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PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT FROM THE GLOBAL AGRICULTURE AND FOOD SECURITY
MULTI DONOR TRUST FUND

IN THE AMOUNT OF US\$36 MILLION

TO THE

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

FOR A

YEMEN SMALLHOLDER AGRICULTURAL PRODUCTIVITY RESTORATION AND
ENHANCEMENT PROJECT

JULY 31, 2017

Agriculture Global Practice
Middle East And North Africa Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective June 1, 2017)

Currency Unit = Yemeni Rial (YER)

YER250.1 = US\$1

US\$1 = SDR

FISCAL YEAR

January 1 - December 31

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ABBREVIATIONS AND ACRONYMS

CEN	Country Engagement Note
CDD	Community-Driven Development
CAHW	Community Animal Health Workers
CBO	Community-Based Organization
CfW	Cash for Work
CSO	Civil Society Organization
ECRP	Emergency Crisis Response Project
EIRR	Economic Internal Rate of Return
EPA	Environmental Protection Agency (of Yemen)
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
EU	European Union
FAO	Food and Agriculture Organization
FFS	Farmer Field School
FM	Financial Management
FMFA	Financial Management Framework Agreement
FPA	Fiduciary Principles Accord
FSIS	Food Security Information System
GAFSP TF	Global Agriculture and Food Security Program Trust Fund
GAM	Global Acute Malnutrition
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GRS	Grievance Redress Service
IBRD	International Bank for Reconstruction and Development
IDPs	Internally Displace Persons
IFAD	International Fund for Agricultural Development
IGAs	Income Generating Activities
IPC	Integrated Food Security Phase Classification
MAI	Ministry of Agriculture and Irrigation
M&E	Monitoring and Evaluation
MIS	Management Information System
MTR	Mid-Term Review
NDC	National Dialogue Conference
NGO	Non-Governmental Organization
OP/BP	Operational Policy/Bank Policy
OCHA	Office for the Coordination of Humanitarian Affairs
O&M	Operations & Maintenance
PMP	Pest Management Plan
PCT	Project Coordination Team

PCU	Project Coordination Unit
PDO	Project Development Objective
PIM	Project Implementation Manual
PPR	Pest des Petitis Ruminants
PPSD	Project Procurement Strategy for Development
PT	Project Team
RALP	Rainfed Agriculture and Livestock Project
RNE	FAO Regional Office for North East and North Africa
SAPREP	Smallholder Agricultural Production Restoration and Enhancement Project
SC	Steering Committee
SCD	Systematic Country Diagnostic
SFD	Social Fund for Development
SME	Small and Micro Enterprise
STEP	Systematic Tracking of Exchanges in Procurement
TOR	Terms of Reference
TPM	Third Party Monitoring
TPMA	Third Party Monitoring Agency
UN	United Nations
UNDP	United Nations Development Program
US	United States
WB	World Bank
WOP	Without Project
WP	With Project



Note to Task Teams: The following sections are system generated and can only be edited online in the Portal.

BASIC INFORMATION

Is this a regionally tagged project? No	Country(ies)	Financing Instrument Investment Project Financing
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Situations of Urgent Need of Assistance or Capacity Constraints

Financial Intermediaries

Series of Projects

Approval Date 31-Jul-2017	Closing Date 31-Aug-2020	Environmental Assessment Category B - Partial Assessment
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Bank/IFC Collaboration No

Proposed Development Objective(s)

To increase the use of productivity and nutrition-enhancing agricultural practices by smallholders in targeted project areas

Components

Component Name	Cost (US\$, millions)
1. Community Subprojects and Investments	29.89
2. Capacity Building and Extension	0.90
3. Program Administration, Monitoring and Evaluation	5.21

Organizations

Borrower : Food and Agriculture Organization of the United Nations



Implementing Agency : Food and Agriculture Organization of the United Nations (FAO)

Safeguards Deferral

Will the review of safeguards be deferred?

Yes No

PROJECT FINANCING DATA (US\$, Millions)

Counterpart Funding Trust Funds Parallel Financing

Total Project Cost:
36.00

Total Financing:
36.00

Financing Gap:
0.00

Of Which Bank Financing (IBRD/IDA):
0.00

Financing (in US\$, millions)

Financing Source	Amount
Global Agriculture and Food Security Program	36.00
Total	36.00

Expected Disbursements (in US\$, millions)

Fiscal Year	2017	2018	2019	2020	2021
Annual	0.00	13.20	17.50	5.30	0.00
Cumulative	0.00	13.20	30.70	36.00	36.00



INSTITUTIONAL DATA

Practice Area (Lead)

Agriculture

Contributing Practice Areas

Gender Tag

Does the project plan to undertake any of the following?

a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF

Yes

b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment

Yes

c. Include Indicators in results framework to monitor outcomes from actions identified in (b)

Yes

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	● High
2. Macroeconomic	● High
3. Sector Strategies and Policies	● High
4. Technical Design of Project or Program	● Substantial
5. Institutional Capacity for Implementation and Sustainability	● Substantial
6. Fiduciary	● High
7. Environment and Social	● High
8. Stakeholders	● High
9. Other	
10. Overall	● High



COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

Yes No

Does the project require any waivers of Bank policies?

Yes No

Have these been approved by Bank management?

Yes No

Is approval for any policy waiver sought from the Board?

Yes No

Safeguard Policies Triggered by the Project

Yes

No

Environmental Assessment OP/BP 4.01

✓

Natural Habitats OP/BP 4.04

✓

Forests OP/BP 4.36

✓

Pest Management OP 4.09

✓

Physical Cultural Resources OP/BP 4.11

✓

Indigenous Peoples OP/BP 4.10

✓

Involuntary Resettlement OP/BP 4.12

✓

Safety of Dams OP/BP 4.37

✓

Projects on International Waterways OP/BP 7.50

✓

Projects in Disputed Areas OP/BP 7.60

✓

Legal Covenants

Conditions

**PROJECT TEAM****Bank Staff**

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Silvia Mauri	Consultant		

Note to Task Teams: End of system generated content, document is editable from here.



YEMEN, REPUBLIC OF
SMALLHOLDER AGRICULTURAL PRODUCTIVITY RESTORATION AND ENHANCEMENT PROJECT

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I. STRATEGIC CONTEXT

A. Country Context

- 1. As a result of the socio-political events of 2011, Yemen embarked on a political transition based on an agreement brokered by the Gulf Cooperation Council (GCC).** The Government of National Reconciliation was formed and confirmed by parliament in December 2011. The National Dialogue Conference (NDC), a key element of the GCC agreement and transition process, was launched in an atmosphere of much hope, trepidation, and protest to address social, economic, and political grievances among all regions and groups. However, only few steps were taken to implement the NDC outcomes, missing important opportunities to overcome grievances and restore some public trust. As the NDC drew to its conclusion, the security situation deteriorated.
- 2. In early 2015, Yemen descended into an enduring full-fledged conflict that is resulting in a catastrophic humanitarian situation.** In May 2015, the United Nations (UN) placed Yemen at Level 3 of humanitarian distress, the highest categorization of countries in conflict. The escalation of conflict amplified an already existing protracted crisis, characterized by widespread poverty, conflict, and poor governance. According to UN agencies, the civilian death toll is estimated to have reached more than 7,500 with about 35,000 wounded. About half of Yemen's population of about 28.1¹ million lives in areas directly affected by the conflict and 3.1² million Yemenis have been forcibly internally displaced. The UN Yemen Humanitarian Response Plan (January 2016) estimates that 10.3 million Yemenis require immediate assistance to save or sustain their lives. The conflict has had a devastating impact on service delivery.
- 3. The ongoing conflict has disrupted service delivery and led to severe economic distress.** In addition to physical destruction of infrastructure, the conflict and the associated deterioration in conditions have deepened the economic crisis and worsened living conditions in the country. Yemen's economic and social fabric is under severe stress and the economy has contracted sharply since the conflict erupted. Oil production and exports, the mainstay of the pre-conflict Yemeni economy, came to a halt. Gross Domestic Product (GDP) is reported to have plunged by 40 percent, underpinned by widespread disruptions of economic activities, with enterprises operating at half the capacity compared to pre-war era. Unemployment rates are on the rise. An estimated eight million Yemenis have lost their livelihoods or are living in communities with minimal to no basic services.
- 4. Poverty, already high before the conflict, increased even further.** Yemen is one of the poorest countries in the Middle East and North Africa (MENA) region. Poverty is especially high in rural areas, which is home to about 68 percent of population. The country has one of the highest population growth rates in the world, placing increasing pressure on the limited institutional capacity and outreach of the government services, scarce and rapidly depleting water resources, poor infrastructure, significant rural-to-urban migration, and acute gender inequality. The ongoing conflict is likely to have fundamentally altered the social and economic landscape of the country and further increased poverty levels. Simulations and estimates of the poverty rate following the escalation of conflict range between 64 and 78 percent - a sharp increase over the

¹ World Food Program

² Office for the Coordination of Humanitarian Affairs (OCHA)



49 percent of the population below the poverty line in 2014.

5. **Yemen is among the ten countries in the world with the highest rates of food insecurity and is now facing an unprecedented food crisis.** Today, conflict and civil insecurity are the main drivers of food insecurity with devastating effects on livelihood and nutrition situation. The March 2017 Integrated Food Security Phase Classification (IPC) reports an overall deterioration in the food security and nutrition situation, with an increase in the total number of food insecure people in Yemen from 14 to 17 million people between June and December 2016.³ This constitutes 60 percent of the population compared to 41 percent before the conflict. Approximately seven million Yemenis are currently in IPC Phase 4 (Emergency) and 10.2 million are in Phase 3 (Crisis). Malnutrition has also been a serious problem in Yemen for a long time and acute malnutrition is a major outcome of the severe food insecurity and is at alarming levels. Eleven governorates are in serious or critical nutrition situation with global acute malnutrition (GAM) rate.

B. Sectoral and Institutional Context

6. **Yemen depends almost entirely on imports to fulfill local demand for staple commodities.** Approximately 80 percent of food consumed is imported while local agricultural production accounts for only 20 percent of overall food availability. Imported food consists of staples such as wheat, rice, oil, sugar and milk. The total food import reached 4.1 million MT in 2016 with a total value to USD 3.7 billion. Yemen has self-sufficiency in some cereals (sorghum, millet, and barley) while 85 percent of wheat is imported. Cereals, *qat*⁴ and fodder account for 80 percent of total arable land use, while wheat represents only 16 percent of the area cultivated for cereals. Domestic production consists also of meat, fruits and vegetables.

7. **Agriculture is a key source of livelihoods in Yemen.** Prior to the outbreak of the conflict, the agriculture sector employed more than half (54 percent) of the workforce and was the main source of income for 73 percent of the population either directly or indirectly through the services and industries serving the agricultural economy. The sector had good potential and opportunities: in Yemen, unlike in most of the world, economic dependence on agriculture has been growing because of stagnating opportunities in the industrial and services sector since 2000. In spite of the importance of the sector, agricultural productivity is low because of insufficient availability of inputs and post-harvest losses, inadequate marketing systems, low human resource capacity, and lack of infrastructure. The principal agricultural systems are in the rainfed highlands characterized by terraced agriculture for coffee, fruits, grains and qat, and extensive livestock production, and the plains where irrigated horticulture and field crops predominate. The poor mountainous agriculture areas of the highlands are a challenge, with two thirds of all Yemen's food insecure living in rainfed highland areas. About 75 percent of agricultural production comes from these highlands, which are home to 60 percent of the population. Yemeni farmers are private sector operators, and more than one million farms operated in the sector in 2009.

8. **Nutritional status in Yemen is closely linked to agricultural performance.** Prior to escalation of conflict

³ The 'Integrated Food Security Phased Classification - IPC' is an international interagency working group that uses standardized protocols (tools and procedures) to respond to the need for a common approach for classifying various food insecurity situations, within and among countries, and across time. Acute food insecurity is classified according to 5 phases: 1) None/Minimal; 2) Stressed; 3) Crisis; 4) Emergency; and 5) Humanitarian Catastrophe/Famine.

⁴ *Qat*, a mild stimulant leaf chewed for recreation, and for which up to 40 percent of total water resource use is dedicated



in 2015, Yemen already had one of the highest levels of malnutrition in the world. The primary driver of the further deterioration of nutritional status has been the widespread food shortages and increase in the price of food stuffs. Undernutrition was particularly prevalent in rural areas, suggesting that enhanced, rural household-focused nutritional awareness, combined with improved local production can have an important impact in improving nutritional outcomes.

9. **Yemen agriculture faces severe natural resource constraints.** Yemen is one of the most water scarce countries in the world. The annual per capita renewable water resource has declined from 221 m³ in 1992 to only 80 m³ in 2014. This constitutes only 1.3 percent of the global average and only 14 percent of the MENA region per capita average. Agriculture accounts for some 90 percent of water use. At the same time, less than six percent of the total land area is considered suitable for field cultivation. Particularly small and fragmented plots (1 ha in average) are another constraint that prevents the sector from making a larger contribution to rural incomes and addressing trade imbalance in food items. In addition, Yemen is particularly vulnerable to climate change. The threats to the water sector from a changing climate is having serious implications on agriculture, including yields.

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

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

12. **The proposal was approved for funding by the GAFSP Steering Committee on September 6, 2013.** The project was considered as a major vehicle for implementing the priority areas of NASS updated in 2013, including smallholder productivity in rainfed agriculture, efficient agricultural water management, productivity and sustainability of livestock production, and the role of rural women in meeting food needs, improving nutrition and protecting the environment. The proposal was also in line with other national strategies adopted



before the current conflict, including the National Food Security Strategy (NFSS)⁵, and the National Water Sector Strategy and Investment Program (NWSSIP)⁶.

13. **Project preparation was carried out through 2014, but was put on hold shortly after Yemen descended into a full-fledged military conflict in early 2015.** With the start of the current crisis, a new set of challenges emerged in the agricultural sector. At present, the most important priority is to revive livelihood activities, most of which are linked to agriculture and trade. Urgent support for agriculture is important for mitigating food insecurity and for rebuilding livelihoods. Agriculture can be among the first sectors to recover from crisis. To this end, the proposed project remains highly relevant in the current context of the ongoing emergency as it would provide urgently needed investments to support local food production and restoration of livelihood activities, and increase smallholder production and income.

14. **The project builds upon and incorporates lessons learned as well as experience acquired from previous initiatives** including the Rainfed Agriculture and Livestock Project (RALP) supported by IFAD and the World Bank, the Agro-biodiversity and Climate Adaptation Project (ACAP), supported by the World Bank. Past projects such as the Groundwater and Soil Conservation Project (GSCP), the Dhamar Participatory Rural Development Project (DPRDP) and the Al Dhala Community Resource Management Project (ADCRMP) provide valuable lessons for scaling up successful examples while designing future interventions such as the SAPREP.

C. Higher Level Objectives to which the Project Contributes

15. **Linkage to the World Bank Group (WBG) goals and strategies.** This project is aligned with the WBG's strategic goals of ending extreme poverty and boosting shared prosperity in a sustainable manner. The project will target poor and landless farmers, especially poor women-headed households, and conflict-affected families and other most vulnerable segments of the population in selected districts. By assisting farmers to re-engage in crop and livestock production and recover livelihoods, the project will help the poor and conflict-affected families and communities avoid deeper poverty. The proposed project supports the implementation of the World Bank Group's MENA Strategy pillars on recovery and reconstruction and increased resilience to IDP/refugee shocks.

16. **Consistency with the Yemen Country Engagement Note (CEN).** The proposed project is aligned with the World Bank Group's CEN for FY17–18, which sets out the Bank's engagement with Yemen during the conflict. The CEN's objectives are to: (i) provide emergency support to preserve local service delivery capacity to support conflict-affected families and communities, in close collaboration with UN institutions; and (ii) prepare for post-conflict recovery, laying the foundation for a more inclusive and resilient development framework in the future. The proposed SAPREP is fully aligned with these two objectives as it will be implemented by Food and Agriculture Organization of the United Nations (FAO) in close partnership with local agriculture services, supporting the delivery of essential agricultural services needed to mitigate food insecurity, and will also provide investments to increase agricultural production and enhance nutrition.

17. **Improving food security.** The proposed project will focus on food insecure rural areas and contribute to

⁵ NFSS was developed by the Yemeni government in 2011 in response to alarming food insecurity situation. 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 was through the investment program for agriculture.

⁶ NWSSIP (2008-2015) had its goal for water to maintain a profitable, economically efficient, equitable and sustainable agriculture.



the objectives of the National Food Security Strategy and ongoing efforts of the international community to provide food security assistance to the Yemeni population.

18. **Reducing vulnerability to climate change.** The project will contribute to efforts to build climate resilience of communities through promoting natural resource management techniques, such as water harvesting and terrace agriculture in the highlands.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

19. The project development objective (PDO) is **to increase the use of productivity and nutrition-enhancing agricultural practices by smallholders in targeted project areas.** The project will provide investments to increase agriculture production and value added of agriculture products, and improve livelihoods and nutrition. This will be achieved by restoring and enhancing access to agriculture inputs, providing technical assistance and specific investments to improve agriculture yields and nutritional value and upgrade and diversify agriculture and livestock production and marketing. The project will also assist crop and livestock producers who have lost productive assets as a result of the conflict and displacement (including returnees and IDPs) with fast disbursing interventions that would help them to rebuild their productive capacity and re-engage in agricultural production. The project will support the restoration of agricultural production systems to improve food security and livelihoods through provision of farm restoration support packages and income generating interventions. Project investments will be selected and implemented through a community-based and participatory approach and will help affected communities to reclaim their livelihoods by reinforcing their resilience.

