pesticides management legislation;
- ✓ the presence of interdisciplinary technical platforms for exchange of information and coordination of activities.

Technical capacity indicators

Technical capacity indicators would measure the extent to which the technical capacity to promote sound pest management in the country. They may deal with such issues as:

- ✓ number, quality and level of funding of on-going field IPM projects
- ✓ number of extension agents trained in IPM per number of farmers;
- ✓ number of farmers trained in and adopting IPM practices
- ✓ number of samples analyzed for pesticide quality control per volume of pesticide used/imported in the country;
- ✓ number of samples analyzed for pesticide residues per volume of (relevant) agricultural commodities produced/marketed.

Production indicators

Indicators for agricultural production would be based on the existing production indicators that are already used by the Bank, but would be fine-tuned to express progress towards integrated pest management objectives. Possible examples of such indicators are:

- ✓ units of pesticides applied per unit of crop yield;
- ✓ cost/benefit of applying IPM practices against farmers conventional practices for specific crops.
- ✓ units of pesticide costs needed per unit of production revenues;
- ✓ percentage of export shipments of agricultural commodities refused at point of entry for MRL violations.

Environmental indicators

Environmental indicators would measure the extent to which project implementation leads to reduced toxic loads of the environment by pest or vector management activities. They could include such factors as:

- ✓ amount of toxic units (environmental) per surface area treated;
- ✓ amount of toxic units (environmental) per unit of crop production;
- ✓ amount of toxic units (environmental) per number of disease protected persons;
- ✓ environmental fate indicators (e.g. leaching index, bioaccumulation potential index).

Human health indicators

Similarly, human health indicators measure the extent to which project implementation leads to reduced human health risks caused by pest and vector management activities. Examples of possible indicators would be:

- ✓ amount of toxic units (human) per surface area treated;
- ✓ amount of toxic units (human) per unit of crop production;
- ✓ amount of toxic units (human) per number of disease protected persons;
- ✓ number of cases of pesticide poisoning per volume of pesticide used in the country;
- ✓ percentage of “food baskets” violating national MRLs in market basket residue studies.

PESTICIDE USE SCREENING QUESTIONNAIRE

YEAR:	
Interviewer:	Date:
Comments:	

General information for the farmer		
Name:	Age	Occupation:
GPS Coordinates:	Cluster ID	Dist. to Homestead:
District:	Division:	Group name:
Location:	Sub-location:	Village:

1) **Pest Control practices**

a) **Do you use any pesticides to control pests (insects, diseases, weeds) of crops/livestock?**

Yes No

If yes, complete the table below

CROP/ LIVESTOCK	PESTS (insects, diseases, weeds) Stage of Pest	PESTICIDE USED (Brand, common and chemical names)	GROWTH STAGE	No. OF TIMES USED	DATES WHEN USED	QUANTITY USED

If Not applying why?

.....
.....

If you use any of the above pesticide, do you keep records of:

Application location / area / animals (sprayed) Yes No

Pesticide product trade name: Yes No

Operator name: Yes No

If not, why?

.....
.....

c) When do you decide to use the pesticides (tick all that apply)?

- Use pesticides at regular intervals throughout the season (calendar)
- Use pesticides when pests are seen in the field/on livestock (control)
- Use pesticides after field sampling and finding a certain number of pests or a certain level of damage (scouting)
- Told by someone to apply (Verify who?)

.....
.....

Others (specify) _____

d) Do you use a sprayer? Yes No

•If yes, do you own it? Yes No

•Do you rent it? Yes No

Do you borrow it? Yes No

Was there any pesticide(s) which was not effective at all after spraying?

- Yes / No
- If yes, name the pesticide(s): _____

e) From your experience, are there any negative effects of using pesticides?

Yes No

If yes, list the negative effects:

- 1 _____
- 2 _____
- 3 _____

f) Do you use any kind of protective clothing while applying or handling pesticides?

Yes No

If no, why? _____

If yes, what kind? _____

2. Knowledge of pesticide handling and storage (tick one in each row)

Activity	Sometimes	Always	Never
Do you read labels on the pesticide container before using?			
How often do you wear protective clothing and other accessories like nasal mask, hand gloves, eye goggles and boots while applying pesticides?			
Do you mix pesticides with your hands? Where do you mix pesticides? Where do you rinse your sprayer and mixing equipments?			
Do you observe pre- harvest intervals and pre- entry intervals (Waiting periods after applying pesticides)			
Do you wash your hands after spraying? Yes / No If yes, with: water only / use soap / use soil			

e) What do you do with the pesticide container after the pesticide is finished?

