

**Republic of Yemen**

**Pilot Scheme to Improve the  
Resilience of Rural Communities  
to Climate Change in Yemen**

**(IRRCCC)**

Concept Note

**Pilot Program for Climate Resilience -**

***Yemen - Strategic Program for Climate Resilience  
(PPCR/SC.10/8)***

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## (A) BACKGROUND

1. The analysis and consultations carried out under the Phase I of the PPCR program in Yemen highlighted the linkages between climate risks, soil and water conservation (SWC) and rural livelihoods. Similarly, several analytical studies<sup>1</sup> show how improved land and water management, combined with social protection and other risk reduction measures, provides the basis for climate resilient growth and poverty reduction. With 90% of the rural households involved in some agriculture and livestock production, climate resilient rural strategies are a key. These challenges have been recognized in key development planning documents – such as the Fourth Five-Year Socio-Economic Development Plan for Poverty Reduction (2011-2015)<sup>2</sup> and Rural Development Strategy (2005). Also, the National Adaptation Program of Action (NAPA) has identified agriculture and food security as one of the main vulnerable sectors in Yemen. According to the NAPA climate change may imply deterioration of landscapes, watersheds and terraces, which negatively affects agricultural incomes for local communities specifically and leading to national food insecurity as food production levels change.

2. Main challenges posed by climate change on the rainfed rural sector in Yemen include increasing temperatures especially during the growing season of most crops, and the increasing variability of rainfall patterns and precipitation which would influence soil moisture and crop water balance especially during crucial periods of crop growth. An important feature of the impact of climate change is also on the recharge of groundwater aquifers in Yemen which play an important role in providing adequate water supplies to rural households and in sustaining cropping systems in the country. The increasing variability in climate change including rising temperature and severe fluctuations in rainfall patterns are expected to have serious implications for both productivity of agriculture and the sustainability of the water sector because most economic activities depend on the resilience of water supply especially agriculture.

3. The risk, caused by a changing climate, facing the water sector would have serious implications on agriculture. Agriculture in Yemen uses between 80-90% of the water and employs 70% of the population, but occupies only 3% of the land area of Yemen. Because of the interconnected nature of these critical sectors of the economy, changes in climatic variables will bring accompanying variations in the biophysical underpinnings of the economy, with corresponding knock-on effects that will ripple outward through the entire society. The interlocking problems of water and agriculture are expected to have serious implications for food security in the country which already relies heavily on imports of 95% of its food. A resilient rural development strategy is also instrumental in rendering rural livelihoods more sustainable, thereby allowing rural residents to remain on their land and helping to curb migration to the cities with the attendant pressures that it creates. Demographic pressure with high population growth rates and significant rural-to-urban migration combined with a poor economic outlook pose a substantial threat to Yemen's future development

4. As part of the Yemeni government's effort to reduce poverty in rural areas and to improve natural resource management, the soon-to-be-completed "Rainfed Agriculture and Livestock Project" (RALP) supported by IFAD and the World Bank was designed to enable poor rural producers in rainfed areas to: (a) improve their production, processing and marketing systems; (b) protect their assets: soil, water, rangeland, seeds and animals; and (c) get organized for the purposes of the two above. More specifically, its productive rural development component implemented by the Social Fund for Development (SFD) is helping producers upgrade and diversify their agriculture and livestock production, processing and

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<sup>1</sup> Yemen: Assessing the Impacts of Climate Change and Variability on the Water and Agricultural Sectors and the Policy Implications, the World Bank (2010). Report No. 54196-YE. Coping Strategies in Rural Yemen and Policy Implications, the World Bank (2010). Report No. 251927-YE  
<sup>2</sup> Reference is also made to Yemen's National Agriculture Sector Strategy 2012-2016 (NASS), the National Food Security Strategy (NFSS), the National Water Sector Strategy and Investment Program (NWSSIP) as well as reconfirmed in consultation with the National Unity Government and the respective members represented in the Inter-Ministerial Committee on Climate Change

marketing systems, and better conserve soil and harvest water in the Uplands. As regard to soil and water conservation, the SFD is implementing (i) soil and water management subprojects at local community level, (ii) integrated management for terraces rehabilitation and water harvesting at inter-community (district) level, and (iii) watershed management projects at governorate level. Mobilization of rural communities and producer groups is at the core of this component.