B. Project Beneficiaries

20. **Geographic focus.** The project will target poor and food insecure households within the seven governorates that are the most food insecure governorates in Yemen as identified by the Integrated Phase Classification (IPC) carried out in February 2017 to classify the severity and magnitude of food insecurity. These governorates, namely Shabwa, Abyan, Lahj, Taiz, Al-Hodeidah, Hajjah and Saada are in Emergency food insecurity phase and serious or critical nutrition situation. The selected governorates represent highland and lowland which are the main agro-ecological systems in Yemen. Together, the seven selected governorates account for 42 percent of Yemen's population and 48 percent of the Yemen poor population. Annex 1 provides data on food insecurity, malnutrition and rural poverty levels, and impact of conflict on agriculture in the selected governorates.

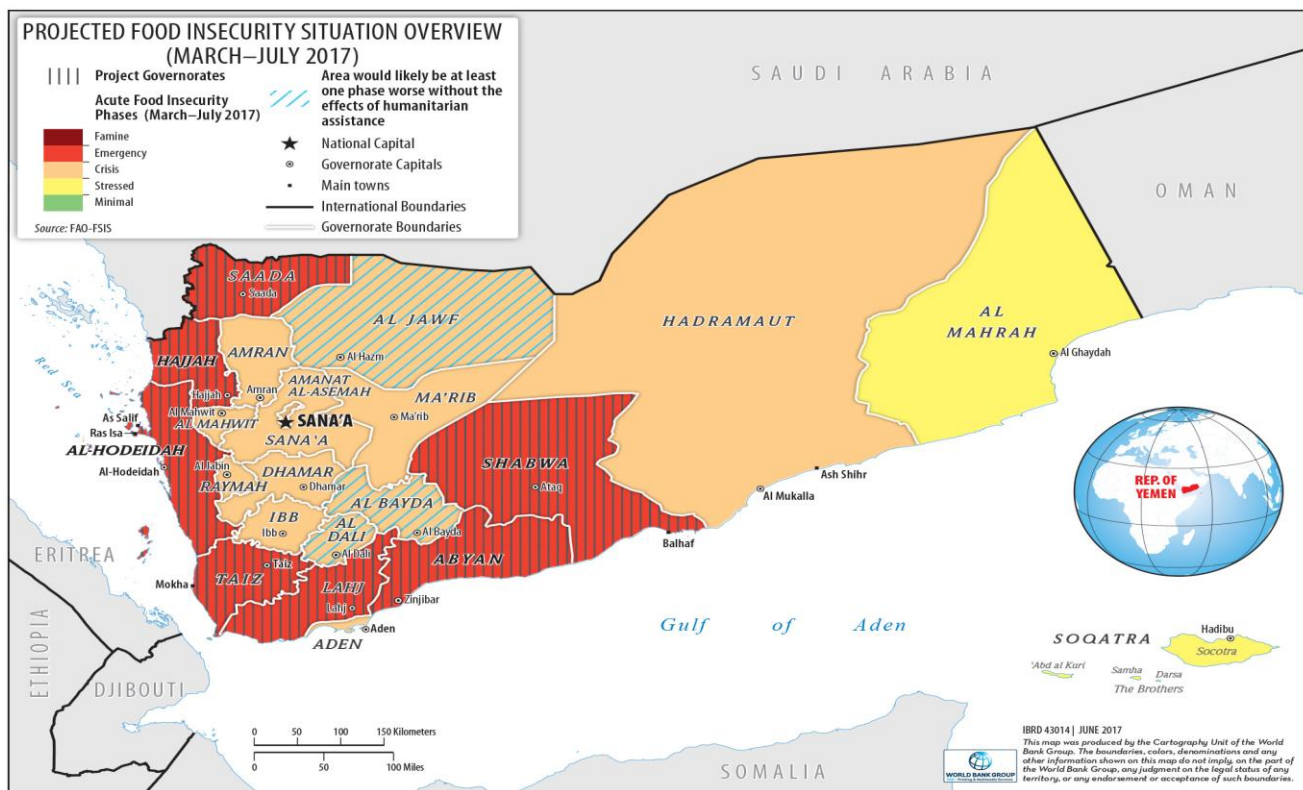
21. **Targeting approach.** Within the targeted governorates, district-level project sites will be selected based on the food insecurity and malnutrition level. Districts will be ranked based on the Emergency Food Security and Nutrition Assessment (EFSNA) data⁷. Districts with the highest level of food insecurity and malnutrition will be prioritized. The other criteria will include agriculture as a major source of livelihood

⁷ EFSNA has been the first nation-wide household survey conducted in Yemen since escalation of conflict in 2015. The survey was jointly conducted by the FAO, UNICEF, WFP and Food Security and Agriculture Cluster (FSAC) in November 2016 in close partnership with the Yemeni authorities.



(proportion of rural population), and presence of other relevant programs in agriculture and livelihood support/food security. The scoring system for ranking of districts will be detailed in the Project Implementation Manual. The project will be implemented in areas which are accessible and where the project recovery and development interventions can be implemented. Details on selection criteria are provided in Annex 1.

Map: Governorates targeted by SAPREP



22. **Beneficiaries.** Poor and food-insecure households as well as people affected by the conflict will be the main target groups for the project. The following groups are considered a priority: (i) landless farmers⁸ with no or few livestock; (ii) sharecroppers and casual workers; (iii) smallholder farmers with less than 1.3 ha of land; (iv) women-headed households; and (v) conflict affected households, returnees, IDPs. It is expected that about 90,000 households (about 630,000 persons) will directly benefit from SAPREP investments and subprojects and services, of which at least 30 percent are women. This includes about 35,000 conflict affected households, including IDPs and returnees that will be provided with startup packages to resume agricultural production. In addition, animal vaccinations and treatment activities will benefit about 200,000 livestock owners in the targeted governorates over the project period. The project will also provide good opportunities for private

⁸ Landless households practicing livestock only farming.



sector inclusion as local private seed growers will be contracted to supply seeds of staple crops under the project emergency support activities. Potential service providers, including extension workers, local veterinary technicians, non-governmental organizations (NGOs) active in the agricultural sector, and staff of the local offices of the Ministry of Agriculture and Irrigation will benefit from the project capacity building program. The rural population of the seven governorates will also indirectly benefit from the impact of better service delivery from veterinary technicians, local NGOs and community based organizations, farmer groups and associations.

23. The project will specifically target female beneficiaries and youth. Women will benefit from subprojects such as backyard poultry and small ruminants, with their participation facilitated by female staff on the community engagement teams. The project will also give special attention to youth and provide them with participation opportunities. Youth will be targeted to benefit from job creation opportunities in the agribusiness sector in activities such as processing, packaging and livestock production. Inclusive participation in the identification and implementation of subprojects will be supported through citizen engagement and consultation as a basic aspect of SAPREP design.

24. **Public-private cooperation.** The emergency support activity will have an additional benefit of promoting public-private cooperation to meet the demand for seeds. Seed for the livelihood kits will be purchased from the private sector local market. The private suppliers will have their seed processed and tested through the facilities of the Government Seed Multiplication Corporation (GSMC). This public-private partnership will enable the private sector to gain more experience in producing good quality seed and to enjoy greater market access, while the public benefits from a larger supply of certified quality seed.

C. PDO-Level Results Indicators

25. The achievement of project outcomes will be measured through the following key PDO indicators:
- i. Farmers adopting improved agricultural technologies;
 - ii. Households supported to resume crop and livestock production.

III. PROJECT DESCRIPTION

A. Overview

26. The agricultural sector is critically important to overall economic performance, food security, and poverty alleviation in Yemen. It is the main livelihood of more than half Yemeni population along the three main value chains of crop, livestock and fisheries. The sector faces many challenges that have been exacerbated by the current conflict including high level of poverty, rapid population growth, poor connectivity to social and economic infrastructure and the extremely fragile and limited natural resources base that limit the productivity. Urgent support for agriculture is important for mitigating food insecurity and helping food insecure households produce much needed and life-saving food.

27. Yemen is among the ten countries in the world with the highest rates of food insecurity and is now facing an unprecedented food crisis. The most recent estimate is that 17 million Yemeni are food insecure, making this the largest food security emergency in the world, despite the fact that the majority of the Yemeni used to work in food and agriculture. The operation is a part of the World Bank's global famine response.



28. Under these circumstances, the proposed SAPREP will focus on two main areas of support: (i) providing support to poor households and smallholders to increase agricultural production, income and nutrition, and (ii) helping conflict affected farmers to re-engage in crop and livestock sectors to restore their livelihood and provide income for their basic needs. The project will be implemented through three components, as detailed below.

B. Project Components

Component 1: Community Subprojects and Investments (US\$29.89 million)

29. This component will finance priority subprojects and investments to increase smallholders' production, income and nutrition through: (i) strengthening community land and water management; (ii) improving animal husbandry, livestock production and animal health services; and (iii) improving livelihood and nutrition, and increasing value-added of selected agriculture products. The component will also provide urgently needed support to farmers affected by the conflict, IDPs, returnees and other vulnerable groups to resume crop and livestock production. It will finance civil works (mostly through community subprojects), goods, including livelihood kits and farm restoration start-up packages, consulting services, training and capacity building. Subprojects and investments will be selected and implemented through community-based and participatory approaches and in accordance with the Project Implementation Manual. Implementation of community based small infrastructure subprojects would provide temporary work and income opportunities for participating communities while the project support to livestock sector and selected value chains would generate also seasonal and permanent employment opportunities in the agribusiness sector. The component will be composed of three subcomponents as detailed below.

30. ***Subcomponent 1.1: Strengthening community land and water management (US\$15.32 million).*** Better management practices, technological innovation and targeted education are important factors in addressing the issues of water availability in Yemen. Investments under this subcomponent build on successful water harvesting and small-scale spate improvement undertaken in Yemen under different programs over the last fifteen years. Their design takes into account the country's experience with terrace rehabilitation, which shows that erratic and unpredictable rainfall has been the main cause of the abandonment of terrace cultivation. These investments will contribute to building up climate resilience of the terrace agriculture system in the highlands, improve spate irrigated agriculture in the lowlands and integrate watershed management. Eligible activities under this subcomponent would include:

- (i) Water harvesting at farm and micro watershed level in upper catchments of rainfed areas including rehabilitation of existing or construction of new terraces; rehabilitation of on-farm water storage facilities for supplemental irrigation of existing terraces; on-farm water harvesting through underground cisterns and open *wadi* pits; *wadi* soil conservation and erosion control through check dikes in *wadi* beds and vegetative measures; rehabilitation of shallow wells and springs;
- (ii) Water diversion for improved spate irrigation in the lower catchments of selected governorates, through small spate diversion works using traditional technology, ponds excavations and canal control structures;
- (iii) Roof-top and other types of water harvesting facilities; and,



- (iv) Investments to improve natural rangelands through planting trees and establishing protection structures.

31. **Subcomponent 1.2: Improving animal husbandry, livestock production and animal health services (US\$5.38 million).** Livestock is particularly important across rural Yemen. More than 80 percent of farms participate in livestock production and it is an important source of income for vulnerable households, playing a more important role in poor districts. Women play a leading role in livestock production, especially backyard poultry production and small ruminants. Livestock production has shown a reduction in 2016. The reduction was driven by a number of constraints influenced by the current conflict, such as lack of access to animal feed and an increased incidence of diseases due to the collapse of the animal disease control system and services.

32. Activities and investments under this subcomponent aim at protecting livestock assets of poor households through improving access to veterinary services, and increase small ruminants and poultry production through better husbandry and feeding. This subcomponent will finance vaccines, startup goods and equipment, consulting services and training. Proposed activities will build on past successful livestock initiatives, which established a public-private partnership for expanding access to veterinary services by communities. Activities would include:

- (i) Improving access to veterinary services in targeted communities through identification of Community Animal Health Workers (CAHW) (of which at least fifty percent will be women), training and provision of start-up equipment;
- (ii) Vaccination campaign to prevent major diseases in small ruminants;
- (iii) Improving animal nutrition through demonstration of appropriate technologies; provision, preparation and training on nutritional supplements particularly for poor small livestock owners;
- (iv) Enhancing animal husbandry through provision of small equipment and tools and capacity building, including support to smallholder beekeeping; and,
- (v) Supporting new livestock activities, exclusively for poor women, returnees, IDPs or farmers which lost their livelihood assets because of the conflict, through startup packages for backyard poultry, small ruminants and apiculture to assist them to re-engage in livestock production.

33. **Subcomponent 1.3: Improving livelihoods and adding value to agriculture (US\$9.19 million)** Activities and investments under this subcomponent aim at improving livelihoods and nutrition, and increasing value added of selected agriculture products in targeted areas. This will be achieved by restoring and enhancing access to agriculture inputs; and providing technical assistance and specific investments to improve agriculture yields, nutritional value, and upgrade and diversify agriculture and livestock production, processing and marketing. Financing would be for equipment, goods, consulting services and training. Eligible activities would include:

- (i) Supporting vulnerable groups (i.e. poor women, returnees, IDPs and farmers affected by the conflict) with provision of emergency agriculture livelihood kits to restore crop production and generate income;
- (ii) Increasing value-added of key value chain agricultural products through provision of equipment as well as technical and business training (under Component 2) for improving processing, packaging and marketing; and promotion of partnership with traders;



- (iii) Increasing the farm-gate value and nutritional content of agricultural products through provision of improved technologies and practices for key horticulture crops, and improving honey quality through improved beekeeping and processing; and,
- (iv) Supporting dairy value chain by increasing efficiency and reducing cost of animal feed through production of animal rations from local material.

Component 2: Capacity Building and Extension (US\$0.90 million):

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

- (i) Capacity building for project beneficiaries involved in land and water management to introduce more effective and climate resilient irrigation techniques, and in livestock production to protect assets and increase productivity;
- (ii) Piloting and possible expanding of Farmers Field Schools (FFS)⁹, which entails: developing the design of FFS, capacity of facilitators and trainers, and establishing the required basic facilities. Topics of FFS will be linked to the assistance received under Component 1 and at the same time demand driven (e.g. including specific crops under the 'Adding Value subcomponent'), technical and hands on training on pulses, cereals, backyard gardening; plant protection with focus on Pest Management, and other topics based on the needs of project beneficiaries;
- (iii) Promoting nutrition awareness for nutrition-sensitive agriculture. Nutrition themes would be enhanced and demand-side nutrition awareness would be targeted to women and households to complement household gardens and other measures to diversify and improve diets;
- (iv) Capacity building in technical and managerial aspects for farmer organizations and individuals involved in value adding activities (beekeeping, dairy, horticulture and honey, etc.); and
- (v) Developing the capacity of NGOs and private services to provide support to project beneficiaries through short-term consultancies and training.

Component 3: Project Administration, Management, Monitoring and Evaluation (US\$5.21 million)

35. This component will support project administration and management, and monitoring and evaluation (M&E) activities to ensure satisfactory project implementation. The component will finance: (a) the FAO general management support (indirect) costs; (b) direct costs for management and implementation of the project; (c) hiring of a third-party monitoring (TPM) agency for which the terms of reference (TOR) will be agreed upon with the World Bank; and (d) project monitoring and evaluation. The component will finance goods, consultant and non-consultant services, and incremental operating costs associated with the responsibility of coordination, administration and management, monitoring and evaluation of the project implementation. FAO will perform project core management and implementation support activities, including procurement, financial management

⁹ The FFS model has been successfully used in Africa and Asia and recently introduced in Yemen through EU-funded programs



and disbursement management, environmental and social safeguards, monitoring the implementation process and evaluation of the project results, and project reporting.

C. Project Cost and Financing

36. The financing instrument of the proposed project is a grant-based Investment Project Financing with an operational life of three years. It will be financed through a grant of US\$36 million from the Global Agricultural and Food Security Program Trust Fund (GAFSP TF) to the FAO as recipient and implementing agency of the proposed project.

Project Components	Project cost	IBRD or IDA Financing	Trust Funds	Counterpart Funding
Component 1: Community Subprojects and Investments			29.89	
1.1 Community land and water management			15.32	
1.2 Improving animal husbandry, livestock production and animal health services			5.38	
1.3 Improving livelihood and adding value to agriculture			9.19	
Component 2: Capacity Building and Extension			0.90	
Component 3: Project Administration, Management, Monitoring and Evaluation			5.21	
- FAO Indirect Cost 5% <i>a/</i>			1.71	
- Project Management, Monitoring and Evaluation			3.25	
- Third Party Monitoring			0.25	
Total Costs			36.00	
Total Financing Required			36.00	

a/ The indirect costs have been exceptionally approved by FAO in view of the emergency context of the project

D. Lessons Learned and Reflected in the Project Design



37. Project design reflects a number of lessons learned from previous operations in Yemen, as well as regional and global experience. The key lessons considered in the project design include the following:

38. **Success of participatory approaches.** Past Bank engagement in Yemen has demonstrated that a highly participatory approach involving communities is the most effective way to ensure sustainability and improvements in production and food security. Participation means involving selected communities in the full cycle of activities, starting with the decision-making process for selecting investments and services, followed by supervision, management and implementation of the activities, and monitoring physical and financial aspects. For SAPREP, the proposed mechanisms for participation are also based on successful experiences under previous agricultural operations in Yemen, notably: community mobilizers to act as the interface between communities and the services responding to community demand; community-based extension and animal health workers; and joint and participatory M&E.

39. **Working on terrace rehabilitation only is not sufficient.** Results from the RALP show that lack of terrace maintenance is often associated with increasing water scarcity due to increasingly erratic rainfall. Without water storage capacity, terrace maintenance and rehabilitation are not economically profitable. To increase resilience to climate change, terrace rehabilitation should be complemented by water harvesting tanks above the terrace and vegetative measures as part of watershed management to reduce runoff, soil erosion and allow complementary irrigation on the terraces below.