Burn

Bury

Dispose in Latrine

Wash and use e.g drinking water, storing salt.

Use to make tin lamps ('Koroboi')

Annex (V) Public Consultations Report

Smallholder Agricultural Productivity Enhancement Project (SAPEP)

Environmental and social management framework (ESMF)

Public consultation outcomes with farmers, local community and the concerned authorities in the four targeted governorates namely "Sana'a, Hadhramout, Hajjah and Shabwah"

1. Objectives

As part of ESMF study, Public consultation is meant to go down to the stakeholders, meet them inform them and discuss with them the ESMF study contents and get their feedback. The output of the public consultation outcomes will be considered an important part for the project implementation. By Public consultation, we make sure that we include the views and opinion of the farmers and local community as well as the concerned bodies in the four targeted governorates (namely Sana'a, Hajjah, Shabwah and Hadhramout. It is assumed that with the experience of beneficiaries on their social, environment and geographical situation, the project activities will be according to their needs and therefore, successful and beneficial. The components that were considered during the public consultation are as follows:

- The list of proposed sub-projects was presented to get feedback on its compatibility with the beneficiaries needs or whether there still need any additional sub-projects that could be included in the list or need to replace with other sub-projects in accordance with the geographical and social conditions at each governorate.
- The EMP of the projects with positive and negative impacts expected during construction and operation of project activities under the various components were presented to make them aware about such impact which would affect them and their environment as well as the mitigation activities to alleviate or get red of such impact.
- Presenting to get to know their opinions on the procedures for mitigating measures against environmental impacts as result from the project activities.
- Identify a mechanism to monitor of the EMP at the project construction and operation in order to ensure compliance with these mitigation measures and find out the community's willingness to participate in the monitoring in cooperation with the concerned authorities.
- Identify the role of women and youth in the project activities to be in line with their needs and the nature of their concerns
- Make sure that the grievances mechanism and resolving complaints are applied when needed during the project implementation and operation
- Identify a common site(s) to publish ESMF study in order to make it available for public as a reference.

2. Public Consultation approach

2.1. Member of the ESMF study and public consultation

NO.	NAME	SPECIALIZATION	TARGETED GOVERNORATE	POSITION/ TASK
1	Dr. Fadhl Ali Al-Nozaily	Env. Eng.	SAPEP office	TEAM LEADER
2	Dr. Abdulbari Al-Bourani[Env. Eng.	SAPEP office	MEMBER
3	Munir Al-Jahafi	Environment	SAPEP office	MEMBER
4	Eng. Abdulkarim Al-Sabri	Agriculture Eng.	SAPEP office	MEMBER
5	Eng. Hamoud Al-Rubaidi	Agriculture Eng.	SAPEP office	SAPEP director
6	Eng. Ahmed Al-Moallim	Agriculture Eng.	SAPEP office	Coordinator
7	Abdulrahman Abobakr	SPECIALIST	Hadhramout	SPECIALIST
8	Ali Omar Al-Jareedi	SPECIALIST	Hadhramout	SPECIALIST
9	Rasheed Al-Washali	SPECIALIST	Sana'a	SPECIALIST
10	Khaled Al-Tawqi	SPECIALIST	Sana'a	SPECIALIST
11	Adel Al-Faqih	SPECIALIST	Hajjah	SPECIALIST
12	Isam Ahm. Al-Wazan	SPECIALIST	Hajjah	SPECIALIST
13	Nazim Moh. Fateh	SPECIALIST	Shabwah	SPECIALIST
14	fuad Abdalla Naser	SPECIALIST	Shabwah	SPECIALIST

2.2. Preparation Steps for conducting the public consultation in targeted areas:

To prepare for the public consultation, the following steps were followed:

- 1- Important documents to be presented with local community and stakeholders during public consultation were prepared
- 2- Assistant teams were selected to be from the targeted governorates consisting of specialists who have experience in environmental issues and were members of the social study of the same project so that they are familiar with the sites and the people.
- 3- The Assistant teams were trained through two days workshop on ESMF study with focus on the topics and information that need to be presented with the local community and stakeholders in the targeted governorates (see photos 1).
- 4- A timetable for the implementation of the public consultation activities in the targeted areas was prepared.
- 5- The outcomes documents of the public consultation activities as reports supported with photos, names and signatures of the participants.