5. The proposed Pilot scheme will build on the participatory processes and institutional mechanisms established by the RALP project to scale up and mainstream climate resilience into the agricultural sector, local rural development planning and implementation. The proposed project will adopt an integrated pilot approach combining soil and water management for climate change adaptation and enhanced provision of ecosystem goods and services. It will support, strengthen and help scale up current best practices and help disseminate them among the most vulnerable populations living in areas with high climatic risk, with a special focus on the situation of women, youth and chronically poor.

6. Devolution of rural development planning and implementation to the level of the communities, especially those sharing the drainage basin is expected to improve the effective management of the resource because it places the capacity to act closest to the resource itself and to its users. This in turn makes it possible to harness local knowledge and increase participation of communities in the management of the resources on which they depend.

7. The benefits of devolution of development activities related to both water and agriculture could strengthen measures to ensure women's representation and participation at the community level, and would have a positive influence on gender balance in the communities in question. Another expected benefit will be to help insulate gains made in climate resilience from unstable security situations in the country.

## **(B) DEVELOPMENT OBJECTIVE**

8. The primary development objective of the proposed pilot project is to support the Government of Yemen's efforts to improve the resilience of the rural population to the impact of climate change and thereby promote sustainable long-term growth and protect vulnerable populations. The resilience of the rural population to climate change would be enhanced through innovative management of both water and agriculture.

9. The expected outcomes/impacts are:

- Improved water management by local community and ecosystem stability and provision of goods and services through integrated watershed management approach;
- Increased labor opportunities for locals;
- Improved water conservation at local level through groundwater management and water harvesting;
- Increased diversification of income and livelihood strategies;
- Improved risk management capacity and preparedness of local communities;
- Improved awareness about climate risks on agriculture and water among government decision-makers, civil society organizations and among the general public;
- Strong participation of local communities and water groups including Water User Associations (WUAs) in implementing risk management procedures designed to incorporate climate change risks in the management and utilization of water resources at the local level.
- Mainstreaming of climate resiliency considerations into national development planning.

10. **Key Results:** The pilot project would attempt to contribute to the *transformational change* of the PPCR program in Yemen at a pilot scale by:

- (i) Scaling up the efficient management of natural resources especially soil and water conservation through introducing an integrated watershed management approach that involves local institutions and community based organizations especially farmer groups and informal society.
- (ii) Preparing a road map for scaling up geographically to include new governorates. The proposed pilot will be based on the successful work of *RALP* in engaging local communities and facilitating local planning while adopting a *comprehensive and combined approach* to manage different factors contributing to the vulnerability of poor rural communities.
- (iii) Increasing agricultural diversification through enhanced and improved selection of crops and livestock and related integrated farming systems which are resilient to increasing variability in climate conditions.

11. Climate change adaptation and social protection (livelihood improvement) are linked by a fundamental concern with reducing vulnerability and building resilience – be it to poverty or changes in average climate conditions. The project aims to employ (i) *protective measures* to provide relief from deprivation (e.g. food price shocks, droughts), (ii) *preventive measures* designed to prevent deprivation (early warning systems) and *promotional measures* aimed at enhancing income and capabilities (e.g. income generation activities). This combined approach aims to focus on the social and institutional dimensions of vulnerability in addition to the technical and ecological aspects and tailor the interventions to address sometimes very different drivers of vulnerability.

12. The project would also have a special focus on the cross-cutting elements of the PPCR in Yemen:

- (i) *awareness*: project will pay special attention to awareness-raising for governmental and non-governmental stakeholders at sub-national levels, focusing on different groups of stakeholders (decision makers, farmer groups and water user associations, youth etc),
- (ii) *gender*: the gender focus will be addressed both through mainstreaming gender in the project design as well as specific gender initiatives such as income generation activities and mobilization of women farmers,
- (iii) *private sector involvement*: private sector will be engaged, in consultation with the IFC, in agro-business activities, and
- (iv) *education and research*: targeted training events will be organized for different groups of stakeholders.