40. **Community contracts and cash-for-works schemes have been successful in terms of quality of works and creation of the sense of ownership by the communities involved.** SAPREP will implement most small works through Community Contracts or Cash-for-works modalities used by the previous IFAD-funded project and the Bank on-going emergency operation in Yemen. The infrastructure built under those projects through these modalities (such as terraces, water tanks, *wadi* bank protection) also significantly contributed to managing water resources for improving livelihood of the communities. This arrangement also provided expanded job opportunities to poor rural communities.

41. **Gender issues have been difficult to address in Yemen, but remain central for lasting impact.** The key role played by women in agriculture in rural Yemen is well recognized. The narrative about malnutrition and women in poverty, the strong correlation between women's empowerment and improvement of nutrition outcomes, and the role of women as agents of change are all well established. SAPREP aims at promoting effectively women's involvement and participation at all levels of project implementation, including coordination and monitoring. Project design and management structure are committed to improving women's situation and ensuring that their specific concerns are adequately addressed.

42. **Bank's partnership with UN agencies** is crucial for implementing the projects and for basic service delivery during periods of conflict. The ongoing successful partnership with UNDP, UNICEF and the WHO for the implementation of several Bank-funded emergency operations in Yemen demonstrates that such partnerships are essential.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements



43. The Country Engagement Note (CEN) for Yemen for FY17-18, adopted in July 2016, sets out WBG engagement with Yemen during the conflict, and aims to continue to provide support to preserve local service delivery capacity for conflict-affected families and vulnerable communities, in full partnership with UN agencies and local institutions. In line with this strategic objective, the project will be implemented by FAO under the Financial Management Framework Agreement (FMFA). The FAO will be a recipient of the GAFSP TF grant as well as the managing and implementing entity. FAO is well positioned in Yemen to support and lead on issues related to agriculture given its mandate, technical expertise and presence on the ground since it started operating in the country in 1990. FAO is currently operating in 13 governorates, including all the governorates hosting the largest number of food insecure households.

44. As a specialized UN agency, FAO is primarily responsible for responding to emergencies in the agriculture and food security sectors, including crop and food supply monitoring and needs assessment, evaluation of agricultural relief requirements and mobilization of the assistance and resources needed to restore agricultural activity. The proposed project will contribute to the FAO Emergency Livelihood Response Plan (ELRP) which sets out the key emergency agricultural livelihoods interventions for Yemen, within the framework of the 2017 Yemen Humanitarian Response Plan.

45. The FAO Representation in Yemen will be responsible for implementation of the project working with the Social Fund for Development (SFD) as the FAO main local implementation partner. FAO will also use other local implementing partners through the FAO relevant agreements. FAO and SFD have established institutional and implementation mechanisms for the delivery of the project relevant activities in Yemen. FAO has in place fast-track procedures for countries in level 3 emergencies such as Yemen where there is a dedicated country Emergency Support Team to ensure that the required technical and operational support are provided to the country timely. SFD has sustained delivery of critical programs in the country throughout the conflict.

46. SFD is a key institution for poverty reduction, and social and economic development in Yemen, with an extensive experience working with local communities as demonstrated under the previous Bank-financed agricultural operation in Yemen. Agriculture is one of the areas of the SFD's most significant investments. SFD is also a key local partner to UNDP, which is implementing the ongoing Bank-financed emergency operation in Yemen. The selection of SFD as a local implementation partner would also preserve national capacity for community-based interventions during the post-conflict phase.

47. Project investments for strengthening community water management will be implemented with support of SFD in line with the SFD targeting procedures and protocols currently used. SFD will also implement some activities aimed at enhancing animal husbandry. For activities that will be implemented by SFD, FAO will provide technical guidance and backstopping as required. Project activities aimed at improving livestock production and veterinary services, such as vaccination campaign, training of community animal health workers, provision of forage seeds, etc. will be implemented by FAO through the local implementation partners which include government technical teams,¹⁰ local NGOs, CBOs, and private service providers. FAO will take the lead in sourcing production inputs for emergency livelihood interventions (staple seeds, agricultural tools, startup packages for backyard poultry, small ruminants and apiculture) to resume crop and livestock production. Frontline services will be carried out by the local implementing partners sub-contracted through standard FAO Letters of Agreement. The partners will be selected based on their technical and logistical capacities to

¹⁰ Vaccination campaign will be implemented with support of the General Directorate of Veterinary and Animal Production (GDVAP), training to Community Animal Health Workers (CAHW) will be provided by the Yemen Veterinary Association (YVA).



implement the respective activities, past experience, track records in implementing related projects, value for money and extent of coverage in the target districts. Some project activities will be implemented directly by staff and consultants of the FAO Representation in Yemen.

48. The project management and coordination structure will consist of the national-level Project Coordination Unit (PCU) and two Project Coordination Teams (PCT) to be established at the governorate levels with representation of FAO and SFD. The PCU tasks will include providing overall strategic guidance, general supervision, progress monitoring, review and approval of annual work plan, and approval of any changes to the Project Implementation Manual. The PCU will meet at least every quarter or as needs arise.

49. Two PCTs will be established at the governorate level. One PCT will coordinate activities in four governorates, namely Saada, Hajjah, Al - Hodeidah, and Taiz, while another PCT will cover Lahj, Abyan and Shabwa. The PCTs will be responsible for overall management of activities in the field, reporting to the PCU, ensure coordination among local stakeholders, collection and consolidation of results. The PCTs will meet monthly, or more often as required at the beginning of the project when the beneficiaries' identification and needs assessment will be carried out. PCU and PCTs will be responsible to promote information meetings to brief the stakeholders at national, governorate, and district levels on project activities, with the aim to ensure proper awareness on the activities planned to be carried out under SAPREP, promote synergies with other possible interventions, and avoid overlapping.

50. The FAO team in the office (Project Team) in Sana'a will be in charge of the day-to-day management of the project, including all fiduciary aspects, safeguards, monitoring and reporting. The Project Team in Sana'a will comprise Chief Technical Advisor, Operations Officer, Procurement, M&E specialist, Communication and reporting, Administration and Finance Officer, and Environmental and Social Safeguard Specialist.

51. At the regional level, implementation will be supported by the FAO regional hubs in Aden, Hodeidah and Saada. The hub in Aden will coordinate activities in Shabwa, Abyan, Lahj and partially in Taiz. The hub in Hodeidah will provide support for activities in Al-Hodeidah and Hajjah. The regional hub in Ibb will support implementation in part of Taiz not covered by Aden office. The Saada hub will be responsible for implementation of project activities in Saada governorate. Each hub office will include the staff dedicated for the project, including national technical advisor, operations specialist, administration and financial management specialist, and M&E and reporting officers. A number of international and national specialists, including livestock, value chains (dairy, horticulture and beekeeping), crop production, farmers field school, water management and communications will be hired to provide support to project activities.

52. From SFD side, the agricultural unit in the central office in Sana'a will provide overall support while the branch offices in Aden, Amman and El Mukalla will provide support and coordination for the project activities in Abyan, Lahj, Saada and Shabwa, and branch offices in Hajjah, Taiz, and Al-Hodeidah will provide support and coordination in their own governorates. Staff in the branch offices include branch manager, procurement officer, financial management (FM) officer, technical officer for the quality supervision, M&E, Information Technologies (IT) which are involved in the day-to-day activities. Additional personnel will be recruited to cover areas where there are gaps.

53. The project's FM arrangements will be governed by the FMFA between the World Bank and the UN agencies, which provides for the use of the UN's Financial Regulations. For procurement, FAO will follow



their own procurement procedures as Alternative Procurement Arrangements as provided under the World Bank New Procurement Framework Policy Section III. F. This implementation arrangement is recommended by the Project Procurement Strategy for Development (PPSD) since the procurement procedures of FAO were assessed and found acceptable to the World Bank under agreements with UN agencies.

B. Results Monitoring and Evaluation

54. FAO will be responsible for overall coordination of project monitoring. The objectives of the M&E system are to measure input, output and outcome indicators to provide project staff and stakeholders with regular information on project implementation and outputs; identify potential problems; and determine to what extent the project is achieving its development objectives. As an integral part of project implementation, the M&E system is designed to provide timely and reliable results for management to facilitate informed decision-making. In addition to being an important management tool, the M&E system will be a valuable source of learning and a knowledge management mechanism.

55. The project Results Framework (section VII) will be used for monitoring and evaluation of the project. Performance assessment of SAPREP will be carried out in accordance with the GAFSP Monitoring and Evaluation Plan dated February 2011¹¹. Therefore, key features of the SAPREP M&E system will include: (i) ex-ante Cost-Benefit Analysis of the project; (ii) a baseline on which to assess progress on common indicators across all GAFSP projects, with regular reporting of progress to the GAFSP Steering Committee; (iii) project activities geo-referenced on a map overlaid with sub-national development indicators; and (iv) an independent evaluation of project implementation at project completion.

56. Monitoring and evaluation will be based on the collection and reporting of the PDO and intermediate indicators (see Section VII for a full description of these indicators). The results will be presented to the Bank in semi-annual progress reports, Mid-Term Review (MTR) and final impact assessment reports. A baseline survey, i.e. needs assessment, will be conducted during the first three months of the project, and additional surveys will be held at MTR stage and project completion. For their respective activities, FAO and SFD will use data collected as per the standard reporting formats for different levels, including formats for mobile team reporting and integrated outreach reporting on all interventions. At each FAO or SFD hub offices, data will be collected and reviewed before it is consolidated at the central level by FAO.

57. In addition to regular M&E activities, FAO will hire an independent third party monitoring (TPM) agency to assess quarterly performance and field monitoring of subprojects funded under the project. A TPM agency will be expected to (i) track performance through the collection of appropriate and credible data and other evidence; (ii) analyze evidence to inform FAO management decision making; recommend improvement of effectiveness and efficiency as necessary; and (iii) report on performance and lessons to facilitate learning and support accountability, including learning from beneficiaries' experience. The TOR for the TPM will be developed and agreed upon with the Bank. The TPM reports will be shared with the World Bank.

¹¹ Monitoring and Evaluation Plan, GAFSP, 2011 (<http://www.gafspfund.org>)



C. Sustainability

58. The project had been designed to achieve outcomes that will continue to assist the project direct beneficiaries beyond the project's life. Sustainability of the proposed project will ultimately depend on the successful integration of the participatory approach in local development plans and the continuing maintenance of productivity and nutrition-enhancing subprojects. Active participation of the local communities in the selection and prioritization of investment subprojects will ensure a buy-in by the communities and their commitment to implementation of subprojects as well as the operation and maintenance of rehabilitated water structures and other assets created by the project. Enhanced capacity of the local communities in participatory planning and development would empower local communities to actively pursue community-based development activities with the support of the Government and development partners in the post-conflict period. Project capacity building program will strengthen skills of stakeholders involved in service provision in the project areas. This will help to preserve capacity of key service providers during the ongoing conflict and contribute to long term sustainability of community level agriculture investments. At the same time, implementation of the project in a fragile environment of ongoing conflict in Yemen comes with potential factors that may limit or impact negatively sustainability of project interventions.

59. At the project level, FAO and SFD have demonstrated a high level of commitment to close collaboration to ensure the successful implementation of the project. Furthermore, FAO's implementation of the project in close partnership with SFD, NGOs, CBOs and public agriculture services providers will help to maintain the operational capacity of the local institutions for post-conflict recovery of agriculture sector.

D. Role of Partners

60. The WBG emergency support program currently being implemented in Yemen includes Emergency Crisis Response Project (ECRP) which is implemented by UNDP in partnership with SFD. Cash-for-works (CfW) and Small and Micro Enterprise (SME) revitalization components of ECRP contain agriculture investments. However, the primary objective in the ECRP CfW component is the provision of social protection through transferring of wage income to the people most impacted by the conflict while the SAPREP will provide support to agricultural production system, livelihood and nutrition. As SFD is also a partner for implementing SAPREP, it will jointly with FAO coordinate the activities between two projects ensuring not to duplicate similar activities in the same communities. Also, SAPREP could complement ECRP activities particularly the ECRP interventions in agriculture are not comprehensive as the primary objective of ECRP is social protection, and not agriculture sector. For example, the ECRP CfW for terrace rehabilitation could be complemented by SAPREP in the same community with water storage reconstruction, agriculture inputs and training. SAPREP and ECRP support to farmers with inputs to revitalize their agricultural production would target different communities, or different beneficiaries in the same communities.

61. Several partners are currently involved or stepping up their engagement in the Yemeni agriculture and food security sector. In particular, a wide range of humanitarian and development activities are currently being implemented by FAO in 13 governorates and 49 districts. Several bilateral donors, including the UAE, US, Saudi, UK, Japan, Germany and others, have pledged and/or committed financial support for humanitarian aid to Yemen against the Humanitarian Response Plan (HRP) for 2017. Most of the funding allocated (almost US\$190 million) against the activities prioritized by the Food Security and Agriculture Cluster (FSAC) for 2017 will go directly towards replenishing the food stocks across various distribution points in the country. This assistance



includes emergency food aid, but apart from the FAO projects referenced above, these programs do not specifically address measures to directly support smallholder agricultural production. FAO has the most extensive field presence in terms of planning and direct implementation capacities, and through their strategic partnerships, and their co-leadership role in managing the FSAC, can ensure efficient coordination with other donors.

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

Risk Category	Rating (H, S, M or L)
1. Political and governance	H
2. Macroeconomic	H
3. Sector Strategies and policies	H
4. Technical design of project or program	S
5. Institutional capacity for implementation and sustainability	S
6. Fiduciary	H
7. Environment and social	H
8. Stakeholders	H
Overall	H

62. **The overall risk to the achievement of the project’s objective is “High”** as the project will be implemented in the difficult context of the ongoing conflict in Yemen. The key risks that may hinder the effective implementation of the project include: political and governance risks; macroeconomic risks; technical design risks; environmental and social risks; and fiduciary and stakeholders’ risks.

63. **Political and governance risks.** Given the current ongoing conflict in Yemen, the risk is marked as High. The ongoing conflict in Yemen can significantly impede the implementation of this project. Deteriorating security situation may prevent effective implementation and regular supervision of project activities and could result in resource diversion or funds only benefiting population residing in areas linked to political/confessional interests. Additionally, control of geographical areas of the country by different political or armed factions could lead to interference and inappropriate targeting and selection of subprojects and/or elite capture. The participation of SFD as FAO’s main implementing partner in the project is a key mitigation measure, given their reputation for political neutrality and objectivity. Geographical and beneficiary targeting are transparent and publicly available data; eligibility, and selection criteria for community-driven subprojects have also been agreed and will be articulated in the project documents. Subprojects will be identified, prepared and implemented with the direct involvement of communities and civil society groups. Citizens and communities will be engaged in subproject selection and beneficiary selection, preparation, monitoring, operation, and maintenance. The existing grievance redress mechanisms will address any potential deviation from the project roles. In addition, the project will put in place a TPM mechanism, which will not only verify services rendered under the project, but also reflect the beneficiaries’ perceptions regarding these services through beneficiary checklists.



64. **Macroeconomic risks.** The economic impact of the crisis has been devastating for Yemen, aggravating an already weak pre-conflict economic performance. In 2015, the economy contracted by about 28 percent of Gross Domestic Product (GDP), while inflation has been estimated to have reached about 40 percent. Incomes in Yemen have fallen dramatically and many public sector workers have gone for months without being paid. While these risks cannot be mitigated through this project, the project will nonetheless contribute to maintaining some basic public services in the agricultural sector and capacity.

65. **Sector Strategies and Policies.** The risk is rated as High. The agriculture sector has been under severe distress due to the ongoing conflict. Sector priorities have shifted as a result of conflict. This risk will be mitigated by the project through its interventions, including capacity building, awareness campaigns and a focus on restoring and increasing the use of productivity and nutrition-enhancing crop and livestock practices.

66. **Technical design of project.** This risk is rated as Substantial. The project was designed prior to conflict. The operation was then put on hold and adjusted to better meet the country's current needs in the agriculture sector. The Bank does not currently have a team on the ground and has worked through other agencies to fine-tune project design. The risk is mitigated by keeping the design of the operation flexible and including community consultations and citizen engagement mechanisms in Component 1 to enable the project to make changes to technical design, if necessary.

67. **Institutional Capacity for Implementation and Sustainability.** This risk is rated as Substantial. The project will be implemented by FAO, with close coordination from SFD and local communities. There is a risk that escalation of the conflict may result in at least temporary shutdown of FAO activities in the country. This will affect project implementation. This risk will be mitigated by the business continuity plan of FAO that would allow to continue project implementation with remaining local staff on the ground to the extent possible. FAO has presence on the ground in Yemen, and has partnered with local agencies, including SFD, resulting in further mitigating measures.

68. **Fiduciary risk is rated High.** There is a risk related to weak fiduciary oversight and grievances mechanism at the local level. This will be mitigated by hiring a TPM agency with clear oversight responsibility in the scope of its assignment. There is also a risk associated with procurement being delayed due to the very low threshold delegated to the FAO Office in Yemen and the lengthy procurement process and approvals needed for low-value purchase orders. This risk will be mitigated through advance planning and commitment by FAO to streamline its internal procedures including but not limited to delegation of authority at the appropriate levels.

69. **Stakeholders** risk is rated High because of the multiplicity of donors supporting the same interventions in Yemen and the challenge this would pose to coordination and managing the potential duplication of interventions. This risk will be mitigated through better coordination with other donors by the project coordination and implementation structures.