Photos 1 Training activities by environmental consultant and his crew for the supporting team for public consultation

2.3. Documents of public consultation

The most important materials that have been distributed before started of public consultation with the local communities and concerned authorities related environmental and social issues are as follows:

- Goals and components of the project
- List of proposed sub-project activities
- Environmental and social impacts and mitigation measures
- Check list of inspection and control for the environmental and social impacts ,
- Summary of the ESMF in Arabic.

2.4. The timetable for implementation of consultation meetings with farmers, local community, and the concerned authorities:

2.4.1. Sana'a Governorate

Table 1 shows the details time table of public consultation with farmers, local community, and the concerned authorities (a list of names and signatures is in Annex -1).

Table 1 - Timetable for public consultation with farmers, local community, and the concerned authorities in Sana'a governorate

PUBLIC CONSULTATION WITH FARMERS AND LOCAL COMMUNITY IN SANA'A GOVERNORATE				
No.	Meeting date	Directorate name	Number of participants	Venue
1	10 June 2014	Bani Matar and Al-Haymah Al-Kharijiah	24	House of Shiekh Yehya Mohamed Al-Musta'a, Matnah, BainMatar
2	12 June 2014	Al-Haymah Al-Dakhliah, Manakhah and Sa'afan	36	House of Ali Mohamed Al-Ghorbani
Public consultation with concerned authorities				
no.	the concerned body	Meeting date	Responsible met	
1	National Irrigation Program	13 June 2014	Eng. Khaled Al-Selwi, The Director General	
2	Water and Environment office of Sana'a Gov.	13 June 2014	Mujeeb Al-Yamani	

3	General Authority for Research and agriculture extension	13 June 2014	Eng. Ahmed Al-Moallem, The Director General
4	Agriculture and Irrigation office in Sana'a	14 June 2014	Eng. Ali Al-Qiary
5	Environmental Protection Authority	14 June 2014	Murad AbdulAziz Sultatn; Env. Evaluation office

2.4.2. Hadhramout Governorate

Table 2 shows the details time table of public consultation with farmers, local community, and the concerned authorities (a list of names and signatures is in Annex -1).

Table (2) Timetable for public consultation with farmers, local community, and the concerned authorities in Hadhramout governorate

PUBLIC CONSULTATION WITH FARMERS AND LOCAL COMMUNITY IN HADHRAMOUT GOVERNORATE				
No.	Meeting Date	Directorate	No. of Participants	Venue
1	5 June 2014	Al-Qitn	14	Agriculture and Irrigation office at Al-Qitn
2	8 June 2014	Shibam	13	House AbdulHakim Bin AbdulAziz at Al-Qarah
3	8 June 2014	Saiown	22	Boor School for basic education at Saiown
4	9 June 2014	Al-Sawm	18	Agriculture and Irrigation office at Al-Sawm
5	9 June 2014	Tarim	14	Agriculture and Irrigation office at Tarim
Public consultation with concerned authorities				
No.	Concerned authority	Meeting date	Responsible met	
1	Agriculture and Irrigation office for Saiown and Al-Wadi	1 June 2014	Abobakr Abdalla Eideed Omar Salem Ba Mohaimood	
2	Local council for Al-Wadi and Sahra'a	2 June 2014	Salem Al-Menhali	
3	Agriculture research and extension office at Saiown	3 June 2014	Salem Mohamed Al-Sakkaf	
4	EPA office	4 June 2014	Husien Awadh bin Taleb	

2.4.3. Hajjah Governorate

Table 3 shows the details time table of public consultation with the local community, farmers and the concerned authorities (a list of names and signatures is the annex -1).