13. In working with women, the proposed activities will take into consideration gendered divisions of roles and responsibilities; and develop actions based on needs, constraints, risks and opportunities. Yemeni women play a significant role in rural livelihoods and female farmers contribute to over 85% of plant production and 95% of animal management (Governorate Preparation Report 2004). Shifts in the agricultural production system from subsistence to cash cropping, coupled with continuing male out-migration, is leading to the feminization of subsistence agriculture and puts rural women at a significant disadvantage. Climate change is expected to aggravate the situation as women are directly affected by environmental degradation and increasing water and fuel scarcity. Women also have less capacity to respond to changing economic circumstances or to withstand any shocks, including those brought on by climate change. More specifically, IRRCCC will focus on improving women's participation at local level by using quotas for women's representation coupled with gender training to ensure men's support, and reducing logistical barriers to women's participation by convenient meeting locations, schedules and transport; building capacity to help individual women, women leaders, women's organization and gender-focused NGOs become more effective participants, especially in local planning and water governance.

### **(C) KEY INDICATORS**

14. The following indicators will be used to evaluate project progress toward achieving the development objective:

- (i) Number of participating communities adapting integrated watershed management planning;
- (ii) Number of participating communities incorporating climate resilience measures, such as improved water harvesting techniques and terrace rehabilitation plans, and ground water recharge into local development plans;
- (iii) Number of participating communities incorporating social protection measures in their development plans. These include specific measures to protect the poorest and most vulnerable (women, elders) through traditional community-based mechanisms such as mutual funds;
- (iv) Water resource management indicators: slow-down of run-off, % of rainwater infiltrated, improvement in the soil moisture content;
- (v) Number of community based early warning system plans developed and adapted in the community development plans.

### **(D) ANTICIPATED COMPONENTS AND ACTIVITIES**

15. The proposed project will consist of three inter-related components, which will be implemented within a time frame of five years (2013-2018).

16. The proposed components are as follows:

- *Component 1:* Climate resilient soil and water conservation and agricultural diversification investments.
- *Component 2:* Integrated community risk management.
- *Component 3:* Strategic Knowledge management and Project coordination

#### **Component 1: Climate resilient soil and water conservation and agricultural diversification investments.**

17. This component would improve watershed management, reduce flood hazards and risks, and improve groundwater conservation. It will encourage farmers to diversify their cropping and farming systems. This component aims to improve the climate resilience of the watersheds based ecosystems in the rainfed areas of Yemen through (i) integrated soil and water conservation measures at the watershed/basin level, (ii) community mobilization and training to build local capacities to manage water and other natural resources in an integrated and sustainable manner, and (iii) piloting Payment for Environmental Services (PES) to maintain terraces and other water and soil saving devices. IRRCCC will build on RALP and SFD experience and adopt an Integrated Watershed Management (IWM) approach for ecosystem management, which provides a framework to integrate natural resource management with community livelihoods in a sustainable way by focusing on the sustainability of ecosystem services as well as sustainable benefits for human well-being (as well as animal production). The IWM approach focuses on the watershed level, cutting across administrative districts, through formulation of a Comprehensive Watershed Management Plan and implementation of inter-community and district level sub-projects. As part of its community-based approach, the project will work with farmer (including herders) groups including where needed WUAs, in developing capacities of local councils and communities to manage water resources (including groundwater), soil, plants and animals and to include climate resilience in local and community planning. Special focus will be given to building capacities and

raising awareness for inter-community planning and action. Under this component the pilot will encourage investments in terraces rehabilitation, other water saving devices (water tanks) and other eco-system maintenance activities which would allow farmers better options for increasing agricultural and livestock diversification and productivity of both water and cropping and animal production systems.

18. This pilot needs careful design, including the establishment of exact services that the work provides, as well as the structure for transferring the payment. The project would aim to work through existing decentralization structures in developing capacities of local councils and communities to manage water resources (including groundwater) and to include climate resilience in local and community planning. It will focus on improving local water governance through community mobilization and working with National Water Resources Authority (NWRA) and local councils on water management aspects. Special focus will be given to building capacities and raising awareness for inter-community planning and action, as part of the investments for integrated watershed management, e.g. promoting coordination between communities covering upper and lower watershed management.