70. **Environmental and social risks** are rated high mainly because of possible elite capture of investments by powerful and or better connected beneficiaries. The risk of social exclusion will be mitigated by relying on a participatory, inclusive and transparent community-based targeting mechanism where communities will be able to identify beneficiaries based on clear eligibility criteria. Robust implementation guidelines will be detailed in the Project Implementation Manual to ensure proper targeting, openness, inclusiveness, fairness, and active



citizen involvement in the participatory approach promoted by SAPREP. These include mechanisms already tested in similar projects to conduct intensive communication campaigns and consultations with beneficiaries and stakeholders, and to promote social accountability and beneficiary involvement in monitoring and evaluation, etc. Environmental and Social Management Framework (ESMF) will help mitigate potentially high adverse environmental and social impacts stemming from the selection and implementation of subprojects. The TPM Agency to be hired will monitor environmental and social safeguards and help ensure compliance.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

71. **Summary.** The project is expected to have positive impacts on agricultural productivity, food security, and rural incomes. In the targeted areas, the rates of food insecurity, in the absence of the intervention, are high. The project is expected to stabilize and improve conditions for women and children in the selected areas by increasing the incomes of women through livestock activities and other small-scale income generating activities, as well as through promoting better nutrition. It is expected that this will contribute to household expenditures on food dietary requirements that will improve nutritional status particularly that of children. Another expected development impact is improved agricultural production necessary for reducing food insecurity. In addition, better land and water management, improved agriculture services, and marketing and processing systems are expected to improve the value of agriculture production and farm income sustainability.

72. **Economic viability.** A detailed financial and economic analysis was undertaken for the project in May 2017. Three indicators have been used to assess the overall performance of the project. These are (i) the economic internal rate of return (EIRR), (ii) the net present value (NPV) and (iii) the benefit cost ratio (BCR). These were estimated using cash flow of the incremental benefit and cost streams consistent with analysis of lifetime earnings. The overall SAPREP project EIRR is 12 percent. The estimated NPV at a 10 percent discount rate is YER 1 054 316 million (US\$4 217 million). The BCR of 1.53 indicating a return of approximately 1.5 dollars for every dollar invested. These results indicate that the project investments yield a positive rate of return. The full economic analysis is presented in Annex 4.

73. **The main benefits** expected from the project would comprise following elements:

- prevention of further deterioration in households' food security, reduction of malnutrition and stunting; livelihoods assistance to vulnerable individuals from the severely food insecure population.
- promotion of increased food production and income generation, support to restoration of agricultural and livestock production at farm level through agricultural inputs (agriculture livelihoods kits, water for crops irrigation and livestock, animal rations, small tools for animal breeding).
- emergency asset protection and safeguarding in livestock through improved animal husbandry and animal health services; increased livestock production due to better animal husbandry, and veterinary services.



- increased quantity and reliability of water supply resulting from the construction of water harvesting structures and improved water management and water conservation. This is considered the key factor contributing to increased productivity.
- restoring abandoned land to productive use through the soil conservation activities such as terrace rehabilitation contributing to an increase in the crop production.
- improved access to domestic use and drinking water involving less collection time. Women and children (mainly girls) would benefit in the first place as they are the ones in charge of water collection.
- value addition and nutritional intake improvement in products (with focus on main value chains: horticulture, honey, dairy) through different production techniques and processing, potential commercialisation of agricultural surpluses.

B. Technical

74. The final make-up of subprojects and investments in each targeted district will depend on beneficiary community development constraints and immediate needs. These investments are expected to be typically composed of physical outputs (rehabilitation and/or construction of soil and water conservation works around surface water collection structures and/or upland watershed sections, terrace rehabilitation, construction of water tanks and cisterns, open pits, canal structures, small spate structure, and rooftop harvesting), and subprojects to enhance animal husbandry and nutrition, and increase value added of dairy, beekeeping and horticulture crops. Given the damages caused by the ongoing conflict and deteriorated food security situation in Yemen, the project will support also rebuilding the productive capacity of crop and livestock producers (who have lost most of their productive assets as a result of the conflict and displacement) through provision of inputs to assist them to re-engage in production. Priority at the initial stage of the project implementation will be given to investments to address the most urgent needs of the targeted communities such as restoring the crop production system and animal husbandry to improve food security and livelihoods. Due to sharp decrease in income and overall negative impact of the on-going conflict to the livelihood of rural population and given that the project will target poor and food insecure segments no contribution will be requested from the project beneficiaries.

75. The subprojects are expected to be modest in size with simple and conventional designs, without the need for major, complex civil works, involving technologies which have been used in Yemen for centuries and well within the technical reach of the staff and beneficiaries involved, as evidenced by the experience of past projects (GSCP, RALP, SFD and IFAD funded projects). In addition, lessons learned regarding the need for technical improvements (e.g., inclusion of Operation and Maintenance [O&M] arrangements) have also been incorporated in the design of the proposed project. Recognized techniques and technologies which will be introduced to improve livestock production have been tested under similar project such as RALP. With regard to implementation of capacity-building and institutional development activities, SAPREP will follow best practices successfully used by SFD and IFAD-supported projects. Working through NGOs and local communities has proven to be more cost-effective, sustainable and reflective of local needs than any other approaches.

76. Estimates of investment costs, and price of inputs and outputs will be based on actual data from similar projects in Yemen. Proper technical standards for the specific community investments planned will be ensured



through standardized designs (including engineering aspects, technical, financial and economic feasibility, O&M, simple environmental guidelines, and cost parameters). All subprojects will be screened by qualified FAO and SFD staff. And technical assistance will be made available to community organizations to assist in subproject identification, implementation and O&M.

C. Financial Management

77. The proposed project is a TF grant to FAO (signatories of FMFA). The project's financial management arrangements will be governed by the FMFA between the World Bank and the UN agencies, which provides for use of UN Financial Regulations. An FM assessment was carried out to ensure adequate capacity, fiduciary and accountability oversight, consistent with the Operational Policy/Bank Procedures (OP/BP 10.00) for Investment Project Financing. Overall, the FM policies and requirements of the World Bank and the UN are aligned, except for the requirement of external audit as the UN's Financial Regulations give the UN's external auditors, the UN Board of Auditors, the exclusive right to audit the accounts and statements of UN organizations. At the same time, the World Bank audit policies provide for an exemption from its normal requirements if the recipient has more cost-effective mechanisms that provide the World Bank with "equivalent assurance" that the World Bank proceeds have been used appropriately.

78. The Grant Control Account will be subject exclusively to the internal and external audit arrangements applicable to FAO as set out in the UN Financial Regulations. The UN agency will make their externally audited financial statements and accompanying reports of their external auditors on their financial statements available to the World Bank. The UN agency will retain all records evidencing all expenditures in respect of which withdrawals from the Grant Control Account were made, in accordance with its regulations, rules, policies, and procedures relating to retention of records.

79. Accounts and Audits: FAO will: (i) maintain a financial management system, including records and accounts, adequate to reflect the transactions related to the activities, in accordance with the requirements of the UN Financial Regulations; (ii) maintain a separate ledger account (Grant Control Account) in their books to record the financial transactions of this project; (iii) prepare, on a six-month basis, interim unaudited financial reports (IFRs), in accordance with accounting standards established pursuant to the UN Financial Regulations and in the format agreed with the World Bank, adequate to reflect the expenditures related to the grant. The IFRs will be provided to the World Bank no later than 45 days after the end of the six-month period; (iv) ensure that the audit of the project activities is governed by the UN Financial Regulations and the FMFA; and, (v) retain, until at least one year after the World Bank has received the final interim unaudited financial report in which the last withdrawal from the Grant Account was made, all records (contracts, orders, invoices, bills, receipts, and other documents) evidencing all expenditures in respect of which withdrawals from the Grant Account were made.

Flow of Funds and Disbursement Arrangements

80. These arrangements are simplified to ensure timely availability of funds to implement the proposed emergency operation. Disbursement to FAO shall be made on the basis of the interim unaudited financial reports and notices of withdrawal submitted by the UN agency to the World Bank. FAO is required to prepare and submit the IFRs in accordance with the format and periodicity agreed with the World Bank. The grant proceeds will be transferred to the UN agency's official bank accounts based on a written notice of withdrawal



submitted to the World Bank by the designated officials. The first notice of withdrawal will cover projected expenditures for the activities for the first nine months of implementation. Subsequently, FAO should submit notices of withdrawal each six months thereafter, and each such notice will cover an amount representing the UN agency's good faith projection of the expenditures for the following nine months, up to the project's closing date, reconciling against amounts previously withdrawn against the project budget.

D. Procurement

81. FAO will follow their own procurement procedures for the purposes of implementation of this project. A separate assessment of FAO procurement capacity is not required as it falls under the Bank's arrangements with other UN agencies. This implementation arrangement falls Alternative Procurement Arrangements as per the New Procurement Framework Policy Section III. F. This procurement arrangement is considered a fit-for purpose arrangement for several reasons:

- (a) FAO has extensive record of emergency livelihood support, livestock, and nutrition and food security activities that are the intervention areas of the proposed project;
- (b) FAO has a strong presence on the ground and the capacity to work in conflict and post conflict areas in Yemen;
- (c) FAOs' procurement arrangements provide reasonable assurance that the World Bank's financing will be used for the intended purpose;
- (d) FAO has demonstrated experience in managing similar programs in Yemen.

82. Overall Procurement Risk is rated High due to security situation in Yemen, composition of the market place with limited competition and availability of service delivery and nature of project activities that are not complex but might be impacted by the situation on the ground in the conflict or post conflict zones.

83. There is a risk associated with possible procurement delays due to the very low threshold delegated to the FAO Office in Yemen, the long processing time needed for international competitive bidding and the prompt selection of the entities entrusted with program oversight. These may include delays in the selection of the international firms and the Third Party Monitoring Agent whose mobilization and presence on the ground are critical to the success of the project. This risk will be mitigated through advance planning and commitment by FAO to streamline its internal procedures including but not limited to delegation of authority at the appropriate levels. In addition, there is a risk related to weak fiduciary oversight and grievances mechanism at the local level. This will be mitigated by hiring a TPM Agent with clear oversight responsibility in the scope of its assignment.

84. **Selection methods and arrangements.** Under this project the main procurement activities are small works, goods, consulting services, and capacity building using: (i) Request for Bids for both international and national markets, (ii) limited tender based on prequalification of registered vendors as per the implementing agencies internal procedures (iii) Request for quotations; (iv) Community Driven Development (CDD) approach and (v) Direct selection.

E. Social (including Safeguards)

85. **Social Benefits.** The proposed project activities will have broad social benefits which will include a wide range of beneficiaries such as vulnerable groups including poor women, returnees, IDPs and farmers affected by



the conflict. In addition, the project will support poor households and smallholders as a medium term intervention. The identification of beneficiaries will be carried out in the selected districts of the targeted project governorates by FAO in partnership with SFD through a participatory approach.

86. **Involuntary Resettlement (OP 4.12).** The project will involve subprojects and investments to increase smallholder production, income and nutrition. OP 4.12 is not triggered for this project because no involuntary resettlement is anticipated. The project will not finance any activities which will involve involuntary taking of land, loss of access to resources, or activities in legally designated parks and protected areas. Land for the construction of water storage tanks will be obtained through voluntary donation by local communities.

87. **Social Risks.** There are possible social impacts that may arise during implementation of some activities such as water diversion for spate irrigation. In the rural areas of Yemen, there is "*Urf called water rights*" which is known for years based on the flow of rainwater especially in mountain areas. During implementation, special precaution measures should be included to avoid diversion of water from its original path to avoid future conflict among farmers. The second risk could result out of the issue of unfair distribution of community services such as roof-top water tanks and the cash-for-work activities which might lead to tension among beneficiaries. The mitigation measure relies on the implementing agencies FAO and SFD to ensure fair and transparent allocation of project benefits and services, based on clear criteria.

88. **Social Assessment (SA).** The SA that was carried out in May 2014 during the preparation of the original project still includes valid data and information, despite the ongoing conflict. An update of the current situation in Yemen in terms of food security, livelihood, provision of basic services, number of displaced persons and returnees has been prepared. The update has been combined with the 2014 SA.

89. **Consultations.** The public consultations carried out in 2014 proved to be a successful approach to ensure engagement of all stakeholders in different phases of the project under normal conditions. Given the current security situation, it has not been possible to hold broad consultations. However, during project implementation, each community will be consulted through focus group discussions (FGD) and/or door-to-door questionnaires with FAO and SFD staff to select and screen each subproject. The community consultations will serve to identify key issues and determine how concerns of all parties will be addressed. Separate community consultations will be held with women, led by a female FAO and SFD staff member or consultant.

90. **Grievance Redress Mechanism (GRM).** The SAPREP will follow the already established FAO Yemen and SFD GRM practices, and will provide multiple access points (telephone, complaint box, website, email, text message, etc.) so that beneficiaries will know whom to contact with regard to their concerns. The contact information of the focal point at subproject level will be posted at the local level and in the local language. The Chief Technical Advisor who will lead the FAO Project Team will have the overall responsibility to address concerns brought to the attention of the focal points regarding any environmental and/or social impact due to subproject activities. Complaints received by the implementing agency shall be recorded and documented in the subproject file and the subproject progress report including the number and type of complaints and the results of their resolution.

91. **Social Accountability.** Will be taken into consideration through: (i) the ability of beneficiaries to voice complaints and provide feedback through well-established GRMs; (ii) dissemination of information about the activities under the SAPREP to the intended beneficiaries' communities; (iii) independent verification through



the third-party monitoring agency; and (iv) the FAOs/SFD field monitoring activities.

F. Environment (including Safeguards)

92. According to the World Bank's Operational Policy OP 4.01 on Environmental Assessment, this project is classified as Environmental Category "B". Activities supported by this project are expected to be small-scale interventions such as construction and rehabilitation of: water harvesting structures (cisterns), terraces, on-farm water storage facilities for animal and domestic use and on-farm water harvesting through underground cisterns and open wadi pits and wadi soil conservation and erosion control through check dikes in wadi beds. Other water harvesting structures to be supported under the project include construction of roof-top collection areas, conveyance systems, and storage facilities.

93. By design, this project is expected to have far greater environmental benefits than adverse environmental impacts which are expected to be minor, site-specific and readily mitigated. These potential impacts entail triggering OP 4.01 of 'Environmental assessment'. Although procurement of pesticides is not envisaged under the project, OP 4.09 on 'Pest Management' is triggered for this project because farming is expected to both improve and to change cropping patterns to help better 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 and on encouraging traditional and local practices in using organic fertilizers. However, due to some negligence and improper storage of seeds, crops would require some remedies and precautions. Precautions to avoid excessive and improper pesticide use might be also required.

94. To address and manage any potential adverse impact, and to ensure that environmental and social management is integrated into the development cycle of individual subprojects, an Environmental and Social Management Framework (ESMF) has been prepared including a screening tool to identify subprojects that might have adverse environmental or social impacts. The screening will be initiated during the subproject identification stage and FAO and SFD Community Mobilizers and technical staff and consultants will work with the communities in order to identify potential projects for funding using the screening criteria. Because activities carried out by SAPREP will be relatively small and simple in nature, Environmental and Social Management Plans (ESMPs) are not expected to require formal Environmental Protection Agency (EPA) review and approval. Pest Management Plan (PMP) will be prepared when required based on the screening of the activity. ESMPs & PMPs will include preventative actions and mitigation measures that will be used to address any potential adverse environmental and social impacts.

95. The implementation of the ESMF will be the responsibility of the FAO Representation in Yemen which will be working with the Social Fund for Development (SFD) as the FAO main local implementation partner. Safeguards implementation and monitoring arrangements will be through the FAO and SFD project teams in the central offices and regional hubs and branches.

96. As part of the SAPREP preparation, consultations have been an ongoing process with key stakeholders and other beneficiaries. The initial project design including the environmental/social aspects were discussed with key stakeholders during consultations that were held during June 1 -17, 2014. Annex (IV) of the ESMF contains a summary of stakeholder consultations where points and concerns of stakeholders were documented. The stakeholder consultations provided valuable input to the design of SAPREP and identification of specific subprojects. Under the participatory approach to be used during project implementation, consultation with



beneficiary communities will be an integral part of subproject identification, selection, design, implementation, and monitoring.

G. Waiver of Specific Operational Policies

97. **Waiver of Application of the Anti-Corruption Guidelines to FAO.** The project will comply with Bank operational policies and procedures for Investment Project Financing. To facilitate implementation of the project by FAO as GAFSP TF grant recipient and implementing agency of the project, Bank Senior Management approved the following policy waiver:

- (a) **Waiver of paragraph 20 of BP10.00 on application of the World Bank's Anti-Corruption Guidelines to UN Agencies.** To facilitate the implementation of the project by FAO, specifically in terms of the due diligence and monitoring of fraud and corruption, it is proposed to allow FAO to use the respective UN agency's procedures for fraud and corruption, instead of the Bank's Anti-Corruption Guidelines, under alternative arrangements modeled on the integrity provisions of the Fiduciary Principles Accord (FPA). FAO is also uniquely placed to carry out the activities of the project within Yemen at this time, and there is no practical alternative in view of the project's design and focus. The Bank would consequently not have jurisdiction to sanction parties that engage in fraud and corruption in connection with the project, although the Bank would apply its suspension and debarment list to the project for eligibility purposes. The Bank will reserve its right to investigate parties other than the UN agencies (e.g., suppliers), but the Bank would not benefit from formal "third party audit rights" embedded in downstream contracts with suppliers and other third parties.

H. World Bank Grievance Redress

98. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service>. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.



VII. RESULTS FRAMEWORK AND MONITORING

Note to Task Teams: The following sections are system generated and can only be edited online in the Portal.

Results Framework

COUNTRY : Yemen, Republic of

Smallholder Agricultural Production Restoration and Enhancement Project

Project Development Objectives

To increase the use of productivity and nutrition-enhancing agricultural practices by smallholders in targeted project areas

Project Development Objective Indicators

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Farmers adopting improved agricultural technology	✓	Number	0.00	10000.00	Semi-annually	Progress reports from FAO, TPMA	FAO, TPMA
Farmers adopting improved agricultural technology - Female	✓	Number	0.00	3000.00			
Farmers adopting improved agricultural technology - male	✓	Number	0.00	7000.00			



Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Description:							
Name: Households supported to resume crop and livestock production		Number	0.00	35000.00	Semi-annually	FAO, SFD, TPMA	FAO
Description: This indicator will measure number of project beneficiaries (poor women, farmers who have lost their assets because of war or displacement who will receive startup packages of seeds, poultry, small ruminants to rebuild their productive capacity and reengage in production.							

Intermediate Results Indicators

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Farmers reached with agricultural assets or services	✓	Number	0.00	90000.00	Semi-annually	FAO, SFD data	FAO, SFD
Farmers reached with agricultural assets or services - Female	✓	Number	0.00	27000.00			
Number of HHs with strengthened land and water management		Number	0.00	18000.00			



Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Number of HHs with improved animal husbandry, livestock production and animal health services		Number	0.00	34000.00			
Number of HHs with strengthened capacity and enhanced extension services		Number	0.00	38000.00			
Description:							
Name: Increased milk production		Percentage	0.00	10.00	Semi-annually	Progress reports from FAO and TPMA	FAO, TPMA
Description: This indicator measures increased milk production by the project beneficiaries							
Name: Area provided with new/improved irrigation or drainage services	✓	Hectare(Ha)	0.00	444.00	Semi-annually	Progress reports from FAO, SFD and TPMA	FAO, SFD and TPMA
Area provided with new irrigation or drainage services	✓	Hectare(Ha)	0.00	444.00			
Area protected by wadi		Hectare(Ha)	0.00	350.00			



Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
works							
New on-farm water storages		Hectare(Ha)	0.00	24.00			
Terraces rehabilitated		Hectare(Ha)	0.00	70.00			
<p>Description: This indicator measures the total area of land provided with irrigation and drainage services under the project, including in (i) the area provided with new irrigation and drainage services, and (ii) the area provided with improved irrigation and drainage services, expressed in hectare (ha).</p>							
Name: Additional hectares with adopted technology being promoted		Hectare(Ha)	0.00	160.00	Semi-annually	Progress reports from FAO, TPMA	FAO, TPMA
<p>Description: This indicator measures adoption of water saving technologies on (i) 70 ha of terraces rehabilitated + (ii) 350 ha of area protected by wadi. It is expected that roughly 40% of total area of 420 ha will adopt promoted technologies, i.e. around 160 ha.</p>							
Name: Households benefitting from rooftop water harvesting		Number	0.00	2000.00	Semi-annually	Progress reports from FAO, SFD and TPMA	FAO, SFD and TPMA
<p>Description:</p>							
Name: Vaccination against PPR and sheep&goat pox		Percentage	0.00	80.00	Semi-annually	Progress reports from FAO and TPMA	FAO, TPMA



Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Description: This indicator measures a share of animals vaccinated in project regions.							
Name: Farmers benefitting from vaccination of their livestock		Number	0.00	200000.00	Semi-annually	Progress reports from FAO, TPMA	FAO, TPMA
Description: This indicator measures a number of HHs that will benefit from vaccination of their livestock.							
Name: Households benefitting from improved animal feed		Number	0.00	25000.00	Semi-annually	Progress reports from FAO, TPMA	FAO, TPMA
Description: This indicator measures a number of HHs who will benefit from improved animal feed. Each HH will receive 4 blocks with \$6 each block. Available budget \$600,000. $\$600,000/4 = 25,000$ HHs.							
Name: People receiving nutrition training/awareness		Number	0.00	3000.00	Semi-annually	Progress reports from FAO, TPMA	FAO, TPMA
Description: It is expected that around 3,000 people will receive nutrition training in project districts.							
Name: Client days of extension services provided to farmers, community		Days	0.00	2400.00	Semi-annually	FAO, TPMA	FAO



Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
members etc.							
Of which women		Days	0.00	720.00			
Description: Farmer Field Schools - 4 days per month in the course of 30 months = 120 days. 120 days x 20 (districts) = 2,400 days							

**Target Values****Project Development Objective Indicators**

Indicator Name	Baseline	YR1	YR2	YR3	End Target
Farmers adopting improved agricultural technology	0.00	1000.00	5000.00	4000.00	10000.00
Farmers adopting improved agricultural technology - Female	0.00	300.00	1500.00	1200.00	3000.00
Farmers adopting improved agricultural technology - male	0.00	700.00	3500.00	2800.00	7000.00
Households supported to resume crop and livestock production	0.00	17000.00	18000.00		35000.00

Intermediate Results Indicators

Indicator Name	Baseline	YR1	YR2	YR3	End Target
Farmers reached with agricultural assets or services	0.00	30000.00	50000.00	10000.00	90000.00
Farmers reached with agricultural assets or services - Female	0.00	9000.00	15000.00	3000.00	27000.00
Number of HHs with strengthened land and water management	0.00				18000.00
Number of HHs with improved animal husbandry, livestock production and animal health services	0.00				34000.00



Indicator Name	Baseline	YR1	YR2	YR3	End Target
Number of HHs with strengthened capacity and enhanced extension services	0.00				38000.00
Increased milk production	0.00	0.00	5.00	10.00	10.00
Area provided with new/improved irrigation or drainage services	0.00	144.60	247.00	52.40	444.00
Area provided with new irrigation or drainage services	0.00				444.00
Area protected by wadi works	0.00				350.00
New on-farm water storages	0.00				24.00
Terraces rehabilitated	0.00				70.00
Additional hectares with adopted technology being promoted	0.00	0.00	80.00	80.00	160.00
Households benefitting from rooftop water harvesting	0.00	500.00	1000.00	500.00	2000.00
Vaccination against PPR and sheep&goat pox	0.00	0.00	40.00	80.00	80.00
Farmers benefitting from vaccination of their livestock	0.00	0.00	120000.00	120000.00	200000.00
Households benefitting from improved animal feed	0.00	10000.00	12000.00	3000.00	25000.00
People receiving nutrition training/awareness	0.00	1000.00	1000.00	1000.00	3000.00
Client days of extension services provided to farmers,	0.00	400.00	1000.00	1000.00	2400.00



Indicator Name	Baseline	YR1	YR2	YR3	End Target
community members etc.					
Of which women	0.00	120.00	300.00	300.00	720.00

Note to Task Teams: End of system generated content, document is editable from here.



ANNEX 1: DETAILED PROJECT DESCRIPTION

Republic of Yemen

Smallholder Agricultural Productivity Restoration and Enhancement Project

I. Detailed project description

Component 1: Community Subprojects and Investments (US\$29.89 million)

1. This component will finance priority subprojects and investments to increase smallholders' production, income and nutrition through: (i) strengthening community land and water management; (ii) improving animal husbandry, livestock production and animal health services; and (iii) improving livelihood and nutrition, and increasing value-added of selected agriculture products. The component will also provide urgently needed support to farmers affected by the conflict, IDPs, returnees and other vulnerable groups to resume crop and livestock production. The component will finance civil works (mostly community work), goods, including livelihood kits and farm restoration start up packages, consulting services, training and capacity building. Subprojects and investments will be selected and implemented through a community-based and participatory approach and in accordance with the Project Implementation Manual. The component will be implemented through three subcomponents as detailed below.

2. Identification of communities¹² and beneficiaries and a needs assessment will be carried out in the selected districts jointly by FAO and SFD through a participatory approach based on the long-term experience of both organizations. The assessment will be launched immediately after project effectiveness and will be carried out simultaneously in the seven project governorates. The assessment will also record the presence of other donors' interventions in the selected areas in order to ensure there is no overlapping. The needs assessment will result in a comprehensive and integrated work-plan of activities to be carried out in the selected communities.

3. **Subcomponent 1.1. Strengthening community land and water management (US\$15.32 million):** The objective of the subcomponent is to rehabilitate small-scale community water infrastructure and create assets to improve livelihood of beneficiary household and communities. Investment and subprojects will be determined by the communities based on priority needs identified in consultation with the community during the participatory needs assessment. Investments under this subcomponent build on the successful water harvesting and small-scale spate improvements undertaken by MAI, SFD, WB and IFAD supported projects. Their design considers Yemen experience with terrace rehabilitation, which shows that erratic and unpredictable rainfall has been the main cause of the abandonment of terrace cultivation. These investments will therefore contribute as well to building up climate resilience of the terrace agriculture system in the highlands, improve spate irrigated agriculture in the lowlands and integrated watershed management. The subcomponent will be implemented by SFD, which will be engaged in partnership arrangements with FAO. Eligible activities under this subcomponent will include:

¹² Community means the population of a settlement or villages in the targeted districts who share common interest.



- i. Water harvesting at farm and micro watershed level in upper catchments of rainfed areas, including: rehabilitation of existing or construction of new terraces in the uplands (associated with existing or new water storage); on-farm water storage facilities (rehabilitation of existing and/or construction of new storage) for animal and domestic use and supplemental irrigation of existing terraces; on-farm water harvesting through underground cisterns and open *wadi* pits; *wadi* soil conservation and erosion control through check dikes in *wadi* beds and vegetative measures; rehabilitation of shallow wells and springs;
 - ii. Water diversion for improved spate irrigation in the lower catchments of selected governorates, through: small spate diversion works using traditional technology and avoiding capital intensive permanent structures; ponds excavations and canal control structures where construction of diversion structures across *wadis* is not economical;
 - iii. Roof-top and other type of water harvesting facilities, for domestic use including backyard gardening through construction of roof-top collection area, conveyance systems, and storage facilities;
 - iv. Investments to improve natural rangelands through planting trees and establishing protection structures.
4. Subproject identification and design: The activities will be implemented as labor-intensive subprojects that will be carried out either through cash-for-works schemes or through community contracting. The modality will be chosen according to the most suitable option in the specific location or nature of works. Work and income opportunities provided by cash-for-works scheme and community contracting will ensure that conflict affected people remain in their communities, thus avoiding more displacement.
5. Rehabilitation of terraces, shallow wells and springs, roof-top and other household level water harvesting and storage facilities, excavation of ponds and improvement of natural rangelands implementation will be carried out through the cash-for-work scheme. Watershed conservation activities, as well as construction or rehabilitation of underground cisterns and wadi pits, rehabilitation of check dikes and small spate diversion canals will be carried out either through cash-for-works or community contracting modality. Subprojects will be implemented with the direct involvement of communities and civil society groups (community-based organizations, local NGOs, user groups, and village councils). The selection of subprojects will take into consideration communities' ability to operate and maintain the rehabilitated infrastructure. The areas where the works will take place will be identified with the support of SFD technical staff, which will ensure that feasible locations are selected in areas that are damaged, or in need for protection of the downstream in case of terraces, and where qat is not grown as the main crop. Design of the works will be prepared by an SFD technician.
6. Subproject implementation: Households engaged in the cash-for-works activities may receive a maximum of US\$500 (regardless from the number of individuals that are members and working for the household), while individuals that are not members of a household may receive up to US\$100 according to the work completed. The threshold for community contracting is YER 5 Million (about US\$20,000). These works will be implemented by local private sector contractors. The community will elect a community committee to monitor the subproject implementation. Composition of the committee will depend on the project size and area, as representatives of each village involved in the subproject should



be included. Works will be advertised and contractor hired by the community according to simplified procurement procedures which envisage supervision from SFD. Performance of the contractor will be verified by the committee and an SFD technical consultant, who will also be responsible for ensuring compliance with the technical specifications, quality standards, contractual arrangements and timeline, and safeguard policies. Upon completion, works will be approved by the technical consultant and handed over to the community that will be responsible for maintenance of rehabilitated infrastructure. SFD will also provide training to communities on maintenance of investments. Operational details of subproject preparation and implementation will be provided in the Project Implementation Manual.

7. ***Subcomponent 1.2: Improving animal husbandry, livestock production and animal health services (US\$5.38 million).*** Activities and investments under this subcomponent aim at protecting livestock assets of poor households through improving access to veterinary services, and increase small ruminants and poultry productivity through better husbandry and feeding. The subcomponent will also support recovery of livestock production to improve food security, incomes and nutrition. Livestock is particularly important across rural Yemen; more than 80 percent of farms participate in livestock production and it is an important source of income for poorest segments of the population, and plays a more important role in poor districts. This subcomponent will finance vaccines, startup goods and equipment, consulting services and training. Proposed activities will build on past successful livestock initiatives, which established a public-private partnership for expanding access to veterinary services by communities. Implementation of this subcomponent will be mainly the responsibility of FAO. Activities will include:

- i. Improving access to veterinary services in targeted communities through identification of Community Animal Health Workers (CAHW) of which fifty percent women, training and provision of start-up equipment; training to CAHW will replicate the RALP model where the Yemeni Veterinary Medicine Association was recruited as the professional body tasked for qualified professional education;
- ii. Vaccination campaign to prevent major diseases in small ruminants;
- iii. Improved animal nutrition through demonstration of appropriate technologies; provision, preparation and training on nutritional supplements particularly for poor small livestock owners; and planting *Ziziphus Spina Christi*¹³ for bee feeding;
- iv. Enhancing animal husbandry through provision of small equipment and tools, capacity building including to support smallholder beekeeping; and,
- v. Supporting new livelihood support activities, exclusively for poor women, returnees or farmers which lost their livelihood assets because of the conflict, through startup packages for backyard poultry, small ruminants and apiculture.

8. ***Training to Community Animal Health Workers.*** Based on the RALP experience, as well as recent veterinary training activities supported by FAO, training to Community Animal Health Workers (CAHW) will be carried out in coordination with the Yemeni Veterinary Medicine Association, which is

¹³ Honey produced from the flowers of *Zizifus Spina Christi* commands a high price premium on the regional market.



established at the national level and legally responsible for all animal husbandry and veterinary training certification required for provision of veterinary service in Yemen.

9. Vaccination campaign. Given the high prevalence of the animal diseases (estimated 54 percent), and the uncontrolled movements within the country during the current crisis, the envisaged vaccination campaign against *Pest des Petitis Ruminants* (PPR) and sheep pox will be carried out in the entire territory of the selected project governorates, rather than only in the selected districts where other project activities will be implemented. Vaccination efforts will be coordinated with those of other organizations, including the International Committee of the Red Cross (ICRC), which is also planning to support vaccination through FAO. To this end, FAO is currently preparing a vaccination strategy which will provide for modalities of the vaccination. The project will work through the Directorate of Animal Health, which is by law the authority delegated to provide vaccinations. The project will also provide emergency supportive treatment such as deworming. Planned targets include vaccination and/or treatment of up to 5 million livestock (belonging to 200,000 households).

10. Animal nutrition. Accessibility of fodder is considered as one of the main the bottlenecks for livestock growers due to the high cost of the fodder, forcing at times the farmers to sell their livestock due to inability to provide feed for them. To increase the production of fodder and improve its quality, the project will provide locally produced improved forage seeds and fodder choppers. Improved seeds accompanied with the required training, including for the use of intercropping whenever appropriate, will be provided to farmers owning or renting land, as well as sharecroppers, and beekeepers specifically in regard to the introduction of *Ziziphus Spina Christi*, prioritized according to vulnerability criteria, with an estimated target of 4,000 farmers. Fodder choppers will be provided to groups of livestock owners who will be identified in the needs assessment. Agreements will be put in place indicating roles and responsibilities of the farmers selected to host the equipment, including providing for the required maintenance and allowing free usage for the group members.

11. Animal nutrition will be further improved through the provision of livestock feed blocks, and training and demonstration to farmers on their preparation, including the type of nutrients, mineral composition and quantities to be added in the blocks, consumption duration, and benefits of usage as complementary feed for livestock. The activity will be implemented by SFD, and training activities will target not only famers but also private sector providers that may be interested in the preparation and selling of the feed blocks.

12. Support to Recovery of Livestock Production. About 4,000 beneficiaries will be selected from the most affected groups composed of poor women, IDPs, returnees, as well as well as farmers who lost their assets because of the conflict to receive startup packages to resume their livelihood activity. The beneficiary selection criteria will also include their previous experience and knowledge in raising livestock to increase the chance of sustainability of the intervention. The package for restocking of livestock will include up to five small ruminants (sheep or goats), 500 kg of feed and 10 feed blocks, and for poultry 10 hens, 150 kg of feed, and one cage. This intervention along with the animal care through vaccination and better access to veterinary services and advisory services to livestock farmers provided by this subcomponent will stimulate livestock recovery and contribute to improving food security, income and nutrition for the most vulnerable and conflict-affected population. As this activity is one of the project's immediate responses to the emergency, procurement of inputs will be initiated



immediately at project effectiveness, aiming at distributing of the start-up packages during the first quarter of project implementation.

13. The private farmers – suppliers of sheep and goats for restocking purposes under the project will be required to follow certain FAO protocol to ensure that goats and sheep conform to established standards. In this regard, training sessions and consultation with the private suppliers and the implementing partners (NGOs) will be organized by FAO on improved feeding and disease prevention and treatment practices. This ensures that the private suppliers get the opportunity to improve their skills and capacities in livestock trading. These practices will strengthen private suppliers' ability to serve the market.

14. ***Subcomponent 1.3: Improving livelihoods and adding value to agriculture (US\$9.19 million).*** Activities and investments under this subcomponent aim at improving the livelihood and nutrition, and increasing value added of selected agriculture products in targeted areas. This will be achieved by restoring and enhancing access to agriculture inputs, providing technical assistance and specific investments to improve agriculture yields, nutritional value, and upgrade and diversify agriculture and livestock production, processing and marketing. It is expected that these interventions will generate seasonal and permanent employment opportunities in the agribusiness sector. Special attention under this subcomponent will also be given to youth through providing them with participation opportunities. Financing will be for equipment, goods, consulting services and training. Eligible activities will include:

- i. Supporting vulnerable groups (i.e. poor women, returnees, IDPs and farmers affected by the conflict) with provision of emergency agriculture livelihood kits to restore agricultural production and generate income;
- ii. Increasing value-added of key value chain agricultural products through provision of equipment as well as technical and business training (under Component 2) for improving processing, packaging and marketing; and promotion of partnership with traders;
- iii. Increasing the farm-gate value and nutritional content of agricultural products through: provision of improved technologies and practices for key horticulture crops; and improving honey quality through improved beekeeping and processing;
- iv. Supporting dairy value chain and increasing the efficiency and reducing the cost of animal feed through production of animal rations from local material.

15. ***Support to Recovery of Crop Production.*** The project will provide agriculture livelihood kits including staple seeds such as wheat, sorghum and millet of local varieties as required by the beneficiaries, and tools (if identified during the needs assessment) to about 31,000 vulnerable beneficiaries including poor women, returnees, IDPs and farmers affected by the conflict. This intervention will lay the foundations for recovery of crop production among farmers most affected by the conflict. Procurement of planting materials and inputs included in the livelihood kits to be distributed as part of the emergency response will be initiated immediately upon effectiveness of the project to ensure prompt commencement of the distribution.



16. In addition to providing direct support to the vulnerable, the emergency support activity will have the additional benefit of promoting public-private cooperation to meet the demand for seed. Seed for the livelihood kits will be purchased from the private sector local market. In the past, the Government Seed Multiplication Corporation (GSMC) was the sole seed producer in Yemen, charged with production of certified seed. Due to the high demand for seeds created as a result of the current humanitarian situation, the GSMC can no longer produce sufficient quantities. In response, FAO has begun to promote private-public seed business cooperation initiated through dialogue with the GSMC and private seed suppliers, to enable the private suppliers have their seed processed and tested through the GSMC facilities. This PPP enables the private sector to gain more experience in producing good quality seed and to enjoy greater market access, while the public benefits from a larger supply of certified quality seed.

17. Support to Horticulture. With regard to provision of improved technologies and practices for key horticulture crops, farmers currently engaged in horticulture production will be supported with inputs and training aimed at improving their ability to grow and market quality products. Each targeted farmer will be supported with a maximum of US\$1,500 worth of inputs. Production inputs may include drip irrigation (in some cases this could be for part of the area or part of the overall irrigation system, in order to ensure farmers' contributions), seeds/seedlings, mulch, etc. Training provided will include topics such as improvement of cultivation practices and adoption of available technologies, options to reduce cost of cultivation, post harvesting and processing, etc. In cases where potential beneficiaries have already invested in their own irrigation system, the project may provide post-harvest equipment like packaging machines, or other inputs identified during the needs assessment.

18. Support to Honey Producers. The project will provide support packages to selected beneficiaries among existing and new small honey producers for a maximum amount of US\$1,000 per beneficiary with the objective to improve honey quality through improved beekeeping and processing. Support will include provision of 5 to 10 beehives, feed, a tool package for beekeeping including protective clothes, smokers, and small equipment such as honey extractors. As for all other activities, provision of the packages will be accompanied by dedicated training that will focus on production of honey, quality improvements, etc. SFD will follow-up with beekeepers who receive the inputs for at least one year from the investment time, to continue the transfer of knowledge, provide technical assistance to solve any problem that may arise, support the farmer business management, etc. Previous experience has shown that following up on the intervention will contribute to the achievement and sustainability of project objectives on the ground.

19. Support to Development of Dairy Value Chain. Inputs or tools and training to support the initial development of dairy value chain will be provided to existing producers and associations according to a number of criteria, including ownership of dairy animals (cows, camels, sheep and goats), size of household, level of poverty, potential to grow, willingness to participate and contribution to the activities by the association when applicable. The training will focus on production quantity and quality to improve hygiene and processing standards, and business topics and linkages to the market. Support to the associations will especially focus on the improvement of milk collection and marketing.

Component 2: Capacity Building and Extension (US\$0.90 million).



20. This component will finance: (i) capacity building activities to strengthen skills of stakeholders involved in service provision in the project areas; and (ii) extension activities for project beneficiaries in a range of fields. These activities will help to preserve capacity of key service providers during the ongoing conflict and contribute to the long-term sustainability of community level agriculture investments. Potential service providers may include extension workers, agricultural input suppliers, local private veterinary technicians, NGOs active in the agricultural sector, any other individuals in the district providing services in agriculture or economic development. All these stakeholders have the potential of being service providers not only for the project beneficiaries, but for all farmers in their areas. Implementation of the component will be the responsibility mainly of FAO, with SFD leading on capacity building in land and water management activities. Activities under this component include the following:

- i. Capacity building for project beneficiaries involved in land and water management to introduce more effective and climate resilience irrigation techniques, and in livestock production to protect assets and increase productivity;
- ii. Piloting and possible expanding of Farmers Field Schools (FFS), which entails: developing the design of FFS, capacity of facilitators and trainers, and establishing the required basic facilities. Topics of FFS will be linked to the assistance received under Component 1 and at the same time demand driven (e.g. including specific crops under the 'Adding Value subcomponent'), technical and hands on training on pulses, cereals, backyard gardening; plant protection with focus on Pest Management Plan (PMP), and other topics based on the needs of project beneficiaries;
- iii. Promoting of nutrition awareness on nutrition-sensitive agriculture. 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;
- iv. Capacity building in technical and managerial aspects for farmer organizations and individuals involved in value adding activities (beekeeping, dairy, horticulture and honey, etc.); and,
- v. Developing the capacity of NGOs and private services to provide support to project beneficiaries through short-term consultancies and training.

21. Capacity building activities will target project beneficiaries and other stakeholders who could provide services to beneficiaries in project area and beyond. Capacity building of beneficiaries will be carried out mainly through the implementation of FFS focus on participatory community-based, practically oriented field studies, usually with a season-long training program conducted in the field. The FFS are participatory and will include but not limited to training on activities implemented under Component 1. Through the project a comprehensive pilot of FFS will be rolled out in three phases: (i) 20 candidates with adequate background and gender dimension will be selected to attend a three months training for master trainers; (ii) the master trainers (selected at the national level) will train a minimum of 100 community based facilitators (80 facilitators are estimated to be required to engage in the envisaged 80 FFS in project area); and (iii) FFS will be set up and implemented in selected project locations. The gender dimension will be considered when selecting the master trainers and facilitators, as well as when planning for the setting up of the FFS. Topics to be taught in the FFS will be expanded according to the participants' wishes, as the concept of the FFS includes the community driven selection of the topics the participants are interested to learn about. Cross-learning visits may be carried out in the second or third year of implementation in order to share the experience of the FFS in the different



project areas.

Component 3. Program Administration, Management, Monitoring and Evaluation (US\$5.21 million)

22. This component will support project administration and management, and monitoring and evaluation (M&E) activities to ensure satisfactory implementation. The component will finance: (a) the FAO general management support (indirect) costs; (b) direct project management and implementation costs; (c) hiring of a third -party monitoring (TPM) agency for which the terms of reference (TOR) will be agreed upon with the World Bank; and (d) project monitoring and evaluation. The component will finance goods, consultant and non-consultant services, and incremental operating costs associated with the responsibility of coordination, administration and management, monitoring and evaluation of the project implementation. FAO will perform project core management and implementation support activities, including procurement, financial management and disbursement managements, environmental and social safeguards oversight, and implementation monitoring and evaluation of the project results. Semi-annual project progress reports will be prepared by FAO and submitted to the Bank no later than 45 days after the end of each reporting period. Financial reports will be submitted to the Bank in accordance with the FMFA. Additionally, TPM reports will be shared with the Bank.

II. Data on project governorates and selections of project districts.

23. Data on food insecurity and rural poverty, and proportion of agricultural households in the selected governorates is given in Table 1 below. Table 2 shows the degree of impact of conflict on crop and livestock production and also the major constraint that affected agricultural production in the selected four governorates as revealed by the Emergency Food Security and Nutrition Assessment (EFSNA) conducted in November 2016. Table 3 provides details on criteria for selection of project districts. The criteria and ranking/scoring mechanisms will be further detailed in the Project Implementation Manual.



Table 1: Food insecurity level and number of agricultural households in governorates (IPC and EFSNA)

Governorates	Population (projected 2016)	Number of people in Emergency (Phase 4)	% of people in phase 4	GAM rate	Rural poverty (2014)	Number of agricultural households (Ag HH)	% of Ag HH in total number of HH
Abyan	557,000	255,600	45	16	60.3	41,456	51
Al-Hodeidah	3,097,000	797,250	25	25	72	252,650	52
Hajjah	2,702,000	958,050	45	12	66	171,633	63
Shabwa	619,000	252,800	40	13	45	54,472	74
Taiz	3,182,000	1,133,700	35	17	49	218,190*	49
Saada	1,078,000	485,100	45	9	91	104,400*	70
Lahj	983,000	442,350	45	13	45	99,768	68
Total/average	12,218,000	4,324,850	35			942,569	57
National	28,058,000	6,779,000	24		59		

*- estimates by extrapolation of EFSNA results

Table 2: Impact of conflict on agricultural production and constraints affecting agricultural households (EFSNA, December 2016)

Governorates	Decrease in crop production (% change)	Reduction in livestock production (% change)	Main constraint that affected agricultural households (percent of households reporting constraints)			
			Lack of rainfall	Lack of Animal Feed	Crop and Livestock diseases	Constraints related to agricultural inputs
Abyan	35.6	78	61.5	100.0	32.1	100
Al-Hodeidah	64.2	49	45.3	52.2	80.2	87.2
Hajjah	31.5	41	27.8	47.3	48.8	73.5
Shabwa	73.7	67	46.9	93.6	91.4	100
Lahj	74.2	43	70.9	99.1	79.6	81.7
National	39.2	45	34	62	54	83

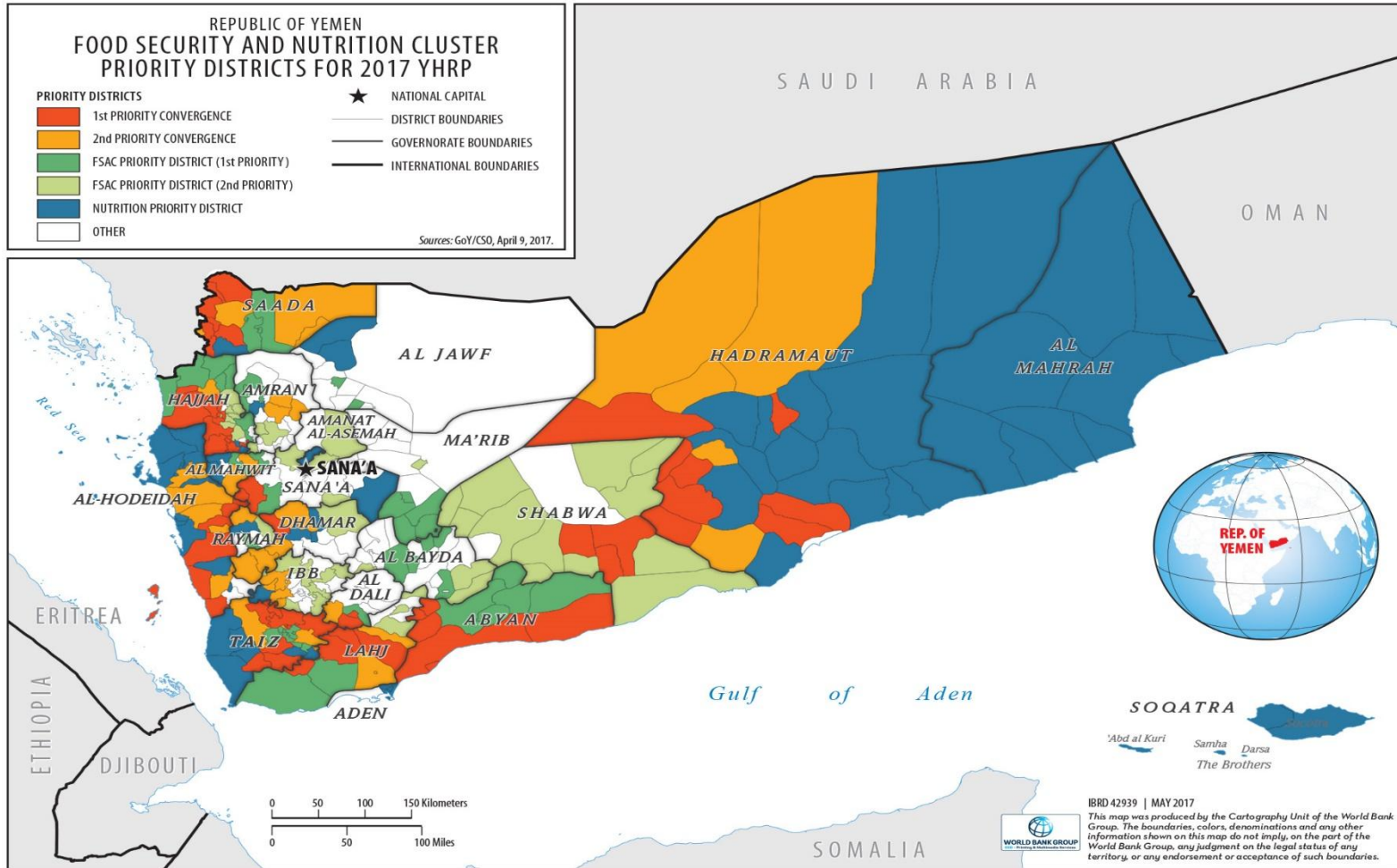
*- Taiz and Saada governorates were not covered by EFSNA survey

Table 3: Criteria for selection of districts for project interventions

The Global Acute Malnutrition (GAM) rates and percent of Severely Food Insecure (SFI) population in the joint Nutrition Cluster - FSAC analysis	1 st Priority Convergence districts ($\geq 15\%$ GAM & $\geq 40\%$ SFI or $\geq 20\%$ GAM & $\geq 30\%$ SFI); 2 nd Priority Convergence ($\geq 15\%$ GAM & $\geq 20\%$ SFI)
Agriculture as a major source of livelihood	Number of agricultural households (data source CSO, EFSNA)
Presence of other partner support	Other programs aimed at supporting agriculture and/or livelihood support to improve food security and nutrition
Accessibility	Smooth access, limited access, no access



Map: Food Security and Nutrition Cluster priority districts for 2017 YHRP





ANNEX 2: IMPLEMENTATION ARRANGEMENTS

Republic of Yemen

Smallholder Agricultural Productivity Restoration and Enhancement Project

Project Institutional and Implementation Arrangements

1. The proposed SAPREP will be implemented by the FAO through the application of the Financial Management Framework Agreement (FMFA). Implementation of the project will be done directly by staff and consultants of FAO Representation in Yemen and through contracting with implementation partners. Social Fund for Development (SFD) will be the FAO main implementation partner for the project. Partnership with local institutions and stakeholders is particularly critical to enable preserving national capacity for rapid response at the post conflict phase.
2. FAO and SFD have established institutional and implementation mechanisms for the delivery of the relevant project activities in Yemen. The two organizations have offices both at the national level and at the governorate level throughout the country where project management, coordination, administrative and technical staff are located. FAO has an extensive track record of emergency livelihood support, livestock, and food security and nutrition activities that are the intervention areas of the proposed project. As a specialized technical agency, FAO would provide the technical backstopping required in view of specific agriculture angle of the project interventions. FAO is also a key global stakeholder in the generation of essential data and analyses with focus on food security and nutrition aiming at building food security information systems.
3. FAO Representation in Yemen consists of a multi-disciplinary core team of about 50 international and national staff in the main office and four regional hubs with specialization in animal health, agronomy, water resource management, food security and information systems, livelihood, operations and finance. The main office in Sana'a will provide oversight and quality assurance to the Project Team (PT). The Team will oversee the day-to-day management of the project, including all fiduciary aspects, safeguards, monitoring and reporting. The Project Team in Sana'a will be composed of a Chief Technical Advisor, Operations Officer, Procurement, M&E specialist, Communication and reporting, Administration and Finance Officer, and Environmental and Social Safeguard Specialist.
4. At the regional level, implementation will be supported by the FAO regional hubs in Aden, Hodeidah and Saada. The hub in Aden will coordinate activities in Shabwa, Abyan, Lahj and partially in Taiz. The hub in Hodeidah will provide support for activities in Al-Hodeidah and Hajjah. The regional hub in Ibb will support implementation in part of Taiz not covered by Aden office. Saada hub will be in charge of project activities in Saada governorate. Each hub office will include staff dedicated to the project, including a national technical advisor, an operations specialist, an administration and financial management specialist, and M&E and reporting officers. A number of international and national specialists, including livestock, value chains (dairy, horticulture and beekeeping), crop production, farmers field school, water management and communications will be hired to provide support to project activities.
5. From SFD side, the agricultural unit in the central office in Sana'a will provide overall support



while the branch offices in Aden, Ammran and El Mukalla will provide support and coordination for project activities in Abyan, Lahj, Saada and Shabwa, while branch offices in Hajjah, Taiz, and Al-Hodeidah will provide support and coordination in their own governorates. Staff in the branch offices include branch manager, procurement officer, financial management (FM) officer, technical officer for the quality supervision, M&E, Information Technologies (IT) which are involved in the day-to-day activities. Additional personnel will be recruited to cover areas where there are gaps.

6. FAO will establish project coordination structures at national and regional levels which will coordinate implementation of the project activities. The coordination structure will consist of the Project Coordination Unit (PCU) at the national level, and Project Coordination Teams (PCT) that will be established at governorate level. PCU and PCT will comprise of FAO and SFD staff. Apart from the project implementation aspect, PCU and PCTs will work closely with all the relevant stakeholders, including the technical staff of the Ministry of Agriculture and Irrigation where feasible, to update them on the project status and ensure coordination of the project activities with other livelihood and food security interventions on the ground.

7. The participatory approach adopted by SAPREP promotes the central role and active participation of communities and beneficiaries in the development and implementation of investment proposals under the project. Beneficiary communities are the populations of settlements or villages in the targeted districts of the project areas who share a common interest and joint subproject. Beneficiaries will be organized in associations or groups (meaning any group of eligible individuals who have come together to implement an activity or have a common interest – these can be formally registered Community level organizations, cooperatives or informal groups which may in future register formally) that have been actively involved in the identification, selection, implementation, monitoring and operation and maintenance of community investments under SAPREP. FAO and SFD will have adequate staff and consultants (male and female) to facilitate the mobilization of communities and to assist communities to develop subproject proposals and contribute to the implementation of subprojects in a participatory and inclusive way. Preparation and review of proposals for community subprojects and investments will be done in accordance with the Project Implementation Manual that includes detailed guidelines to ensure the openness, inclusiveness and fairness of the process to reduce the risk of elite captures.

8. Project activities will be backstopped technically and operationally by the multidisciplinary team of experts at FAO Regional Office for the Near East and North Africa (RNE) in Cairo, in close collaboration with the Technical Divisions at FAO Headquarters in Rome, and the FAO Sub-regional Office in Abu Dhabi.

Financial Management

9. The proposed project is a TF grant to FAO (signatories of FMFA). The project's financial management arrangements will be governed by the FMFA between the World Bank and the UN agencies, which provides for use of UN Financial Regulations. An FM assessment was carried out to ensure adequate capacity, fiduciary and accountability oversight, consistent with the Operational Policy/Bank Procedures (OP/BP 10.00) for Investment Project Financing. Overall, the FM policies and requirements of the World Bank and the UN are aligned, except for the requirement of external audit as



the UN's Financial Regulations give the UN's external auditors, the UN Board of Auditors, the exclusive right to audit the accounts and statements of UN organizations. At the same time, the Bank audit policies provide for an exemption from its normal requirements if the recipient has more cost-effective mechanisms that provide the World Bank with "equivalent assurance" that the Bank proceeds have been used appropriately.

10. To conduct the FM assessment, the World Bank considered the World Bank-wide assessment of UN agencies including reviewing prior external and internal audit reports, project design, implementation arrangements, and associated risks and mitigating measures.

11. FAO has a strong presence in Yemen and has successfully implemented food and agriculture programs for the past several years, including during the ongoing conflict.

12. To provide reasonable assurance that project funds are spent for the intended purposes, the following arrangements will be in place: (i) reliance on established UN FAO internal control mechanisms for the process of disbursement, documentation of expenditures, and reporting; (ii) use of a TPM agent to verify the physical implementation of subprojects and project investments, and the compliance with the internal controls and financial management arrangements; and (iii) preparation of timely financial and progress reports submitted on a semi-annual basis.

Accounts and Audits

13. FAO will: (i) maintain a financial management system, including records and accounts, adequate to reflect the transactions related to the activities, in accordance with the requirements of the UN FAO Financial Regulations and Rules; (ii) maintain a separate ledger account (Grant Control Account) in their books to record the financial transactions of this project; (iii) prepare, on a six-monthly basis, interim unaudited financial reports (IFRs), in accordance with accounting standards established pursuant to the FAO Regulations and in the format agreed with the World Bank, adequate to reflect the expenditures related to the grant. The IFRs will be provided to the World Bank no later than 45 days after the end of the six-month period; (iv) ensure that the audit of the Project Activities is governed by the UN Financial Regulations and the FMFA; and (v) retain, until at least one year after the World Bank has received the final interim unaudited financial report in which the last withdrawal from the Grant Account was made, all records (contracts, orders, invoices, bills, receipts, and other documents) evidencing all expenditures in respect of which withdrawals from the Grant Account were made.

14. The Grant Control Account will be subject exclusively to the internal and external audit arrangements applicable to the FAO as set out in the UN's Financial Regulations. The UN agency will make its externally audited financial statements and accompanying reports of its external auditors on their financial statements available to the World Bank. The UN agency will retain all records evidencing all expenditures in respect of which withdrawals from the Grant Control Account were made, in accordance with its regulations, rules, policies, and procedures relating to retention of records.

Disbursements

15. Flow of funds and disbursement arrangements are designed to be simplified to ensure timely availability of funds to implement the proposed emergency operation. Disbursement to FAO shall be



made on the basis of the interim unaudited financial reports and notices of withdrawal submitted by FAO to the World Bank. The UN agency is required to prepare and submit the IFRs in accordance with the format and periodicity agreed with the World Bank. The grant proceeds will be transferred into the UN implementing agency's official bank account based on a written notice of withdrawal submitted to the World Bank by the designated officials. The first notice of withdrawal will cover projected expenditures for the activities for the first nine months of implementation. Subsequently, they should submit notices of withdrawal each six months thereafter, and each such notice will cover an amount representing the UN agency's good faith projection of the expenditures for the following nine months, up to the project's closing date, reconciling against amounts previously withdrawn against the project budget.

16. FAO Yemen Office has bank accounts in a commercial bank in Yemen both in US dollars and Yemeni rial. Steps have been taken by FAO to deal with the currency crisis due to the lack of Yemeni rial and they have signed agreements with this commercial bank to facilitate payments through direct transfers into the implementing partners' bank accounts, checks to beneficiaries, and cash delivery.

Procurement

17. FAO will follow their own procurement procedures. A separate assessment of FAO procurement capacity is not needed, as the FAO falls under existing capacity assessments of other UN agencies. This implementation arrangement falls Alternative Procurement Arrangements as per the New Procurement Framework Policy Section III. F. This procurement arrangement is considered a fit-for purpose arrangement for several reasons:

- (a) FAO has an extensive record of emergency livelihood support, livestock, and nutrition and food security activities that are the intervention areas of the proposed project;
- (b) FAO has a strong presence on the ground and the capacity to work in conflict and post conflict areas in Yemen;
- (c) FAOs' procurement arrangements provide reasonable assurance that the World Bank's financing will be used for the intended purpose;
- (d) FAO has demonstrated experience in managing and delivering similar programs in Yemen.

18. Overall Procurement Risk is rated as High due to: security situation in Yemen; composition of the market place with limited competition and availability of service delivery; and the nature of project activities that are not complex or sophisticated, but might be impacted by the situation on the ground in the conflict/post conflict zones.

19. There is a risk associated with procurement being delayed due to the very low threshold delegated to the FAO Office in Yemen, the long processing time needed for international competitive bidding and the prompt selection of the entities entrusted with program oversight. These may include delays in the selection of the international firms and the third-party monitoring firm whose mobilization and presence on the ground are critical to the success of the project. This risk will be mitigated through advance planning and commitment by FAO to streamline its internal procedures including but not limited



to delegation of authority at the appropriate levels. In addition, there is a risk related to weak fiduciary oversight and grievance redress mechanism at the local level. This will be mitigated by hiring a TPM Agent with clear oversight responsibility in the scope of his/her assignment.

20. **Selection methods and arrangements:** Under this project the main activities are small works goods, consulting services, and capacity building using: (i) Request for Bids for both international and national markets; (ii) limited tender based on prequalification of registered vendors as per the implementing agencies internal procedures; (iii) Request for quotations; (iv) CDD approach; and, (v) Direct selection.

21. **Consulting Services:** the project is expected to use request for proposals (i) Consultants' Qualification-based Selection; (ii) Direct Selection; (v) Selection of Individual Consultants. The project is expected to finance civil works through community-based and participatory approach and in accordance with the Project Implementation Manual.

22. **STEP:** The use of STEP is not recommended under this project due to the unique nature of the project and the difficulties in predefining the contracts in a conflict situation and demand driven approach. In addition, there will be no contract subject to prior review and the implementing agency has its own tracking system and could generate reports as required.

23. **Prior Review threshold:** Since FAO will follow their own procurement rules and procedures as recommended by the PPSD, no contract would be subject to prior or post review.

Environmental and Social (including safeguards)

24. The implementation of the safeguards measures will be the responsibility of the FAO Representation in Yemen which will be working with SFD as the FAO main local implementation partner. ESMF implementation and monitoring arrangements will be through the FAO and SFD project teams in the central offices and regional hubs. FAO and SFD project teams for implementation of SAPREP will include Environmental and Social Safeguards Specialists. During the implementation phase, FAO with SFD will oversee construction activities and conduct visual inspection with the assistance of a representative of the local community to ensure that contractors implement environmental and social management plans.

25. The FAO and SFD capacity to implement environmental and social safeguards in accordance with the ESMF is strong. FAO is committed to ensure that its programs are implemented in accordance with the Organization's environmental and social obligations. FAO assess all planned operations in accordance with the FAO Environmental and Social Guidelines.

26. Monitoring and reporting will be supervised by FAO and SFD staff. Members of the community, through their representatives, will have a role to undertake both compliance monitoring and impact monitoring. This will be done throughout the subproject cycle, namely:

- During the planning phase, communities will participate in the identification of indicators for monitoring the mitigating measures;



- During the implementation phase, monitoring the execution of any works with respect to environmental and social aspects. Social monitoring should include livestock related investments, water and social protection investment, spate irrigation network, cash crop activities and women's income generating activities;
- 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 subproject activities. Communities will pass on their observations and concerns through the local FAO and SFD project staff.

27. FAO with SFD through the design and supervision consultant's reports will monitor safeguards compliance as well. Additional field visits or further investigations will be undertaken when necessary. The project will also use Third Party Monitoring mechanism to ensure the project is compliant with environment and social safeguards.

28. **Addressing women's concerns.** In rural Yemen, it is estimated that more than 70 percent of the agriculture work is done by female farmers. Women are mainly in charge of the very labor intense rain-fed agriculture and production of basic food crops for family consumption. Animal husbandry is also usually under the responsibility of women, as is grinding grain by hand, fetching and hauling water, collecting fire wood, storing, preserving and processing dairy and food products, (whereas men are responsible for irrigated agriculture and the production of cash crops, particularly qat and coffee).

29. In view of the strict gender segregation which prevails in Yemen, SAPREP will implement procedures to ensure that women's needs are taken into consideration and that women are able to benefit as intended from project interventions. In particular, the following will be pursued:



- All project staff will be held accountable for being gender sensitive and implementing gender equity approaches in their work
- Gender-sensitive staff will be recruited or trained, as appropriate
- Equitable treatment of female and male colleagues
- Teams of social mobilizers will be composed of one man and one woman each
- Technical project staff particularly at field level will include women
- Project management TOR and performance evaluation will give considerable attention to their support for gender issues and to the involvement of women in the project
- Women will be informed systematically of project activities through the Social mobilizers as well as through women community leaders who will be systematically contacted by project staff
- Meetings with women, including demonstration and farmer field school activities will be organized at times convenient for women [ideally in the afternoon between 'asr and Maghreb prayers [about 3-5.30 pm)
- Female Community Animal Health Workers will be trained in equal numbers to men to ease women's access to animal husbandry support, also to provide income generating activities for women. Women will be given training and support to start and develop micro-enterprises, thus improving their income generating and enabling them to have better access to nutritious foods
- Women will be given training in nutrition in a manner which is easily accessible regardless of their literacy levels.

30. **Community Participation.** The participatory approach is the basic principle underlying the implementation mechanism for this project. There are a number of reasons for this choice, including the following:

- a) When people have planned their own activities and the activities respond to their needs, their commitment to quality and timely implementation is significantly higher
- b) Operating in a participatory manner encourages cooperation between people within the same community and can be an opportunity for reducing tensions and increasing solidarity among the community members
- c) In the current fluid context at the institutional level in Yemen, focusing on the community level will ensure that benefits from efforts and investments are maximised
- d) Community involvement is a good way of ensuring quality delivery by service providers, as community members would not accept work which is below their expected standards
- e) Supporting economic and social development of community-based institutions will contribute to assisting the emergence of a new Yemen based democratic and inclusive principles. Population capacity will be expanded to address other broader issues.

31. Participation mechanisms and procedures will be described in details in the Project Implementation Manual.

Monitoring and Evaluation

32. The project monitoring and evaluation system will be focused on several types of data specific to activities under each component/subcomponent in accordance with the results framework described in Section VII. FAO's M&E Unit will comprise a full-time M&E specialist and a part-time IT/GIS specialist. The M&E specialist will be responsible for coordinating the M&E tasks, organizing and updating the



database. Project results at the community level will be collected by the respective FAO and SFD hubs, and thereafter consolidated and reported by the M&E unit at central level. The FAO's Management Information System (MIS) will be adapted to include SAPREP indicators, and project activities would be geo-referenced in the existing GIS system. The information will be utilized to both track the progress and problems and serve as useful management tool. Monitoring reports will be issued semi-annually.

33. The project plans to conduct baseline, mid-term and end-of-project surveys. A baseline survey, i.e. needs assessment, will be conducted during the first three months after project approval. FAO will conduct an end-of-project evaluation two months before the project's closing date. The final evaluation will assess the performance, including the relevance, effectiveness and efficiency, sustainability of results and the likelihood of impact. In particular, the evaluation will assess the processes and achievements made as well as document the project's outputs and results to draw lessons from implementation in conflict context that will inform the development of any similar project in the country in future.

ANNEX 3: IMPLEMENTATION SUPPORT PLAN

Republic of Yemen

Smallholder Agricultural Production Restoration and Enhancement Project

Strategy and Approach for Implementation Support

1. The project is processed under OP 10.00 paragraph 12 and OP 2.30 and uses a UN agency as a recipient of GAFSP funds and alternative implementing agencies. The Bank will conclude a legal agreement with FAO and disburse funds directly to FAO in accordance with the terms of such agreement. The project will be subject to the FAO fiduciary policies and procedures, while the World Bank safeguards policies and procedures will apply.

2. The World Bank will conduct "reverse" implementation support missions at least semi-annually to: (a) review implementation progress and achievement of PDO and intermediate indicators; (b) provide support for any implementation issues that may arise; (c) provide technical support related to project implementation, achievement of results, and capacity building; (d) discuss relevant risk and mitigation measures; and (e) monitor project performance through progress reports, audit reports and



field visits, if and when they become possible. In addition to conducting “reverse” missions, the Bank will obtain regular TPM reports to assess project performance.

3. The World Bank team comprises specialists in the areas of agriculture, nutrition, operations, M&E, financial management, procurement, social and environmental safeguards, legal and administration. The Bank operational and fiduciary are staff based in the World Bank’s Country Offices in Amman and Cairo which will facilitate implementation support and ad hoc problem solving as needed. With regard to technical support, experts may be recruited as deemed necessary during project implementation.

Implementation Completion and Results Report (ICR)

4. An ICR will be prepared at the end of the project to assess the processes, modalities of implementation, and achievements made as well as document the project’s outputs and results to draw lessons from implementation in conflict context that will inform the development of any similar future project in the country and/or enhance later designs and implementation.

Reporting Requirements from FAO

5. As set forth in the FMFA, the Bank reporting requirements from FAO for the project include narrative progress reports at least twice a year as well as financial progress reports every six months. The narrative progress report is required to include: a summary of the project and the context within which the project is implemented; the activities carried out during the reporting period; any challenges encountered and measures taken to overcome challenges; changes introduced in implementation, including changes in the budget; achievements and results of the project with reference to identified indicators; and the work plan for the following period. FAO will also prepare an end-of-project evaluation before the project’s closing to assess the performance of the project, including the relevance, effectiveness and efficiency, sustainability of results and the likelihood of impact.

Implementation Support Plan and Resource Requirements

Skills Needed	Number of Staff Weeks	Number of Trips to Amman	Comments
TTL	10 SW annually	At least 2 trips per year	Country office based
Agriculture Specialist	5 SW annually	Field based	Country office based
Nutrition Specialist	2 SW annually	1 trip per year	HQ based
Procurement Specialist	2 SW annually	At least 2 trips per year	Country office based
Financial Management Specialist	2 SW annually	Field based	Country office based
Environment Specialist	1 SW annually	1 trip per year	Country office based
Social and Safeguards specialist	1 SW annually	1 trip per year	Country office based



Operations Specialist	5 SW annually	At least 2 trips per year	Consultant
M&E specialist	2 SW annually	2 trips per year	HQ based



ANNEX 4: FINANCIAL AND ECONOMIC ANALYSIS

Introduction

1. The financial analysis primarily intends to evaluate project impact on project stakeholders which consist of poor households in the selected areas. It consists of: (i) evaluating the impact from the major investments under the project providing better access to irrigation combined with marketing and technical advice on crop performances and farmers' incomes; (ii) developing financial models corresponding to the investments proposed by the project (terrace rehabilitation, small irrigation facilities, income generating activities) in order to assess their financial returns and viability.
2. The economic analysis aggregates all project costs and projected benefits at national level by adjusting financial prices into economic values if and when necessary with the purpose to assess the economic justification of the overall project for the country. The present economic analysis goes beyond the conventional approach for economic appraisal of agriculture investment projects involving the conversion of costs from financial to economic terms and the definition of benefits through the aggregation of economic returns from indicative farm or area models. In order to assess important project benefits in terms of reduction in undernutrition, and in stunting, the analysis follows the methodology developed to directly value the impact of the decline in stunting in terms of the longer-term increase in human capital and the incremental life time earnings of beneficiary children. The methodology is informed by the emerging literature on the economics of nutrition, as well as economic appraisals from similar recent projects¹⁴.
3. The technical data used in this analysis have been collected from various sources, including the Ministry of Agriculture and Irrigation, the Social Fund for Development (SFD) and the PMU of a World Bank-funded Rainfed Agriculture and Livestock Project, as well as from the IFAD-funded Rural Growth Programme (RGP). Assumptions were updated during the final appraisal conducted in May 2017. Financial input and output prices were collected by FAO Yemen in May 2017.

Financial Analysis

4. The objectives of the financial analysis are to: (i) assess the financial viability of the improved technologies and systems promoted by the project and (ii) evaluate the impact of the project's interventions on the cash flow and household incomes of the farmers involved. To assess the financial viability of the improved technologies, a number of indicative activities, which will benefit from SAPREP, were identified during the project design process.
5. **Terrace rehabilitation.** The model illustrates the impact of terrace rehabilitation and adoption of better agricultural practices on the cereals yields. Traditionally, terraces are used in the project area to grow cereals, coffee, animal fodder and a naturally important agricultural biodiversity adapted to

¹⁴ World Bank (2014), Income Support Program for the Poorest, Bangladesh November 17 2014, Report No: PAD957; IFAD (2015) Strategic Support for Food Security and Nutrition Project (SSFSNP), Final design report.



rainfed conditions and based on a cereals-legumes intercropping and rotation system¹⁵. Being a dominant cereal crop grown in rainfed systems, sorghum model has been used as proxy for cereal crops. Incremental revenue is derived from increased yields due to improved soil fertility and better agricultural techniques. Terracing will not only contribute to return previously fallow land into productive use but also will reduce runoffs, water losses and water-originated damaging floods which might contribute to soil erosion and destruction of further downstream terraces. On the rehabilitated terrace reduction of soil erosion will translate into increase of the productive potential of the soil, into less depletion of the soil's nutrient content and ultimately into increase of soil fertility. The model presents an incremental net benefit per ha of 471 USD.

5. **Water harvesting (cisterns).** Each water harvesting structure will have a capacity of about 153 m³. Water harvesting structures are meant to provide water principally for agriculture but also some for animal consumption. It is assumed that 40 percent of this water is for human consumption, 50 percent for livestock watering and the remaining 10 percent for agriculture. Therefore, there would be water available for domestic consumption which would represent economies for households that will not be buying water from alternative water sources at market price. In addition, there will be water to irrigate some agricultural land (the amount of hectares of land will depend on the water requirement of each crop).

6. Using almond as a proxy for an irrigated crop (with water crop requirement of 6,000 liters/ha/year), the command area for irrigation is about 0.012ha of agriculture land for each water harvesting cistern. Furthermore, each water tank will provide daily water to 201 heads of small ruminants per year. The benefits from livestock production are calculated in a separate model. It was conservatively assumed that only 50 percent of the benefits of the livestock model (benefits in terms of meat and milk production) will be due to a substantially better water supply. The investment cost of the water harvesting tank has been assumed to be 120 USD/m³ or about USD 18,360 per cistern. As presented above, the benefits are expected to come from (i) the cost of drinking water reduced to families, (ii) increased milk and meat production with better livestock watering and (iii) increased production of irrigated crops. Model shows the incremental net benefit of USD 2,115 per family.

6. **Spate irrigation** is based on traditional Yemeni irrigation techniques when floodwater is diverted from its river bed and channeled to basins where it is used for irrigation and, when possible, to feed water ponds for animal watering. Given unpredictable character of spate irrigation, this type of irrigation is essentially used for drought resistant crops, mainly sorghum. It's been assumed that "without" project, sorghum is a rainfed crop, hence with improved irrigation sorghum yields could increase by 20 percent. In view of the small size of the structures, construction would take one year and benefits could start materializing during the same year. Maintenance cost are assumed to remain constant, starting in year 2. All replacement and maintenance costs consist of unskilled labor that the beneficiaries can provide over the year. The sustainability of the reservoirs is therefore quite likely. The incremental net benefit per ha and per year is expected to be USD 3,119.

7. **Water ponds.** This model illustrates the impact of constructing an open-air watering facility that will improve the livestock's access to water which, when combined with improvements in pastures, will

¹⁵ Economic and social impact of terraces and outcomes of terrace rehabilitation study (Pelat, 2009)



enhance the overall health and nutritional status of the flock. This will result in lower mortality rates and better productivity (more meat and milk production). Moreover, this will strengthen the household's food security and resilience during the droughts. Each reservoir would have a capacity of 1,000 m³ which is equivalent to 1 million liters of water for animal consumption. Given an evaporation level of 20 percent, an average of eight million liters of water would be available each year or almost 2,192 liters per day over the whole year. Given the size and composition of a typical family livestock unit in the project area, as well as their daily needs in water¹⁶, the reservoir could supply 1,096 units (21,918 heads). Based on recent analytical work carried out in the similar project context¹⁷, it's been conservatively estimated that the unit's meat and milk production could increase by 10 percent over time following substantially better water supply, due to the pond¹⁸. The estimated value of this increase per pond USD 375,460 per year, or USD 343 per family and per year. All replacement and maintenance costs consist of unskilled labor which the beneficiaries can provide over the year. The sustainability of the reservoirs is therefore quite likely.

8. **Individual rooftop water harvesting cisterns.** The cisterns will improve the access of rural households to potable water, with water used mainly for domestic consumption (90 percent) and agriculture (10 percent). More water available for domestic consumption will reduce costs of drinking water for the family and will reduce drudgery and the travel distance to fetch water, particularly for women, consequently providing them with additional time that could be used for household or animal husbandry activities. It is assumed that the cistern will cover at least a dry period of 3 months (90 days) with an average use of 195 liters per household and per day. Hence, each cistern will have a capacity of 17.5 m³ which is equivalent to 17,550 liters of water. Assuming that an average family needs 195 liters of water per day¹⁹, and that the tank is not the sole water source of the household this cistern would then supply 1 family per 90 days (3 months). The economies made in terms of cost of drinking water reduced to households are calculated using the following assumptions: 19,238 liters of water per tank will be available for domestic consumption; 1/3 of this water will be used as drinking water, and market price of 1 liter of drinking water is 1.5 YER. The total value of economies made in terms of cost of drinking water reduced per tank is about 10 994 YER.

9. It is understood that a family wife can take up to 1.2 hours to fetch water for drinking daily and the objective is to reduce this time to 30 min (per day)²⁰. One hour saved per day can then be valued using the actual hourly wage of unskilled labor (YER 1750), after shadow pricing to take into account the estimated underemployment in rural areas. Economies made in terms of time saved for fetching water but are not presented in financial analysis, however they could be estimated at about USD 1,789 per family and per year.

10. **Increased livestock production.** The model illustrates the likely returns over time to smallholders participating in restocking of small ruminants with local improved breeds activities

¹⁶ Base data from Etude IEMVT, Développement de l'élevage dans la République de Djibouti.

¹⁷ PROMES-GDT in Djibouti (IFAD)

¹⁸ PROMES-GDT assumes an overall increase of 20% (10% due to the avoidance of overgrazing and rangeland degradation, leading to higher animal mortality rates over time, and 10% due to more meat/milk production) resulting from a combination of better water supply and pastures. For the sake of analyzing the construction of water mobilization structures and the development of grazing areas separately, the 20% was split into two halves.

¹⁹ Source: *Comparative study of Social Fund water Interventions* (2013)

²⁰ *Comparative study of Social Fund water Interventions* (2013)



adopting improved husbandry practices (better hygiene, vaccination and supplementary feed) as well as having better access to irrigation infrastructure and animal watering. The existing animal husbandry practices limit the milk and meat yields keeping them below the potential. Low animal productivity and profitability in livestock husbandry is due to inappropriate livestock feeding practices, limited availability of clean drinking water, poor housing and livestock husbandry practices. Furthermore, limited access to short and medium-term financing prevents smallholder farmers from investing in the rehabilitation and upgrading of their farm. The main challenge smallholder farmers are facing in the project area is to optimize the benefits of mixed farming (crop/fodder and livestock production together) by using productivity enhancing technologies. It was conservatively estimated that milk production would be 1.25 liters/day per goats and 0.8 liters/day per sheep (with a milking period of 190 days), due to good water supply and to adoption of improved feeding regime. The incremental net benefit per ha is expected to be USD 975.

11. **Commercial and local laying poultry model.** The model illustrates a small commercial poultry activity. The activity is initiated with a 1st batch of 50 commercial layer chickens (7 months) and 50 local hens (age 7 months) received for a 12-month period. The investment costs for the activity include the cost of birds, poultry shed, feeders and drinkers. The birds are kept mostly under a closed system (due to threat of predation) and the egg production would be mostly sold at the local market. Unproductive and old stocks are sold at the end of the year, the egg production estimations are relatively low (260 eggs per commercial layers and 130 eggs per local hen per year). At full development, the model shows an incremental net benefit to farmers of 54,403 YER per year.

12. **Beekeeping and honey production as Income Generation Activity (IGA).** Farmers engaged in subsistence production on small areas and given that they have on average only one cow and few small ruminants, they need to diversify their sources of income. Given the difficult terrain (limited agricultural land, terraces in Western mountainous districts, etc.) farmers need to grow a high value, low volume crops or initiate some off-farm IGAs. The project will provide willing farmers with beehives, necessary equipment and training in order to start a beekeeping activity. With the high premium price paid for local honey, beekeeping is an attractive IGA. Beekeeping model illustrate the establishment of a new beehives. Honey production would increase from the initial level of 12kg per year to 23 kg per year, showing an incremental net benefit to farmers of USD 1,694 per year.

Economic Analysis

13. The analysis presented in this section departs from the conventional approach for economic appraisal of agriculture investment projects. Such an approach involves the conversion of costs from financial to economic terms and the definition of benefits through the aggregation of economic returns from indicative farm or area models. While this approach is possible, the diversity of the project area's agro-ecological systems combined with the variety of emerging interventions and impacts means that any farming systems model based on the aggregation of illustrative farm budgets, would be a highly generalized approximation.²¹

²¹ A factor that further compounds the conventional economic analysis is the difficulty in the estimation of economic values in situations where traded items' border prices and domestic handling costs can vary considerably



14. **Evaluation of economic benefits of reduction in undernutrition and stunting.** The literature describes the economic benefits of improving nutrition in poor societies as being derived from two sources.²² Firstly, the saving of resources that otherwise would have been used, or avoided costs. For example, the reduction in the resources required to deal with mortality or morbidity. The relationship between malnutrition and the risk of mortality is well established. The probability of infant mortality, for example, is estimated to be significantly higher for low birth weight (LBW) than for non-LBW infants. When the impact of poor early nutrition is added to the effect of LBW, it is estimated that 56 percent of child deaths in developing countries are attributable to malnutrition. In addition to increased mortality, malnutrition increases the risk of illnesses that impair the welfare of survivors, uses resources for health care services, and results in loss of time in the productive activities of caregivers. The second form of benefits stemming from improved nutrition are the direct and indirect links between nutrition and productivity.

15. The presented analysis is based on the connection between nutrition, health, education and income earning described above. It is assumed that SAPREP interventions have an impact on the beneficiary children's ability to complete school and thereby earn higher wages in their adult life.²³ The analysis compares the discounted stream of benefits in the form of incremental expected lifetime income plus avoided health care costs to the discounted stream of SAPREP costs.

16. Using the key assumptions outlined below, an estimate has been developed of the lifetime income for stunted and non-stunted individuals both in the WOP and WP scenarios. Driving the distinction between the two scenarios are the differences in the stunting rate and the average incomes for stunted and non-stunted individuals. In the model, it is assumed the non-stunted individuals would have as much as a 15 percent increment on their annual salary due to better rates of school attendance/completion, better cognitive ability and better health. The model also recognizes that there are children under 2 years of age in the village populations as a village enters the SAPREP. These children can also benefit from the project interventions. This number is approximated by taking two thirds of the estimated births in the village at the time of entry. Separate projections are made for this cohort.

17. A further benefit included in the analysis is the avoided health care costs for those individuals for which stunting is averted. This saving is assumed as a lifetime benefit. For the purpose of this analysis, 25 percent of this cost per individual per year is assumed. The incremental benefit model forecasts the income and avoided health care costs for the under 2's and successive years of birth cohorts for each set of villages entering the project. Once behavioral change has taken place this benefit in theory persists into the future.

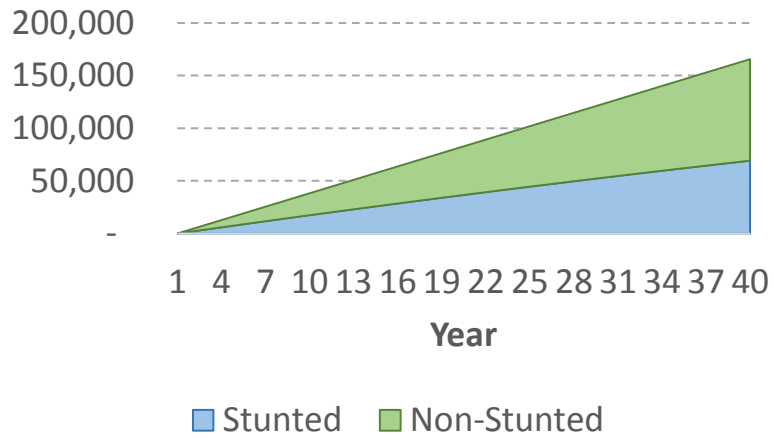
18. **Reduction in Stunting** The impact of the SAPREP interventions on the rate of stunting in the targeted villages including about 90 000 households (about 630,000 persons) over 40 years is shown in Figure below. The graph shows the projection of the births (adjusted for mortality losses) in the target villages over the next 40 years. The total addition to the population by Year 40 is approximately 164,000 individuals.

²² Alderman, H., Behrman, J. R. and Hoddinott, J. 2007 "Economic and Nutritional Analyses Offer Substantial Synergies for Understanding Human Nutrition," J Nutr. 2007 March; 137(3): 537-544.

²³ It is noted that the mean years of schooling in 2012 was 4.6 while the expected years of schooling stands at 10.1 Human Development Report 2013. UNDP.



Projected SAPREP Impact on Stunting





Key Assumptions

Parameter	Notes
Persons per household	6.7 persons - the average for rural areas
Number of households per village	50 households - Range: 70 to 100
Population growth rate	2.4 per cent per annum
Crude birth rate	32 per 1,000 persons
Infant mortality	Commences at 46 per 1,000 births, aligns in subsequent years with the national targets. ²⁴
Child mortality Under 5's	Commence at 43 per 1,000 births - aligns in subsequent years with the national targets.
WOP stunting rate	Current stunting rate assumed at 47%. ²⁵ The stunting rate is adjusted annually to allow for background improvement. This reduction is estimated at 0.25% per year. ²⁶ Stunting target is 26%. ²⁷
WP stunting rate	The WP stunting rate is a function of the background stunting rate for the year concerned and the reduction in stunting resulting from the SAPREP activities. In the base case, this reduction is assumed at 2.5% per annum.
Income earning age	Age assumed at 15 years.
Working life	Assumed at 40 years.
GDP per working person	(GDP per capita / (Total population x Proportion of population aged 15 to 64 years)) x (1+ GDP growth rate). ²⁸
GDP per capita	USD 37,734 (Current) ²⁹
Total population	26.83 mln ³⁰
Proportion of population aged 15 to 64	57% ³¹
GDP growth rate	(4%) per cent as forecasted by the World Bank in 2016.
Impact on annual earning	15% - This could be considered the impact of the combination of better cognitive function, school attendance, school completion and health.
Expenditure on health care per capita	USD 202 per year ³² The proposition is the annual health care costs are less for non-stunted individuals from better development and immune systems and function.
Proportion of per capita health expenditure saved	25% - consultant's estimate
Average life expectancy	66 years ³³
Period of analysis	80 years – sufficient to capture the life time earning of all individuals born during the SAPREP implementation

²⁴ Source: Yemen National Nutrition Strategy to 2020

²⁵ <http://data.worldbank.org/indicator/SH.STA.STNT.ZS?locations=YE>

²⁶ Based on <http://data.worldbank.org/indicator/SH.STA.STNT.ZS?locations=YE>

²⁷ Aligns with the target in National Nutrition Strategy to 2020.

²⁸ The proxy for annual earnings is the GDP per working person. This figure is derived from the GDP for Yemen and the population of working age. <http://data.worldbank.org/indicator/NY.GDP.MKTP.CD/country> The later parameter being a function of the total population and the percentage of the population of working age (15 to 64 years of age). See subsequent footnotes.

²⁹ Source: World Bank data <http://data.worldbank.org/indicator/NY.GDP.MKTP.CD>

³⁰ Source: World Bank data

³¹ Source: <http://www.tradingeconomics.com/yemen/population-ages-15-64-percent-of-total-wb-data.html>

³² Source: <http://www.who.int/countries/yem/en/>

³³ Source: <http://data.worldbank.org/indicator/SP.DYN.LE00.FE.IN/countries>



Annex 5: Map of Republic of Yemen