Table 3 - Timetable for public consultation with farmers, local community, and the concerned authorities in Hajjah governorate

PUBLIC CONSULTATION WITH FARMERS AND LOCAL COMMUNITY IN HAJJAH GOVERNORATE				
No	Meeting date	Directorate	No. of Participants	venue
1	9/6/2014	Washhah	30	School Al-Mesial at Dhaen
2	10/6/2014	Qarah	30	Scholl Al-Hadabah at Bani Sowair
3	11/6/2014	Kushar	30	House sheikh Hasan Al-Qarsoos at Aahim
4	12/6/2014	Kuhlan Al-Sharaf	25	Hous Ali Naser Al-Maazi at Al-Darb village, Bait Al-Maazi village, Bani Mahdi Ozlah

PUBLIC CONSULTATION WITH CONCERNED AUTHORITIES			
No.	Concerned Authority	Meeting date	Responsible Met
1	Agriculture and Irrigation office	Sunday 15/6/2014	Abdallah Rajeh
2	NIP Field Unit	Sunday 15/6/2014	Eng. Yehya Al-Qudami
3	NWRA office	Monday 16/6/2014	Eng. Jamal Al-Dowah
4	EPA at Hajjah	Monday 16/6/2014	Eng. Ali Al-Dhelea

2.4.4. Shabwah Governorate:

Table 4 shows the details time table of public consultation with farmers, local community, and the concerned authorities (a list of names and signatures is in Annex -1).

Table 4 - Timetable for public consultation with farmers, local community, and the concerned authorities in Shabwah governorate

PUBLIC CONSULTATION WITH FARMERS AND LOCAL COMMUNITY IN SHABWAH GOVERNORATE				
No	Meeting date	Directorate	No. of Participants	venue
1	12 June 2014	Hateeb	17	House Secretary General of local council
2	13 June 2014	Nisab	10	Agriculture and Irrigation office
3	14 June 2014	Marakhah Al-Olya'a	11	school Marakhah Al-Olya'a
4	15 June 2014	Marakhah Al-Sufla'a	12	School Al-Garasha, Markhah Al-Sofla'a
Public consultation with concerned authorities				
No.	Concerned Authority	Meeting date	Responsible Met	
1	PA office at Shabwah	15 June 2014	Naif Ba-Oom-Director General	
2	Agriculture and Irrigation office	15 June 2014	Fahd Salem Al-Ateeqi, Director General	
3	Field Unit of NIP	16 June 2014	Eng. Moh. Saleh	
4	NWRA office	17 June 2014	Naser Ba-Oom	

2.5. **Implementation of public consultation in the governorates:** In order to prepare for public consultation, the following steps were followed:

2.5.1. Public consultation with farmers and local community

- 1- According to the timetable, the environmental team communicated with farmers and local community and called target groups in the districts of the four governorates as shown in Tables 1,2,3,4 informing them for public consultation timing and venue. Announcement was distributed one week before the public consultation through the local media and by distribution of posters in public places.
- 2- Documents were also distributed one week before so that the people read and prepare their feedback.
- 3- The Environmental team invited various categories of stakeholders to attend the public consultation as follows:
 - Representatives of active civil society organizations;
 - Representatives from the private sector;
 - Representatives from the local council;

- Representatives of the target farmers, including young people and woman
 - Representatives of groups affected by the project;
 - Others (academics, engineers, teachers, lawyers, etc.),
- 4- During public consultation, the environmental team presented the list of project activities and the ESMP (Table 7 of the ESMF) and then the following questions were forwarded to the public:

- Q1. What is your opinion about the proposed sub-project activities?
- Q2. Do you think that the sub-project activates are appropriate for your geological, social and environmental situation?
- Q3. What is your opinion about the EMP monitoring?
- Q4. Are you interested in participating in the monitoring?
- Q5. What is your opinion about the checklist content and its application during the construction of the sub-project?
- Q6. What is your opinion about the IPM as part of ESMF?

- 5- During the public consultation, every environmental team has documented the events of the meetings with answers to the questions, attendees were registered with their photos and signatures (Annex -1),
- 6- Analyzing the participants' views, perspectives and come up with recommendations of the public consultation.

2.5.2. Public consultation with the concerned authorities

In the framework of public consultation, with the concerned authorities, the environmental team have informed the concerned authorities one week before the meeting and handed them a copy of the documents mentioned earlier. According to the timetables presented earlier (Tables 1,2,3,4) the meetings were held between the environmental team and the representatives of the concerned organizations. During the meeting, the environmental team first briefed the different organization representatives about the outcomes of the public consultation with the farmers and the local council, then the following questions were forwarded:

- 1- What is your opinion about the different sub-projects?
- 2- What is your opinion about the ESMP of the ESMF?
- 3- Are the Mitigation measure for the expected environmental impact are sufficient?
- 4- How will you cooperate by participating with the local authority and users associations in ESMP implementation.
- 5- What are the opinions of youth and women?
- 6- What is the grievance mechanism?
- 7- What is the public disclosure site for the ESMF study?