19. Under this component, activities would be also introduced to encourage investments in terraces rehabilitation, water tanks and other eco-system maintenance activities. This pilot needs careful design to enhance flood protection of infrastructure, agricultural and habitation which are important dimensions of climate resilience. This component would also support participating communities to develop and scale up modern technology and improved watershed management practices. This component would build on already established field activities by RALP, to provide additional funds to selected communities to assist them prepare special programs designed to better manage and utilize watershed structure especially as related to flood water through community action, local participation and self-help groups. The grant would support the testing of pilot models for managing floods with the objective of protecting vulnerable communities and their assets, protect natural resources, and increase groundwater recharge. Technology improvement of water harvesting is an essential part of improved watershed management because it could increase water storage needed to increase the recharge of local aquifers.

## **Component 2: Integrated community risk management.**

20. Rural communities in Yemen are faced with several risks and a holistic approach is needed to address their vulnerabilities. The project will adopt a comprehensive approach to improving resilience, combining initiatives in disaster risk management, climate change adaptation and social protection. This component will explore opportunities for piloting innovative activities on social protection and ‘risk pooling of agricultural and livestock production’, such as traditional solidarity mechanisms, as well as institutional capacity building for establishing an early warning system in support of climate resilience related initiatives. The main expected outcome is improved adaptive capacity among poor and vulnerable groups and reduced social vulnerability among the communities, through targeted interventions that strengthen the interaction between economic growth and social inclusion.

21. This component will be prepared in coordination with RALP and other relevant units/programs of the SFD, such as the Labor Intensive Work Program and Micro-Finance Unit. The idea is to broaden the scope of available “instruments” currently in use in the RALP, to include protective measures, such as cash for work to implement community sub-projects for integrated watershed management following the RALP approach. This helps to target the most vulnerable groups and communities’ living in chronic crisis situation and climate hazard prone locations. In addition, the objective is to revitalize some of the traditional risk mitigation measures and incorporate them into the early warning system as part of community development plans. This type of programs, once established can operate as productive safety net program that can be scaled up to respond to shocks of various kinds, such as crop failures or other natural disasters.

### **Component 3: Strategic Knowledge management and Project coordination.**

22. This component includes collecting and documenting local best experiences and indigenous knowledge on activities improving climate resilience at local level, their dissemination in coordination with relevant local and national stakeholders as well as promoting to incorporate them into national and sub-national policies and strategies. This knowledge management component will be carried out in coordination with the PPCR Coordination Unit at the Environment Protection Authority (EPA). Additionally, inter-institutional coordination with the Ministry of Agriculture and Irrigation is essential to make sure that the planned activities are in line with the National Irrigation Program (NIP).

#### **(E) INSTITUTIONAL ARRANGEMENTS**

23. The institutional arrangements would be based on the structure already established by two relevant operations: RALP and the GEF funded Agro-biodiversity and Climate Change Adaptation Project. Both operations have assisted SFD and MAI to establish reliable implementation experience through dedicated operational unit and staff. This pilot project would rely on this experience and the institutional arrangements would be based on strong coordination between SFD and MAI because the pilot schemes to be funded under this operation aim to improve inter-institutional coordination, both at national and local levels, in integrated watershed management and mainstreaming climate resilience into local development planning. The Agriculture and Rural Development Unit of the Social Fund for Development in coordination with the Ministry of Agriculture and Irrigation will be in charge for project implementation and coordination (including monitoring and evaluation) with other SFD units as well as with other institutions responsible for implementing the SPCR.

24. The Agricultural and Rural Development Unit of SFD will implement the project through its project officers. This integrated approach means that the project will be implemented together with the Labor Intensive Work Program and Integrated Intervention Approach Units within the SFD to enable the use of variety of mechanisms for targeted interventions in addressing communities' needs and vulnerabilities.

25. The Agricultural and Rural Development Unit will also benefit from the support from SFD and MAI units as needed, in particular, the Training and Organizational Support Unit, the Community Contracting Project, the Water and Environment Unit, the Microfinance Unit, the Administration and Finance Unit and the M&E Unit.

26. At the national level SFD will coordinate with the MAI to ensure inter-institutional coordination, especially regarding the linkages between the *National Irrigation Program (NIP)* and the activities related to the local water governance through Water User Associations. SFD will also coordinate with the Environmental Protection Authority (EPA), as the national coordination entity for the PPCR program in Yemen, to make sure that lessons learned and best practice from IRRCCC are incorporated into the national climate strategies and programs. Strategically, it is important to ensure coordination of efforts among various actors to guarantee sufficient knowledge management. The proposed Project Preparation Grant (PPG) will develop the detailed implementation arrangements and identify required capacity building/strengthening measures. This will be undertaken in a participatory process with all concerned government and non-government stakeholders.

27. The institutional arrangements would involve different levels of public and local agencies. These arrangements would require strengthening cross-sectoral coordination within the country and establishment of operational links between national and local agencies concerned with climate change and the resilience of water and agriculture. These links should also include support structures with local

communities and the private sector.

## (F) RISKS

28. Key envisioned risks to the achievement of the project objective are the following:

(i) Security risks:

*Mitigation:* Also specific criteria need to be developed to carefully select pilot areas in locations/governorates where security risk is minimal.

(ii) Institutional risks: (a) Limited understanding of the linkages between climate resilience and disaster risk management by Yemeni decision makers and other stakeholders at various levels.

*Mitigation:* Initial capacity building and awareness raising efforts are being undertaken by the EPA on various levels under the Phase I of the PPCR program in Yemen. The proposed pilot would focus on further increasing the capacity and understanding of stakeholders directly involved in the project implementation according to a capacity gap assessment and action plan prepared by the SFD;

(iii) Poor coordination and collaboration between agencies, especially at the local level, and between governorates and central agencies.

*Mitigation:* Establishing transparent and participatory implementation procedures; developing continuous and appropriate capacity building program for key stakeholders and regular monitoring missions by the SFD and MAI, with the participation of the World Bank and supported by the IFC.

(iv) Risk to inaction: Yemen is a country with limited water resources and high vulnerability to climate change in critical sectors. Action to increase resiliency needs to begin now with strong participation of local communities supported by inclusive community based institutions.

## (G) INVESTMENT COSTING

29. The total cost of the proposed project is US\$ 11 million which will complement work already accomplished under RALP and the Agro-Biodiversity and Climate Adaptation Change operations. The cost per component is estimated as follows:

COMPONENT	COST (US\$ million)
COMPONENT 1: Climate resilient soil and water conservation and agricultural diversification investments	7.5
COMPONENT 2: Integrated community risk management	1.9
COMPONENT 3: Strategic Knowledge Management and Project Coordination	1.2
<b>TOTAL</b>	<b>10.6</b>

**(A) RESULTS AND PERFORMANCE FRAMEWORK**

<b>Component</b>	<b>Outputs</b>	<b>Outcomes</b>	<b>Indicators</b>	<b>Critical Conditions</b>
<b>Component 1:</b> Climate resilient soil and water conservation and agricultural diversification investments	Improve soil and water conservation through integrated watershed management approach that takes into account climate considerations	Innovative soil and water conservation practices improve agricultural productivity and reduce the impact of climate risks	Number of comprehensive watershed management plans	National institutions and local government actively participate in planning and training events
<b>Component 2:</b> Integrated community risk management	A risk management scheme and social protection measures are in place for vulnerable households	The security of the most participating vulnerable groups is increased	% of households benefitting from the social protection measures  Number of communities adopting community based early warning systems	Stakeholders at local and governorate levels understand the differentiated nature of vulnerability for different socio-economic groups
<b>Component 3:</b> Strategic Knowledge management and Project coordination	Efficient project coordination and knowledge management mechanisms are developed and utilized	Appropriate information concerning IRRCCC activities is shared at national and international levels	Number of information sharing activities on project initiatives  % of approved annual work plans implemented	Different national stakeholders have appropriate technical capacities