3. Outcomes of Public Consultation

3.1. Outcome public consultation with farmers and local community

3.1.1. Results of presenting list of sub-projects

In all public consultation meetings, the public raised enquiries for irrigation projects but after clarification by the environmental team members that the SAPEP project does not focus on large-scale projects for irrigation or dams or canal rehabilitation ... etc. Then by focusing on the proposed sub-projects listed in the ESMF, The local community unanimously approved the projects included in the list and confirmed their willingness to participate in some projects, although others considered the agriculture society is poor so the participation could be in kind but not in cash. They considered these projects as requirements and will contribute to solve many agricultural problems prevailing in the four targeted governorates. The participants approved most of the agricultural projects with some modification in each Governorate as will be elaborated in the next sections. At the same time, all participants agree fully on the income projects such as pastures, honey bees, livestock and the production of new species with high productivity.

Regarding to ESMP, the following outcome discussion and opinions are achieved:

3.1.2. Results of presenting the environmental management plan and mitigation measures

In Each governorate, the environmental team have explained the positive impacts of the project activities as well as expected negative impacts of the projects on environmental resulting from the construction and operation of project activities (Table 7 of the ESMF). The participants agreed that the mitigation measures proposed by the environmental study are sufficient.

Monitoring of the mitigation measures of an environmental management plan during project construction and operation and ensure compliance with procedures mitigation concluded many opinions and suggestions during the public consultation in the four targeted governorates and concluded to be shared among all the representative of the local community and a representative of the relevant authorities and representative of the project.

3.2. Outcomes of public consultation with the concerned authorities

The results of the conducted public consultation with concerned authorities were positively and the representatives of all authorities of all targeted governorates have confirmed their willingness to participate in the implementation of the environmental management plan and mitigation measures for environmental impacts expected during the construction and operation of the project. They also provide their scientific expertise, for different geographical situations and employ their relationship with the various parties in the implementation of project activities. The most critical issue raised by the EPA is that they need to receive ESIA for each project in order to approve it for implementation (a letter from Hadhramout governorate is shown in Fig. 1).



Fig. 1. Letter from Hadhramout EPA

The letter from EPA – Hadhramout insisting on conducting ESMF from each project for approval.

The following specific outcomes of public consultations in each governorate as the following:

Sana'a Governorate:

During the public consultation meetings at Sana'a Gov., the farmers and the local community and the concerned authority requested to add the following activities (Photos 2)

- | |
|---|
| <ol style="list-style-type: none"> 1. Greenhouse sub-projects 2. Old indigenous rainwater harvesting systems such as cisterns 3. Combating the red Barbary fig as a non-edible because it is harmful to human, animals and birds 4. Protecting land from degradation 5. Introducing new drought resistant species 6. Introducing new fruits adapted to climate change |
|---|



Photos 2 Public consultations meetings with farmers and public community in Sana'a Gov.

Regarding applying ESMP, the concerns of the participants at Al-Haimah Al-Dhakhiliah and Al-Haimah Al-Kharijjah directorates on the impact of using pesticides and chemicals but with applying the integrated pest management (IPM), the impact will be mitigated, provided that the IPM will be

applied by the whole beneficiaries and supported by the government and agricultural organizations in order to protect the useful insects to keep balance with the harmful insects.

Regarding to the public consultation with the concerned authorities in Sana'a governorate, they agree to support implementation of ESMP with awareness and mobilization program of IPM to the local community (see photos 3)

			
meeting with Eng. Moh. Al-Qiary- Agriculture and irrigation office – Sana'a	meeting with Eng. Khaled Al-Selwi- DG of NIP	meeting with Eng. Murad AbdulAziz Sultan- Environmental monitoring office at EPA	meeting with Eng. Najib Al-Yamani- Water and Environment office- Sana'a

Photos 3 public consultation meetings with concerned authorities in Sana'a Gov.

Hadhramout Governorate:





During the public consultation meetings at Hadhramout Gov., the farmers and the local community and the concerned authority requested to add the following activities (photos 4)

- | |
|--|
| <ol style="list-style-type: none"> 1. Greenhouse for improving crop production 2. Rainwater harvesting, by means of introducing the indigenous old local technology called "Al-Dhemr and Al-Quood" structures. 3. Replacing the Terraces by protection of wadi banks. 4. Combat of Al-Saisaban and Al-Hindro trees as part of IPM 5. Replacing the rainwater harvesting from roofs with introducing the old indigenous structures such as cisterns and leveling and protecting the agricultural fields. 6. Introducing the pastures and Honey-Bees 7. Supporting the irrigation system by pipes and networks 8. Supporting the use of solar energy to replace the use of Diesel as a mean of Environmental protection. 9. Conservation and and maintaining the flood irrigation system. 10. Supporting Agriculture extension 11. Land rehabilitation and protection from degradation. 12. Introducing of typical Nurseries 13. Establishment of Corrals For livestock breeding, 14. Supporting the provision of agricultural machinery to remote areas, 15. Taking Care of Palms 16. Reuse of gray water from mosques and other institutions |
|--|

				
Meeting in Saiown	Meeting in Al-Sawm	Meeting in Al-Qatn	Meeting in Tarim	Meeting in Shibam





Photos 4 Public Consultation Meetings with farmers and local communities in Hadhramout.

Regarding to the ESMF, People in all directories and specially at Tarim and Al-Saom directorates

			
Meeting at Kuhlun Al-Sharaf	Meeting at Kushar	Meeting at Qarah	meeting at Washhah

insisted in contributing to the monitoring and they were mostly concern about the quick implementation of the project as it is badly needed.

Production of seeds suitable for the desert region to resist the drought and desertification with contribution into mobilization and awareness of applying IPM and ESMP monitoring (Photos 5).

			
meeting with agriculture research centre in Saiown	meeting with agriculture and irrigation DG in Saiown	Meeting with agriculture and irrigation DG in Al-Wadi and Sahra'a	meeting with NIP DG

Photos 5 Public consultation with the concerned authorities at Hadhramout

Hajjah Governorate:

During the public consultation meetings at Hadhramout Gov., the farmers and the local community and the concerned authority requested to add the following activities (Photos 6&7).

1. Constructing roof covers for the cisterns to avoid polluting the harvesting water as well to protect falling of children and animals.
2. Good implementation of terraces with stones to protect the upstream terraces
3. Replacing Qat with introducing alternative cash crops.
4. Introduce more project on cisterns construction
5. Land protection from erosion by means of introducing flood flow reducing structure.
6. The introduction of drought-tolerant varieties of fruit, vegetables and fodder.

Photos 6 Public consultation for farmers and local community at Hajjah

Regarding to the ESM, the concerns was regarding to the apply IPM specifically Hajjah Gov. is the most gov. using pesticides for Qat production. They considered speeding of the sub-projects implementation as they are in a bad need. They considered the awareness to protect environment as part of agriculture extension in order to become a habit, they also insisted to employ local workers as well as covering the cisterns and introducing taps to the drinking water reservoir. As far as the monitoring concerns, the participants suggested introducing the ESMF implementation as a component in the bill of quantities.

With respect to the public consultation with the concerned authorities, the concern was in applying the mitigation measures during the implementation, conducting awareness program, apply IPM with replacing Qat with another cash crops. Their concerns was during spraying of pesticides nearby beehives and chicken farms, applying environmental safety standards, the optimal use of agricultural land and produce seeds adopted to the climatic conditions of the targeted areas.

			
meeting with NWR DG	meeting with EPA DG	meeting with NIP DG	meeting with agriculture and irrigation office DG

Photos 7 Public consultation with concerned authorities at Hajjah

Shabwah Governorate

During the public consultation meetings at Hadhramout Gov., the farmers and the local community and the concerned authority requested to add the following activities (Pictures No. 8).





Note: Due to the security reasons, we were not allowed to take photos with the concerned authorities representatives. However, if it is important, we can arrange for photos in a later time.

- | |
|---|
| <ol style="list-style-type: none"> 1. Supporting agricultural inputs of seeds, fertilizers and trees and cattle, 2. Providing and facilitating loans, 3. Supporting and activating the agricultural and water users' associations, 4. Emphasis on livestock development and manufacture of feed and pasture improvement, 5. Replacement terraced projects (as it is not applicable for Shabwah) by wadi banks and fields protection , 6. Replace the rainwater harvesting from roofs (as it is not applicable in Shabwah) with cisterns and reservoirs and the protection of the fields 7. concentrate on pastures and honey bees projects, 8. Concentrate on small income-generating projects. |
|---|

The most concern about ESMP was in the impact of the floods on the drought and desertification of the agricultural fields. The participants emphasized on participation with the

monitoring committee, employing the farmers and contractors from the concerned directorate in Shabwah when implementation of the projects, decrease the participation by the committee as they poor; equal distribution of the projects for all directorates in Shabwah.

Regarding the public consultations with the concerned authorities, the participants emphasized on ESMP implementation in ESMF, with effective coordination. Combat desertifications, resist the changes in the climate, and rehabilitate agricultural lands, Newer methods in breeding cattle, introduce of veterinaries centers, the introduction of modern technologies in the pasture and water consumption, encourage small enterprises, mobilize the local community to participate in the implementation of the environmental management plan and mitigation measures.

			
Markhah Al-Sufra directorate- school Al-Jarshah	Markhah Al-Olya directorate- School Markhah Al-Olya	Nisab directorate- Agriculture and irrigation office	Hateeb directorate – House Secretary-General of the Local Council

Photos 8 Public consultation with farmers and local community at Shabwah

3.3. Resolving disputes and Grievance mechanism

As part of public consultation is to identify how the disputes are resolved and grievance mechanisms in the four targeted governorates, during the construction and operation of the project which might be implemented as part of the ESMP mentioned in the ESMF.

The different types of disputes are expected as follows:

- Water rights conflict;
- Operation and maintenance fees;
- Community participation as cash or in kind;
- Impact on pastures;
- aggression on improved crops by livestock and individuals;
- dispute about the distribution of outcomes after improvement of the agricultural situation.
- non compliance with the environmental standards.

For the mechanism of resolving disputes in the targeted areas, the cooperative associations in various specialties will resolve such conflict. In case of non-acceptance of dissolution by the association, the problem will be forwarded to the local council or identify a person within the local council to monitor the disputes. In extreme cases the problem can be resorted to the judiciary. Generally the disputed are resolved by appealing to tribal law (Sheikh, Aqil,) with regard to disputes over non-compliance with environmental standards, the offices of agricultural and environmental authorities are responsible for solving this kind of problem.

3.4. The role of Youth and Women:

During the Public consultation with the farmers and local community, the youth and women confirmed the importance of implementation of the ESMP as part of ESMF. They also supported the proposed the sub-projects with the following suggestions:

- the projects which are interested by women are livestock production, Beekeeping and Honey production, poultry production, house gardens, craft industries, rainwater harvesting, cheese industry. The projects which are interested by youth are: organic fertilizer manufacturing units, dates planting and production, Production of new seeds species, cheese industry, animal husbandry, plant nurseries, mechanical blowing

3.5. Public disclosure of the ESMF study:

During community consultations, in order to increase the environmental awareness of the environmental and social safeguards, the community has agreed to locate the public disclosure at the following sites:

- websites of the water sector represented by the Ministries of Agriculture, Water and Environment, the project website, official newspapers and specialized magazines (agricultural, water, environmental, etc.), as posters at official places where members of these groups are frequently attending, field agriculture offices in targeted areas, or during the outreach programs in the field days and public events.

Recommendations: The most important issue can be summarized as follows:

- Introducing the additional projects and alternatives proposed by the beneficiaries within the sub-projects.
- Identify the roles of the concerned authorities to ensure the monitoring of ESMP during construction and implementation of each sub-project; such monitoring should be shared between the project and beneficiaries.
- Empowerment of youth and women to apply their role in the implementation of project activities
- To apply the mechanism of the local community in the follow-up of complaints and grievances
- To establish a specialized associations to be responsible for resolving any disputes that may arise among the beneficiaries.
- Quick implementation of the project in view of the need by the beneficiaries'.

6. Appendix 1 - List of attendees and signatures during the public consultations meetings at the four governorates.

Sana'a Governorate:



Hadhramout Governorate:

Hajjah Governorate:

Shabwah Governorate: