

Readiness Proposal

with FAO for the State of Palestine

17 March 2022

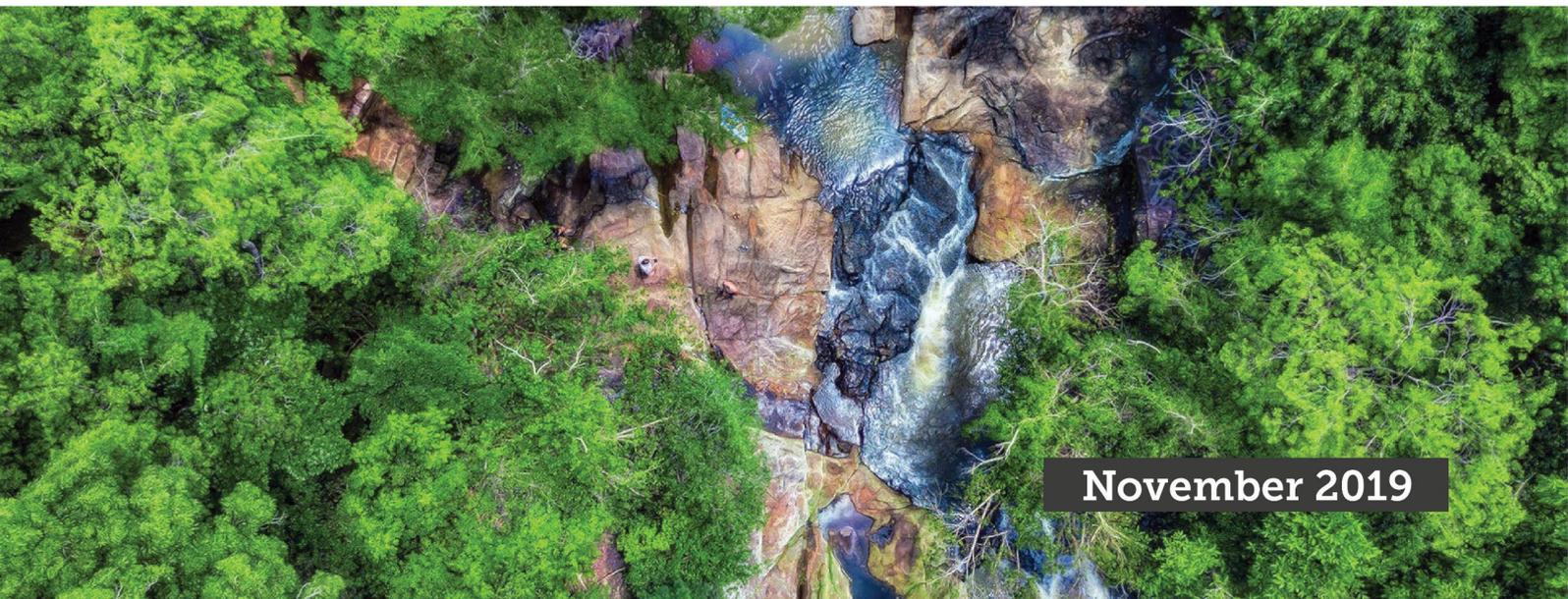


**GREEN
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READINESS & PREPARATORY SUPPORT PROPOSAL TEMPLATE



Proposal title:	Enhancing Adaptation Planning and Adoption of Climate Resilient Agriculture in Palestine
Country:	Palestine
National designated authority:	Environment Quality Authority (EQA)
Implementing Institution:	Food and Agriculture Organization of the United Nations (FAO)
Date of first submission:	16 July 2020
Date of current submission / version number	11 February 2022 v.5



November 2019

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1. SUMMARY

1.1 Country submitting the proposal

Country name: Palestine

Name of institution representing NDA or Focal Point: H.E. Mr. Jameel Mtour, Chairman of Environment Quality Authority (EQA) of the State of Palestine

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1.2 Date of initial submission

16 July 2020

1.3 Last date of resubmission

31 December 2021

Version number V 4

1.4 Which institution will implement the Readiness and Preparatory Support project?

- National designated authority
- Accredited entity
- Delivery partner

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1.5 Title of the Readiness support proposal

Climate Resilient Agriculture in Palestine

1.6 Type of Readiness support sought

- I. Capacity building
- II. Strategic frameworks
- III. Adaptation planning
- IV. Pipeline development
- V. Knowledge sharing and learning

1.7 Brief summary of the request

In Palestine, Climate Change (CC) and extreme weather are observed and projected to threaten agriculture yields and livelihoods. Climate Resilient Agriculture¹ (CRA), with its focus on *inter alia* maintaining and restoring soil health, is a key CC adaptation intervention to increase the CC resilience of local food production while reducing its water consumption. However, CRA practices are yet underutilized among small-holder farmers.

This underutilization is due to (i.) currently limited inter-institutional coordination required for mainstreaming CRA into national and local initiatives and thereby supporting local farmers to shift from resource intensive conventional farming practices to low carbon and CC resilient agriculture; (ii.) the fact that the current network of weather and agro-meteorological stations does not suffice for recording and dispersing relevant agro-met information to small-holder farmers. This situation inhibits farmers from adopting CRA practices in terms of understanding which crops to plant or harvest at what time – given the shift in growing seasons, having real time information on weather variables is key for CC resilient agriculture; (iii.) limited tangible data, research, and practical examples of ideal CRA practices across Palestine’s different agro-ecological zones; (iv.) the absence of weather, CC, and CRA information that is needed to facilitate the collaboration between small-holder farmers and other private sector entities with regard to socio-culturally, commercially, and CC resilient value chains.

This proposal is designed to build capacity and address above outlined barriers to CC adaption by strengthening the inter-institutional cooperation and knowledge on CRA (outcome 3.1), strengthen the agro-met system and the ability of Palestine to produce real time weather information for small-holder farmers, create an inventory and design two CRA test plots in close collaboration with small-holder farming associations (outcome 3.2), and support enhanced private sector engagement in CC resilient agriculture value chains (this will be facilitated by data and information produced under this project) (outcome 3.3).

The focus of this proposal is in line with the Country Programme for the Green Climate Fund (2019), the National Adaptation Plan (NAP) 2016, the National Determined Contributions (NDCs) 2017, as well as relevant national initiatives and projects, which all underline the vulnerability of the agriculture sector to CC and extreme events while emphasizing the urgency to support this sector to adapt to CC. Stakeholders of this project include but are not limited to: relevant Ministries (including Ministry of Agriculture (MoA), Palestinian Water Authority (PWA) and EQA), Non-Government Organizations (NGOs), private sector, Civil Society Organizations (CSOs), the Meteorological Department (PMD), and small-holder farmers and their associations (with the latter also being the primary beneficiaries of this proposal).

Goal Statement of this NAP Readiness project

The implementation of Palestine’s NAP 2016 and NDCs will be furthered by preparing the pathway for the adoption of climate resilient agriculture (CRA) of 50 percent of Palestinian farmers by 2040. Contributing to this paradigm shift will facilitate greater independence of Palestine from GHG intensive and costly agriculture input imports while increasing CC resilience and food security of the Palestinian population. In addition, and as highly relevant for CRA interventions, this NAP Readiness will support the development of CC projection work and thereby aiding the development of CC rationales for larger climate finance projects and Private Sector engagement in CC action.

1.8 Total requested amount and currency

USD 1.650.000

1.9 Implementation period

36 months

1.10 Is this request a multiple-year strategic Readiness implementation request?

- Yes
 No

1.11 Complementarity and coherence of existing readiness support

- Yes
 No

Linking to previous Readiness initiative’s:

The *GCF readiness and preparatory support project in Palestine* (approved 2017) has identified the need for a climate data and monitoring system linking to the National Institutional Framework for Climate Change. Such system would bridge climatological data with monitoring, reporting and verification (MRV) to ease the facilitation to coordinate climate finance and outputs and manage funding and investment from the GCF. Other GCF accredited entities and partner will be able to tap into this system.

¹ Climate resilient agriculture (CRA) is an overarching concept defined by its ability for the agriculture sector to absorb climate induced shock, while maintaining agricultural production throughout the impending shock and being able to return to its functional state prior to the shock

Similarly, this proposal will link to the ongoing *Technology Road Map for the Implementation of Climate Action Plans in Palestine* (approved 2017) project by identifying viable options for climate resilient agriculture.

Finally, Palestine's Country Programme (CP) to the GCF, which has been endorsed in 2020, is referring to agriculture as one of the most vulnerable sectors to Climate Change. The CP identifies climate smart agriculture (closely related to CRA) as key adaptation strategy to support climate resilient and low carbon development of Palestine and its most vulnerable people, strong reference is made to the Palestine NDCs (CP, Table 5) and CSA as key climate change (CC) adaptation intervention. The same table makes strong reference to CSA as key mitigation intervention (that can help to reduce GHGs, and increase soil organic matter, which again benefits CC adaptation as it aids *i.a.* soil water retention capacity).

The current limitation of the "resources and capacity to collect, analyse, manage, monitor and utilize reliable and accurate baseline climatic and project data to calculate and track GHG and for making evidence-based investment decisions and solutions" (CP, p.40) in combination with the absence of "a comprehensive and readily accessible digitized database of ongoing weather and climate observations to World Meteorological Organization (WMO) standards" (CP, p. 40) is clearly stated in the CP of Palestine as knowledge and information barrier to identify suitable adaptation actions, which is key for *i.a.* Private Sector engagement in general and well targeted CRA practices specifically

The CP further emphasizes the importance of increased private sector (PS) engagement to support CC adaptation and mitigation action, as per Palestine NDCs. The NAP Readiness proposal is addressing this current gap in CC action as per its Outcome 3.3 and 3.4.

2. SITUATION ANALYSIS

Background

Palestine, for purposes of this project, reflects the Gaza Strip and the West Bank, and has a total population of ~ 5 million inhabitants (as of February 2020). According to the Palestinian Central Bureau of Statistics, the West Bank has a total land area of 5,655km² (of a total 6,220 km² under the jurisdiction of the Palestinian National Authority (PNA or PA), which are divided into eleven Governorates). A vast majority of Palestinians rely on employment in the agriculture sectors for their livelihoods. According to the Centre for Economic Policy Research (2012)², agriculture employs ~ 13.4 percent of the population formally, though informally it employs about 90 percent of those who work. At the same time, agriculture yields and the sectors' contribution to GDP – relative to neighboring countries – are comparatively low while 47 percent of households remain food insecure (NPA, 2017) with climate change (CC) and extreme weather events exacerbating the challenges for agriculture productivity and hence the sector's capacity to sufficiently support the Palestinian people.

Palestine's vision for climate change adaptation

Palestine submitted its *Initial National Communication* (NC) to the UNFCCC in 2016. This NC outlines CC observations and projections (relying mostly on data from neighboring countries) and emphasizes the need to further improve and enhance the Palestinian capacity to collect and model weather and climate data. In addition, key sectors that are exposed and sensitive to CC have been identified to be agriculture, food, health, water, and energy among others. The initial NC identifies Climate-Smart Agriculture (also referred to as Climate Resilient Agriculture – CRA – in the context of this proposal) as key CC adaptation option for both Gaza and the West Bank. Palestine's 2016 *Nationally Determined Contributions* (NDCs) echo the findings presented in the initial NC and further underline the importance of CC action in the agriculture (and water) sectors. In fact, all CC adaptation projects that are referred to as being unconditional and on-going (NDCs, Table 6) are within the domain of agriculture and water, further underlining the importance of these sectors and their overall vulnerability to CC. The NDCs state that the key objective is for at least 50% of farms in Palestine to apply climate-smart agriculture by 2040.

The *National Adaptation Plan (NAP)*, also published in 2016, is reflecting those sectors identified as most vulnerable by the NC and the NDCs. A strong focus is – as in the other two documents – on the potential impacts of CC on the agriculture sector, especially olive production; grape production; stone fruits; rain-fed vegetables; field crops; irrigated vegetables; soil erosion; and irrigation water. Similarly, to the NDCs and the NC, the NAP 2016 identifies the increasing shift towards climate-smart agriculture as most suitable solution for increasing CC resilience among natural systems, food production and small-holder livelihoods.

The urgency to shift the agriculture sectors towards climate resilience is again highlighted in Palestine's 2019 *Country Programme Framework (CPF) to the Green Climate Fund*. According to the CPF, up-scaling CC resilient agriculture is one of the key strategies to support the population of Palestine with regard to CC and currently faced geo-political limitations. This roadmap further links to the *National Policy Agenda* (NPA, 2017 – 2022), which recognizes that the fragility of the natural environment is one of the main barriers for the development in the State of Palestine. Pillar 3 of the NPA therefore underlines the importance to manage, protect and promote sustainable use and conservation of natural resources (land, water and energy) and conserve biodiversity. In addition, the *Economics of Climate Change in Palestine Technical Paper*, released by the Palestinian Authority in 2017, outlines agriculture, water, and food security and agri-food as the three sectors most important to the Palestinian economy with the highest vulnerability to CC and extreme weather.

The proactive attitude of the Palestinian Authority in addressing and implementing the NDCs and NAP 2016 with regard to the domains of CC resilient agriculture and water management is evident given the number of projects implemented or currently on-going. Please see **Table 1** for an overview of key projects relevant to this NAP Readiness project. Relevant GCF Readiness activities are described in section 1.11.

² <https://web.archive.org/web/20150904044734/http://thecepr.org/images/stories/pdf/memo%20agriculture.pdf>

Table 1 – Projects relevant to this NAP Readiness proposal

Project Partners	Title	Project summary and relevance to this NAP Readiness project	EOD	NTE
FAO and Palestinian Government (PG)	Reform and Development of Markets, Value Chains and Producers' Organizations	<p>Summary of the project: The project intervenes in all stages of the value chain to improve incomes and labor productivity in agribusiness, ultimately enhancing its contribution to the economic growth and welfare of the Palestinian people, through the following four outputs.</p> <p>Relevance: The construction of the agro-climate system will provide guidance to better-managing crops and resources to achieve higher productivity/ unit natural resource.</p>	1/9/2017	31/8/2021
FAO and PG	Low carbon olive value chain development	<p>Summary of the project: The project was a detailed preparation phase for a 5-year project to demonstrate a competitive business model for the Palestinian olives sector towards a low carbon pathway that will gear a wider channeling of funds towards low carbon alternatives in the entire Palestinian agriculture sector.</p> <p>Relevance: The implementation of Agro-climate system will contribute to the production of low-carbon olive by adjusting the farm practices according to related weather conditions</p>	1/4/2019	31/10/2020
FAO and PG	Global Network Against Food Crises Partnership Programme - Country Investment Palestine	<p>Summary of the project: The project contributes to the sustainable improvement of the food security and livelihood resilience of farmers and fishers by providing in-kind and technical supports as well as facilitating a national dialogue.</p> <p>Relevance: Activities designed in CRA proposal, such as training of trainers; guidance report formation in both English and Arabic can contribute to the knowledge generation, dissemination and Monitoring, Evaluation, Accountability, and Learning (MEAL), which will entail knowledge generation and dissemination, coordination and coordination among relevant institutions</p>	1/10/2018	14/10/2020
FAO and PG	Emergency response to protect the endangered livelihoods and food security of vulnerable Palestinian	<p>Summary of the project: The project contributed to mitigate the imminent threat of animal disease outbreaks and their related public health, food safety and socio-economic impacts on small-scale female and male herders by increasing the capacity of herder communities and veterinary services to timely recognize and contain animal disease outbreaks and prevent their further spread.</p> <p>Relevance: The integrated agro-climate system will not only benefit farmers, but also herders. Since the outbreak of animal disease is largely related to air temperature and air humidity, the system can provide accurate weather forecast of the near future, which will enable enough time for relevant people (herders/experts) to respond</p>	1/2/2019	31/1/2020
FAO and PG	Strengthening the food security coordination system in the West Bank and Gaza Strip	<p>Summary of the project: The project targeted the Palestinian Food Security Sector partners (50 organizations) to strengthen the food security coordination system by supporting the local technical capacity for improved quality of services,</p>	1/6/2019	31/5/2020

		strategic planning, and information production. Relevance: The implementation of the agro-climate system will increase resource efficiency and productivity, which will eventually contribute to strengthening the local food system.		
L'Agence Française de Développement (AFD), PG, FAO, GCF	Water Management and Adaptation of Agriculture to climate change in Northern Gaza	Summary of the project: The project targets farmers and women-based organizations to promote a climate resilient and water-efficient agriculture and enhance the institutional and operational capabilities for integrated and resilient water management. Relevance: This project will support availability of alternative water resources to sustain agriculture and to increase the resilience of a highly vulnerable population in the Gaza Strip. The agro-climate system will provide data that contributing to climate-smart irrigation (time and frequency of irrigation, water amount used for each irrigation) in order to achieve resilient water management.	01/06/2019	01/06/2024
GEF, UNDP, PG	Introduce ecological agriculture concepts	Summary & Relevance: The project focused on introducing environmental concepts to the agriculture in Palestine, that suffers from random usage of agricultural hazardous chemicals. The idea of the project aroused from the importance of training and encouraging the farmers to use the compost for improving the soil, and as a source of nutrients basically to the Micro-organisms, which plays a big role in maintaining the soils' fertility and the Plant's life. Relevance This project will contribute to reduced use of chemical fertilizers which are imported from abroad, and its manufacturing methods are polluting the environment as well. The project trained 80 farmers and reduced irrigation requirements of local crops by 40 percent.	01/07/2010	01/07/2012

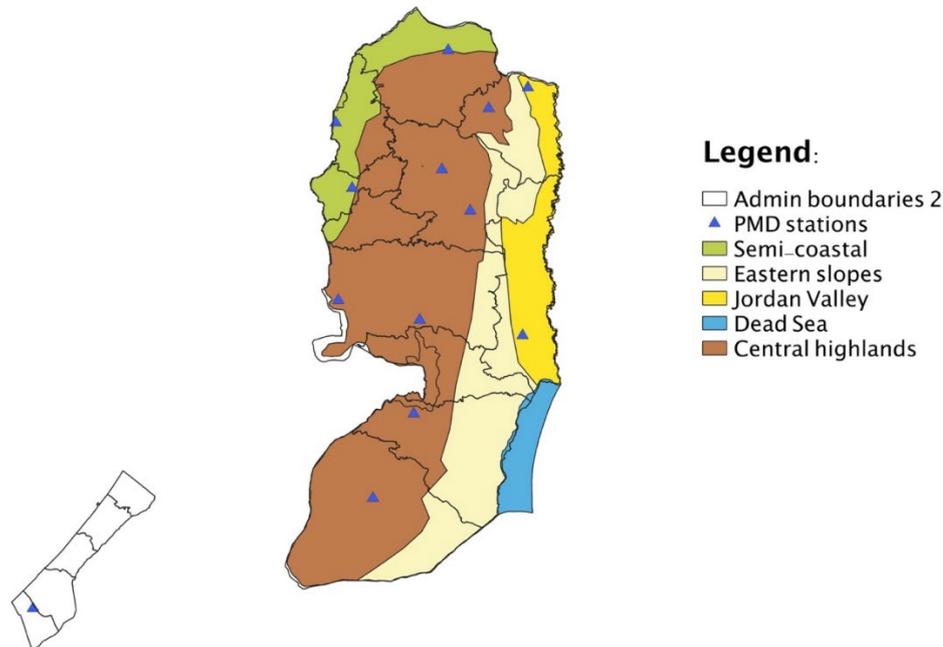
Climate change observations and projections

The climate in Gaza is classified as mostly Mediterranean whereas the climate in the West Bank is defined as hot semi-arid. Despite these different climatic classifications according to Koeppen-Geiger, CC across Palestine is characterized by decreasing and/ or more erratic precipitation¹ and overall increasing temperatures². A study conducted by the International Fund for Agricultural Development (IFAD)³ describes an increase in maximum and minimum temperatures over the West Bank (with a trend increase in average annual temperature of 0.27°C/decade for the period 1960-2015), more pronounced in summer, but also present the rest of the year. In the West Bank, a change in intra-annual monthly rainfall has been observed with an increase of monthly rainfall and extreme rainfall events in January and a decrease in February-March (with a negative trend of around 1mm/year for March) and November-December. This shift in monthly rainfall has been observed for the whole West Bank for the period 1981-2016⁴ and requires the adaptation of agricultural growing seasons and livelihoods. In addition, the increased intensity of anticipated rainfall events and flash floods – if left unaddressed – further challenges agriculture production via the removal of fertile topsoil. Varying precipitation rates have implications for seasonal harvests. Palestine's seasonal crop calendar indicates at least two primary growing periods for rainfed agriculture, including winter and summer cropping and harvesting. Lands in the Jordan valley on the other hand consist mainly of irrigated agriculture where harvests can take place multiple times per year though dependent on the replenishment of water harvesting structures and the ability of soil to retain water.

Palestine's Initial National Communication Report (2016), to the UNFCCC describes emission scenarios as determined by Representative Concentration Pathways (RCPs) models for the years 2016-2035. While there are limitations regarding the data models, most models agree that temperatures will continue to increase. The majority of models suggests future decreases in rainfall, although the amount of the decrease is uncertain. This changing precipitation pattern, coupled with more frequent and intense extreme weather events (heavy precipitation and droughts), are expected within the mid-range and pessimistic scenarios (ibid). However, even with the most optimistic scenario of a maximum 1.5-degree Celsius increase in temperature by 2055, indications suggest a reduction in cold periods, coupled with an increase in warmer periods, without a change in total rainfall per annum until a slight increase is observed around the year 2035. Such examples of long-term climate variability, coupled with ongoing climate events such as heatwaves, are expected to have implications for crop and livestock production, by causing soil moisture stress, contributing to soil erosion, reducing yields, causing loss of agricultural incomes, increasing food prices and consulted food and nutrition insecurity (ibid). Problematically, real time data on increasingly erratic weather/ climate variables is very limited and not easily accessible to farmers thus making it difficult to arrive at informed decisions with regard to planting and harvesting different crops.

While there is evidence for historical and future CC hazards and impacts in Palestine, local climatological and historical time-series data in Palestine is scarce. The number of currently 13 weather stations is insufficient to cover the five diverse agro-ecological zones (each zone consisting of its own specific geographic and climate condition) of Palestine and, as they are not automatic, do not transfer data regularly to a unified database (from which analyzed data could be made available to small-scale farmers and other end-users). In addition, the weather stations currently in place are not sufficiently equipped with sensors necessary to collect all the data relevant for climate resilient agriculture production. Of the 13 weather stations Palestine currently operates, 12 are in the West Bank and 1 is in the Gaza Strip (see **Map 1**). These weather stations are complemented by 114 manual rain gauges.

MAP 1 – Palestinian Meteorological Department (PMD) Weather Stations Network West Bank and Gaza (Admin 2)



Agriculture and Climate Change

Agriculture in Palestine is dominated by rain-fed agriculture, which accounts for 81% of arable land use in the West Bank.⁵ As outlined above, CC influences the temporal and spatial distribution of precipitation, leading to extended dry spells and shifting growing seasons with implications for key crops. For example, olive is the typical plant for Palestinian rain-fed agriculture. Yet, higher temperatures and subsequent higher soil evaporation are requiring farmers to carry out supplementary irrigation (which FAO is also supporting by providing supplementary irrigation assistance to olive farms in Tubas area). As for irrigated agriculture (with cucumbers and tomatoes being the main crops in Jenin area of the West Bank), the outlook is similarly severe.

To note, water availability is one of the key factors limiting agricultural production and the main issue on the natural resource management agenda in Palestine. With an annual average rainfall within the range of 100mm – 700mm, depending on location, water can be a major constrain to agricultural sectors' productivity – especially with precipitation patterns becoming increasingly erratic. The Economics of Climate Change (2017) Technical Paper outlines potential CC impacts – under all RCPs – as severe for agriculture production and therefor local livelihoods. However, the severity of the impacts will be determined by both the extent of the changes and the vulnerability of the system or population group under stress (FAO, 2016³).

Given observed and projected CC as well as extreme weather events in combination with the importance of local food production to support livelihoods as well as food and nutrition security, the PNA would like to use this NAP Readiness proposal to introduce a paradigm shift away from (heavy input dependent and freshwater consuming) conventional farming methods towards CRA practices. The design of CRA practices is dependent on (i.) access to real time climate/ weather data to inform planting and harvesting decisions and (ii.) the local context. However, in general, CRA interventions are designed to increase CC resilience and support low carbon development by reducing (costly and GHG intensive) input dependency on farms while supporting soil health through building up soil organic matter (and thus e.g., increasing water retention capacity and counteracting soil erosion), and selecting (and saving) native CC adapted crops and seeds. Consequently, adverse social and environmental implications of CRA interventions are extremely unlikely to occur while CRA interventions

³ <http://www.fao.org/3/a-i6030e.pdf>

substantially reduce the vulnerability of agriculture systems and livelihoods to increasing temperatures, erratic rainfall, and moisture stress.

Gender, Agriculture, and Climate Change

Palestine's NAP 2016 includes detailed descriptions of the gender situation in Gaza as well as the West Bank. Women are disproportionately more sensitive to Climate Change and extreme events (relative to men). In general, women's access to the labour market is challenging with agriculture often being among the few opportunities to have an income and support the family. In fact, female-headed households (HH) are at a 17% higher risk to be or become food insecure (relative to male-headed HHs). To improve the food security of female HHs, this NAP Readiness follows the recommendation of the NAP 2016 to promote i. water efficiency use in women's private small-scale agriculture system (through CRA practices that support *i.a.* soil restoration) and ii. encourage women to use their house garden to produce food while also joining/ collaborating with small-holder farmer associations (this will be supported via activity 3.2.6.2). The GoP has approved gender relevant policies (e.g., the 'Cross-Sectoral Strategy for Promoting Gender Equality and Equity in the National Development Plan (2017-2022)' in recent years and this NAP Readiness will contribute to further strengthening gender considerations at the institutional level. This will be achieved by ensuring the inclusion of the Ministry of Women's Affairs (MoWA) in the inter-institutional assessment and resulting working group (Output 3.1.1) while the MoWA will also join this project's Steering Committee. The project will include the collection and management of sex-disaggregated information, as applicable.

However, the project anticipates social, cultural and political related challenges that may affect efficient involvement and participation of women in the project activities.

The discriminatory laws and existing division of gender roles restricts women's access to equal opportunities and limits their productivity. Many factors affect women's and girls' status in society and their participation in the labour force. Palestinian society is dominated by a patriarchal structure that hinders the improvement of women's and girls' lives. This plays out in social, cultural, economic and political dimensions. For instance, restrictions on women's mobility and access to resources prevent them from realizing their full potential, including limiting their ability to engage actively to in activities that could contribute to improving their social, economic and political realities. Women's focus and attention is dedicated to taking care of family needs, particularly around food, shelter, education and health care⁴.

However, the project is already considering measures and actions that will ensure equal participation and involvement of women in the project activities while also integrating gender sensitive aspects in the CRA mainstreaming strategies, policies and planning tools. Such actions include, but are not limited to, the following:

- Ensuring that at least 30% of the participants in the training and outreach workshops under the different activities will be female. This includes the activities targeting the staff of involved governmental institutions and those targeting the farmers and their associations.
- Ensuring active involvement and participation of the women's associations in the different project activities mainly the consultations for developing the CRA training modules.
- Working directly with women associations on implementing CRA practices in small-scale agricultural production systems, including the home gardens, and efficiently engage those associations to engage in the CRA mainstreaming and outreach activities in their communities.
- Enhance mainstreaming of gender sensitive CRA practices in national policies, laws, initiatives and other relevant work streams within the inter-institutional working group meetings.

Barriers to climate resilient agriculture adaptation in Palestine

As described above, it is stated in the NDCs that the key objective is for at least 50% of farms in Palestine to apply climate-smart/ resilient agriculture by 2040. Climate resilient agriculture (CRA) is an overarching

⁴ The FAO Country gender assessment of the agriculture and rural sector in Palestine (2020)

concept defined by its ability for the agriculture sector to absorb climate induced shock, while maintaining operating and/or main agricultural function production throughout the impending shock and being able while maintain the capacity to return to its functional state prior to the shock. Best CRA practices depend on the local agro-climate and socio-economic context and include adjustments in agricultural production practices while also strengthening the enabling environment for small-holder farmers (institutional, access to finance, risk reduction schemes)⁵. To achieve the NDCs objective, a number of barriers to the adoption of CRA practices at a larger scale need to be addressed.

Barrier I: Institutional coordination and knowledge to support CRA

The Palestinian Government, including the NDA, is well aware of the observed and available CC risks in the context of sectors such as agriculture and water. However, inter-institutional coordination of relevant actors and stakeholders to mainstream CRA into national initiatives is still limited due to a lack of funding. This NAP Readiness proposal will address this need by assessing the CRA relevant institutional landscape, bringing together stakeholders to decide on an inter-institutional working group mechanism and kick-starting these working group meetings (activities 3.1.1.1 – 3.1.1.3).

CRA relevant knowledge and skills exist within the MOA, NGOs, and universities with regard to the production of olives, grapes, stone fruits, rain-fed vegetables and field crops. However, additional expertise is required in soil management, water conservation, and agricultural extension. Capacity to adopt and utilize drought-tolerant varieties effectively in the State of Palestine is limited and needs to be developed. Capacities also need to be developed in intercropping, crop rotation and minimum/zero tillage technique (NC, 2016 & NAP, 2016). Based on those knowledge and skills, the site-specific best CRA practices need to be identified through on-farm demonstration to upscale CRA practices among farmers in the different climatic zones. This project will address this barrier by developing relevant training modules (that can be exchanged and presented online) (activity 3.1.1.4) and conduct and validate an inventory of suitable CRA practices for the different climatic zones in Palestine.

This inventory, together with lessons learned from projects described in Table 1, will inform the design of two CRA test plots, one in the West Bank and the other in Gaza Strip, thereby further supporting the establishment of extension services in Palestine. These pilot sites will be monitored for at least two years for yield improvements and reduced input dependency (relative to non-CRA approaches), (activities 3.2.5.1 – 3.2.6.2). The site selection of the pilot plots will be undertaken in close consultation with local authorities (including the Ministry of Agriculture, the National Agriculture Research Centre (NARC), the EQA, and farmers' associations). The NDA and MoA are currently in the process of identifying suitable farmer associations to decide where to best locate the pilot projects given the ability of the respective organizations to ensure necessary inputs including machinery, manpower, and seeds. To note, the land that will be used for the pilot demonstrations will be owned and maintained by the respective farmer associations in partnership with the NARC (HQ located in the West Bank), with access to different agricultural demonstration stations in both the West Bank and Gaza Strip. Each demonstration will include one or more farmland plots, with an area ranging between approximately 1,000 to 10,000 square meters. The pilots will mainly represent the 2 main cropping patterns applied in the West Bank and Gaza Strip, namely irrigated and rainfed agriculture. The 2 main crop categories, annual crops (vegetables) and fruit trees, can be also represented in these sites. Therefore, the knowledge and practices to be produced and disseminated through these pilots will not be specific to agroecological areas or crops, but it can be applied in all West Bank and Gaza Strip areas where both irrigated and rain-fed production systems are existing.

With these pilot plots, this NAP Readiness proposal will contribute to generating tangible data on CRA practices in Palestine (the evidence that proposed CRA practices could increase in yield stability and reduce in input-use compared to the conventional practices), which will be crucial for understanding how to best upscale these practices among local farmers and farming associations. The good CRA practices, knowledge, and guidelines to be tested and produced by the pilots will be documented and compiled in CRA practical manuals which will be accessible and utilizable by all farmers and related actors in the West Bank and Gaza Strip. The

⁵ This project will focus on agriculture production and risk reduction through improved agro-met capacities. By doing so, an important steppingstone is put in place to generate future access to finance and insurance, CC resilient and sustainable agri-business cooperation (such cooperation among key private sector entities will also be supported by Outcome 3.3)

CRA manuals will be applied and disseminated by the extension services of the MoA and other actors to ensure upscaling CRA practices among local farmers and farming associations in both the West Bank and Gaza Strip.

Barrier II: Available and accessible real time weather data to support CRA

Given the unique history of Palestine, the Palestinian Government has not yet been able to systematically set-up weather stations and collect climatological data (within a unified database). For the West Bank, the density of the observational network is one station every 472km². However, the density of the existing observational network differs along the different agro-ecological zones as follows: Semi-coastal areas (two weather stations: equivalent to one station every 248km²), Jordan valley (three weather stations: equivalent to one station every 174km²), Central highlands (eight weather stations: equivalent to one station every 410km²), Eastern slopes (so far there are no weather stations installed for an area of 1289km²). Although there is a weather station located along the Coastal areas of the Gaza strip (365km²), the existing does not transmit any information to the PMD-HQ in Ramallah.

Accordingly, the installation of agrometeorological stations (stations that collect data on weather variables as well as additional factors relevant for agricultural production) in Palestine is urgently required to ensure the generation of local-level data to support preparedness of small-holder farmers to extreme weather events and CC (by providing real time data on, for example, the best possible moment to plant or harvest crops). Climatological data (for short-term as well as long-term projection and modelling work) cannot be collected in the absence of proper equipment. Much needed automatic agrometeorological stations consist of a package of instruments and sensors to measure atmospheric and soil conditions.⁶ Environmental variables such as atmospheric temperature, relative humidity, rain and wind, soil conditions including soil moisture, soil temperature, and soil bulk electrical conductivity can be measured in real-time with the benefit of developing historical trend analysis and short-term projections suitable for early warnings to small-holder farmers. By collecting data over time, these agrometeorological stations will also be useful for long-term climate modelling in the future.

Under this NAP Readiness project, to bridge the existing data gap, 7 new automatic agrometeorological stations will be installed which will automatically report (every 15 minutes) to the PMD-HQ in Ramallah. Moreover, three existing climatological stations (two in the semi-coastal areas and one in the Central Highlands) will be fully equipped with agrometeorological sensors; hence improving even more the new agrometeorological observation network. The added value of these 7 new stations and the upgraded 3 stations will be tremendous as data relevant for climate resilient agriculture can be collected with these new facilities. The geographical distribution of the new stations and their contribution to bridging the data gap will be as follows:

- Along the Jordan Valley the installation of one new agrometeorological station will increase the density of the existing observational network from one station every 174.km² to one every 130km², corresponding to a weather surveillance improvement of 34%.
- Along the Central Highlands, the installation of three agrometeorological stations will increase the density of the existing observational network from one station every 410 km² to one every 298 km², corresponding to a weather surveillance improvement of 38%.
- Along the Eastern slopes (location test plot), one new station will improve the weather surveillance by 100%, as up until now there are no stations located within this agro-ecological zone.
- Along Semi-Coastal Areas, the present project will add one new agrometeorological station and, therefore, the observation network will improve from one station every 248 km² to one station every 166km², corresponding to a weather surveillance improvement of 49%.
- Along the Coastal Slopes of the Gaza Strip, one new station will improve the weather surveillance by 100%.

The data from the automatic stations will be directly transmitted to a central database, that gathers and produces raw data (see activity 3.2.2). The Palestinian Meteorological Department (PMD) has the capacity to ensure the maintenance of the meteorological equipment (this is further described in the attached letter from PMD). Under this Readiness proposal, a targeted training series will be organized (see activity 3.2.3) for *i.a.* relevant PMD staff to clean and analyze the raw data and produce regular 10-day weather and seasonal weather forecasts. In addition, the existing early warning dissemination system of the Ministry of Agriculture (MoA) will be linked to the PMD to share analyzed and prepared agro-climate data, with farmers and other end-users (see activity

3.2.4), on a regular basis. By installing agro-met stations in all agro-ecological zones and representative cropping areas, this project will build a database of agro-climate information covering all agro-ecological zones of Palestine. These systems will be designed to consolidate various datasets and fill currently present data gaps. The collected data will inform small-holder farmers with actionable advice and recommendations including timing of planting and harvest in accordance with the climatological and weather conditions and therefore is crucial for the successful adoption of CRA practices. In addition, this project will support technical capacities to operate and develop climatological models thereby supporting the availability of local data and models required for developing the CC rationale for larger climate finance projects, with GCF or other donors (as reflected by outcome 3.2).

Barrier III: Private sector engagement to support CRA

Enhanced Private Sector (PS) – which includes *i.a.* banks, companies (including insurance), farmer associations and private households – engagement in CC adaptation and mitigation is currently undermined by Palestine’s limited “resources and capacity to collect, analyse, manage, monitor and utilize reliable and accurate baseline climatic and project data to calculate and track GHG and (...subsequently...) for making evidence-based investment decisions and solutions” (Palestine Country Programme, p. 40). Without accurate data on climate change and extreme events (short-term as well as long-term projections) and their (potential) impacts for the agriculture sectors, enabling and encouraging PS finance for CC action will remain challenging. With regard to the agriculture sector, as for example, long- and short-term interventions require more sophisticated data to identify sound opportunities to invest in CC resilient value chains. In addition to the lack of CC data (and means to disperse it), easily accessible first-hand practical experience (and data) on most suitable CRA practices in Palestine is still missing. The study *The Potential of Agroecology to Build Climate-Resilient Livelihoods and Food Systems* (FAO & Biovision, 2020) provides evidence for the high potential to increase CC resilience of livelihoods and agriculture systems through the introduction of CRA.

Having recognized the importance of CRA for the future of Palestinian agriculture and livelihoods, the NDA has begun to consult with private sector entities on potential pathways for investing in CRA practices, value chains and risk reducing interventions. This dialogue will be strengthened by this proposal under activity 3.3.1, under which a stakeholder workshop will bring together the newly established CRA working group, private sector entities (such as exporting companies that are interested in collaborating more closely with small-holder agriculture associations as well as micro-finance banks and insurance companies), and other relevant stakeholders. This meeting will be informed by best possible CRA practices to stabilize yields and agriculture incomes and updated CC and weather data. Assessments and information produced under this project will facilitate a strong evidence base to inform the private sector on socio-culturally as well as commercially viable and CC resilient agriculture value chains on which to cooperate with small-holder farmers and associations.

Problem Statement and long-term vision

In Palestine, CRA inter-institutional coordination and knowledge are limited and require additional data for supporting the paradigm shift of farmers and farming communities to adopt CRA practices and thereby decreasing the risk of CC-related yield loss of crops. The shift towards large-scale CRA adoption can only be successful if farmers can inform themselves through practical CRA application sites and are able to access real time weather data while being able to improve their position in the agriculture value chain and utilize sustainable business opportunities. Currently, these elements do not sufficiently exist.

This project aims at channeling resources for leveraging institutional capacity to support implementation of the NAP 2016 and NDCs by narrowing capacity gaps as outlined in the above-mentioned barriers. To do this, this project will strengthen (i.) CRA inter-institutional cooperation and knowledge, (ii.) expanding the agro-met stations network and making data easily accessible to farmers, (iii.) running two pilot plots for testing best CRA practices under real life conditions together with local farmers, (iv.) facilitating public-private partnership to identify CC resilient and socio-culturally and commercially viable value chains (this is based on results achieved under ii. & iii.). The long-term vision of this project is that the set-up of the agro-met and weather stations will first allow for the timely collection and dispersion of weather data and second will enable the Palestinian Authority to generate its own CC projections, which will be useful for producing CC assessments and rationales for future large-scale CC projects, either with GCF or other donors. In addition, the linkages created with the private sector under this project as well as the identification of CRA and commercially and

socio-culturally viable value chains is of key importance to increase CC resilience of local communities as access to sustainable business opportunities will be facilitated for small-holder farmers. The NDA is planning to invest a portion of the remaining USD 1.65 million NAP Readiness support in further facilitating the CRA public-private partnership to work towards larger CC projects. However, all knowledge produced under this NAP Readiness project will be institutionalized within the NDA office. Given the limited size of this NAP Readiness, an inter-institutional working group will be set-up under the follow-up NAP Readiness, which will be developed as soon as this NAP Readiness is approved by GCF.

Stakeholder consultations

This project supports the first 3-years of the NAP 2016 timeline and will respond to the needs of farming communities that have been identified through a series of consultations that took place in 2018 and 2019 to identify specific programmatic points of entry to reduce vulnerabilities of livelihoods by adapting to CC and extreme weather. Consultations took a participatory approach consisting of the EQA, line ministries, farmers associations, NARC, the private sector, and the MET office (see section 6.2 for roles identified among stakeholders).

Barriers and entry points to sustainable paradigm shift inducing CC adaptation that have been identified during consultations and in key national documents include: (i.) no reliable data available to farmers for agricultural planning amidst increasingly erratic climatic variables (a trend which is projected to worsen); missing information on suitable and low-input/ cost agriculture practices, which are resilient to projected CC. (ii.) market barriers preventing full capacity of the private sector to contribute to CC related investments. (iii.) Institutional capacity and coordination to utilize full potential of CRA in favour of Palestinian people. In addition, this NAP Readiness proposal is closely aligned with Palestine's NDCs, NAP 2016, and GCF CP 2020, which also have been produced based on multiple stakeholder consultations.

A core group of national stakeholders have been closely consulted during the formulation of this NAP Readiness proposal consisting of: EQA, MoA, and PMD. In addition, the project design team, including the Ministry of Agriculture (MoA), has consulted closely with different farmer unions, of which two have the capacity and expressed their willingness to participate as envisaged in the NAP Readiness proposal. The FAO as well as MoA have successfully worked/collaborated/consulted with cooperatives of both these unions before, which include:

(1) the Palestinian Agricultural Cooperative Union (PACU) is a representative union of agriculture cooperatives in Palestine. They oversee the financial, social, cultural, and environmental interests of their members. PACU works to empower local farmers by promoting cooperatives and thereby increasing their market power and position in the value chain. A formalized agreement will be reached once this NAP Readiness proposal is approved.

(2) The Palestinian Farmers Union (PFU) is a representative union that supports the resilience development of agriculture as a steady source of income of its members. It regularly helps to build capacities of its members. A formalized agreement will be reached once this NAP Readiness proposal is approved.

Both unions consist of farmers in the West Bank as well as in Gaza. During the last months, these unions were consulted closely on their members' needs and demands for improving CC adaptation planning. Discussions have indicated a clear need for the development of agro-met focused climate services for adjusting agricultural production to observed and projected weather and climate change. In addition, the unions indicated that farmers would benefit greatly from learning about and trying CRA practices such as agro-ecology practices that are adjusted to their agro-climatic context.

3. LOGICAL FRAMEWORK

Outcomes	Baseline	Targets	Outputs	Activities (brief description)	Deliverables
3.1. Adaptation planning, governance and institutional coordination strengthened	<p>Currently, inter-institutional coordination to support targeted CRA action in Palestine is not yet sufficient. In addition, only limited knowledge and training materials exist to guide relevant policymakers and other stakeholders when working towards large-scale adaptation of CRA practices in Palestine.</p> <p>Enhancing communication and coordination between relevant actors has been described as a key need to support CC adaptation in the agriculture and water sector (NAP, 2016).</p>	Well-functioning inter-institutional CRA working group mechanism set-up with access to CRA training modules and other relevant items, and information produced under this NAP Readiness proposal.	3.1.1. CRA relevant institution landscape assessed and strengthened	3.1.1.1. Assess the institutional landscape ⁶ and capacity of relevant authorities and identify avenues for improving inter-institutional cooperation. This assessment will focus on authorities relevant for ensuring enhanced adoption of gender sensitive CRA in Palestine.	3.1.1.1. D1: Assessment report, including recommendation on how to further align relevant authorities work streams and mandates, produced. D2: Inter-institutional map including mandates, capacities and contact information of institutions and officials. D3: An inter-institutional working group for the follow-up NAP Readiness is set-up.
				3.1.1.2. Organize 1 workshop (3 days) with 60 participants (of which at least 30 percent will be women) from various government agencies, farmer associations, research institutes, micro-finance banks to discuss and validate the assessment report and agree on an inter-institutional working group mechanism.	3.1.1.2. D1: Assessment report validated D2: Agreement reached on a CRA working group set-up (see 3.1.1.3) D3: workshop report, including list of participants

⁶ The following institutions will be covered by the assessment: Environment Quality Authority, Ministry of Agriculture, Ministry of Health, Ministry of Labor, Ministry of Local Government, Ministry of National Economy, Ministry of Social Development, Ministry of Women's Affairs, National Agriculture Research Centre, National Food and Nutrition Security, Palestinian Agricultural Cooperatives Union, Palestine Trade Centre, Palestinian Energy Authority, Palestinian Energy and Natural Resources Authority, Palestinian Hydrology Group, Palestine Meteorological Department, Palestinian Standards Institution, Palestinian Water Authority, and Union Of Agricultural Work Committees.

Outcomes	Baseline	Targets	Outputs	Activities (brief description)	Deliverables
				<p>3.1.1.3. Organize the first two inter-institutional working group meetings – with actors identified under 3.1.1.1 to support/ guide the NDA and other stakeholders regarding the mainstreaming of gender-sensitive CRA practices in national policies, laws, initiatives and other relevant work streams.</p> <p>The concrete mainstreaming strategy and policy document will be based on results of this NAPR (especially from the 2 CRA test pilots and related activities and lessons learned under output 3.2.6) and will be taken forward under the second NAP Readiness, for which formulation will be started once this NAP Readiness is approved by GCF.</p>	<p>3.1.1.3. Two working group meetings reports including recommendations on how to support mainstreaming of climate sensitive CRA practices.</p>
				<p>3.1.1.4 Develop online training modules for policy makers and government staff on policy and programming that supports CRA in close collaboration with MoA and farmer associations (including women’s associations). These online training modules will focus <i>i.a.</i> on 1. The importance of agro-met data for CRA, 2. Practical information on CRA practices and tools in semi-arid and Mediterranean climates, 3. How to address CRA</p>	<p>3.1.1.4. D1: Training modules developed and available online. D2: A report analyzing the training module utilization and users’ feedbacks developed</p>

Outcomes	Baseline	Targets	Outputs	Activities (brief description)	Deliverables
				practices from a cross-sectoral and inter-institutional perspective and how to best integrate CRA into policies and programmes, 4. How to mainstream gender considerations in CRA relevant policies and programmes.	
3.2. Evidence produced to design adaptation solutions for maximum impact	There are currently 13 existing meteorological/synoptic weather stations, with the majority being in the West Bank. These existing stations do not include agro-met sensors and are not automatic. The stations are being maintained by the PDM office.	<p>- 7 new automatic agrometeorological stations equipped with all relevant sensors (as outlined in recommendations from recent assessment of climate stations network) are installed.</p> <p>- 3 existing meteorological synoptic weather stations are upgraded with new and additional agrometeorological sensors and calibration for measuring weather/soil environment parameters according to international standards.</p> <p>- In total, 20 weather/agrometeorological stations will be available after this proposal is implemented.</p> <p>The 10 agro-met stations, in combination with 10 weather stations, will provide a sufficient basis for Palestine to generate its own short-term weather forecasts as well as to start collecting data for its own climate change observation and modelling</p>	3.2.1. Agrometeorological equipment successfully installed/ upgraded in agriculturally relevant areas, which are ready for installing such equipment.	<p>3.2.1.1 Install 7 new automatic agrometeorological stations and upgrade 3 existing weather stations to add additional sensors for agrometeorological calibration.</p> <p>The capacity of PMD to work with the new equipment and data produced will be strengthened under 3.2.3. PMD is well established to maintain the new agro-met stations.</p> <p>The new/ upgraded stations will be enhancing the coverage and monitoring capacity in agro ecological zones that currently have limited data collection capacities. The procurement and installation of these stations in close collaboration with PMD and MoA will ensure the longevity and sustainability of this enhanced network for future data collection and planning. Farms situated within each of the agro-ecological zones will be hosting respective equipment. Please see Annex 1 for further relevant information.</p>	<p>3.2.1.1</p> <p>D1: The 7 new stations are installed and 3 stations upgraded. Data generation and collection is started.</p> <p>D2.: A report including a detailed list of procurement, photographs of the new stations, and coordinates of all the 10 stations.</p>

Outcomes	Baseline	Targets	Outputs	Activities (brief description)	Deliverables
		research (NAP, 2016, Appendix 5).			
	There are no integrated systems in place that link hardware-based data collection (through weather stations) with software-based (computer generated) analysis	1 integrated data system installed and operation of relevant models and software for production of available integrated agro-weather information available online.	3.2.2. Agro climatological database linked to PMD servers will be established to facilitate co-production of agrometeorological alerts, advisories and recommendations at inter-ministerial and departmental levels.	3.2.2.1 Develop an online database to incorporate (and automatically receive) data from the automatic agro-met stations, set up under 3.2.1. This activity will be implemented in close collaboration with the PMD. The database will stay under the supervision and maintenance of PMD.	3.2.2.1 D1: Database set-up and available to receive and store data from the automatic agro-met stations. D2: A report will be shared including information on any procured items and a link to the new database/ detailed screenshots of the new database.
	As of 2019, only 2 trainings on the analysis and processing of weather and climate data have been carried out since approval of the NAP 2016 with participants of 3 government departments (MOA, PMD and PWA). No capacities exist for 10 day and seasonal forecasts.	Government staff (PMD, MoA, research institutions) well trained on processing and analysis of climatological data, with focus on producing short-term forecasts, seasonal forecasts, agricultural advisories, pest and disease information etc. Reaching this target is in direct support of the 2016 NAP, Appendix 5 (Future developments within Palestinian institutions to	3.2.3. Government staff capacities strengthened on the analysis and processing of climate and agricultural data to produce actionable alerts, early warnings and advisories for farmers	3.2.3.1 Conduct 2 targeted training workshops each 5 days (20 participants each training, 40 participants total, among them at least 30% will be women) on the analysis and processing of climate and agricultural data to produce actionable alerts and advisories for farmers. Training participants include staff from PMD, MoA and research institutions. This activity will prepare participants to be able to prepare 10 day and seasonal forecasts (bulletins) based on the	3.2.3.1 D.1: 2 workshop reports, including list of participants and training material. D.2: Annex to D.1.: Information note on methodologies introduced during the 2 trainings. D3: A guidebook on the processing and analysis of climate and agricultural data developed.

Outcomes	Baseline	Targets	Outputs	Activities (brief description)	Deliverables
		participate in climate change modelling research)		<p>database set-up under 3.2.2. These bulletins and seasonal forecasts will be made available on the PMD website.</p> <p>The second of these two targeted trainings will focus on the group of individuals that will be serving as future trainers (and reference points) on the analysis and processing of climate and agricultural data. FAO and NDA – together with PMD and other relevant actors will carefully select participants for this training for trainers, of which at least 30 % will be women.</p>	
	Currently no automatic early warning dissemination systems in place as part of farming outreach initiative on weather/ seasonal variations	Climate services are in place to ensure farmers and end users are reliably informed of impending weather events through automatic early warnings	3.2.4. System developed with PMD hosting and maintaining it to ensure dissemination of information of major weather events with messages disseminated to 5000 farmers/end-users, to be further expanded.	3.2.4.1 Install and configure climate data processing software for production of automatic messages reflecting critical weather events (based on database developed 3.2.2.1) to share data with farmers and other end-users utilizing existing telephone registries hosted by MOA.	<p>3.2.4.1.</p> <p>D.1: One report on how the system has been established and linked to 5000 end-users.</p> <p>D.2: Climatic data processing software and the automatic messaging system installed and functional.</p>
				3.2.4.2 Organize and implement outreach activities to make farmers aware of 1. generated forecasts and where to locate them, 2. Of weather events alert system (messaging through MoA registry), and 3 how to sign up for this system in case one is not yet in the MoA registry. This activity will ensure that at least 150 female-headed households will be contacted to be informed about this NAP Readiness	3.2.4.2. One annex (to be included in report 3.2.4.1. D1) on the outreach activities, including photographs of different localities, farmers, farmer associations, and other end-users visited.

Outcomes	Baseline	Targets	Outputs	Activities (brief description)	Deliverables
				<p>project in general and this output specifically.</p> <p>The outreach activities will include field visits to the farmers communities and associations, outreach sessions, phone calls and messages published and disseminated through the MoA and PMD online and official social media platforms.</p>	
	<p>No documents that comprise a comprehensive overview of CRA practices and technologies (for the Palestinian context) exists yet</p>	<p>First comprehensive document developed that captures key CRA practices, tools and technologies for Palestine (this will include lessons learned and information gathered under projects outlined in Table 1).</p>	<p>3.2.5. Policymakers and other relevant stakeholders having available Palestine specific guidance documents to support climate-resilient agricultural practices in Palestine.</p>	<p>3.2.5.1. Conduct an inventory, screening, evaluation and synthesis of best CRA practices and appropriate tools and technologies, especially focusing on semi-arid and Mediterranean climates. This inventory will also take stock of current conventional practices (for baseline reference) and associated input consumption (water, energy, agro-chemicals, labour) and yields produced.</p> <p>3.2.5.2. Organize an informal 3-day consultation workshop with 60 participants, of which at least 30 percent ought to be women, to discuss the technical report (as listed under 3.2.5.1) to verify applicability of findings on pilot plots for the implementation of key climate smart practices (targeting participants from national authorities and participating agriculture</p>	<p>3.2.5.1. Technical guidelines including recommendations on best CRA practices, tools and technologies developed⁷, given Palestine’s agro-climatic zones. This report is targeted at relevant authorities (including policymakers) as well as technical entities such as NGOs, CSOs, IOs and farmer associations.</p> <p>3.2.5.2. One workshop report is developed which includes a pre- and post-assessment of participants knowledge and knowledge retention on CRA practices.</p>

⁷ The CRA pilots and the resulting manual will not be crop specific will consider significant differences in the main cropping patterns in Palestine, namely irrigated and rain-fed systems, while the 2 main crop categories will be represented within the pilots, namely annual crops (vegetables) and fruit trees.

Outcomes	Baseline	Targets	Outputs	Activities (brief description)	Deliverables
				associations/cooperatives and academia).	
	<p>The best CRA practices have not been clearly identified based on the concrete evidence through on-farm demonstration in the different climatic zones. Lack of opportunities for farmers to confirm the effectiveness of CRA practices through demonstration.</p>	<p>A comprehensive practical manual for the implementation of CRA in Palestine is developed, applied and tested.</p>	<p>3.2.6. Tangible results achieved on best suitable CRA practices, which can easily be duplicated across climatic zones in Palestine.</p>	<p>3.2.6.1 Detailed design of CRA activities for 2 pilot sites in close collaboration with CRA champion association (this will consider Deliverable 3.2.5.1 and in addition, local conditions of pilot side). Selection will be guided by the following: 1) One pilot will be located in the West Bank and the other in Gaza Strip, 2) ability of the respective farmer association to ensure necessary inputs including machinery, manpower, and seeds. To note, the land that will be used for the pilot demonstrations will be owned and maintained by the respective farmer associations in partnership with the NARC. Participating farmer associations need to have female members and be open to accept new female members/ Selection of test plots will be concluded during project inception.</p>	<p>3.2.6.1. D1: Report of the selection of test plots agreed upon. D2: Design manual detailing the agreed upon CRA activities that will be tested at the 2 pilot sites.</p>
				<p>3.2.6.2 Implement identified (3.2.6.1) CRA practices on farmer association's test plots. NB: only native seeds and varieties already used by NARC in the country and indigenous species will be considered. The innovation is to design agriculture systems that combine the</p>	<p>3.2.6.2. D1: Report on the CRA practices implemented, as per design manual (3.2.6.1).</p>

Outcomes	Baseline	Targets	Outputs	Activities (brief description)	Deliverables
				<p>best suitable agriculture approaches (e.g., agro-forestry, swales, etc.) that traditionally exist in this sub-region and climates and help to i.a., re-stabilize the soil health. The whole idea is to reduce dependency of Palestinian farmers on external inputs such as expensive and GHG intense synthetic pesticides and fertilizers (please see the FAO & Biovision study, 2020, for a comparative analysis of climate resilient agro-ecology approaches vs conventional agriculture practices in terms of synthetic pesticide and fertilizer consumption, per system, pp. 68) while further strengthening CC resilience of agriculture by introducing best practices given the local conditions.</p>	<p>D2: Video-log produced highlighting CRA practices in action (recorded by mobile phone).</p> <p>D3: Bi-annual reports on study results from pilot developed. NB: Palestine's Seasonal Crop Calendar indicates two primary seasons for rainfed agriculture, winter and summer cropping and harvesting of various seeds. Lands in the Jordan valley and Gaza Strip consist mostly of irrigated agriculture where harvests can take place multiple times per year.</p>
	<p>Currently, 25 percent of the Palestinian agriculture, fishing and forestry sector workforce are women.</p>	<p>Three women-headed smallholder farmers associations efficiently engaged in mainstreaming and applying CRA in small-scale farming activities run by these associations and their women members.</p>	<p>3.2.7 Capacities of 3 women-headed farmers' associations strengthened to apply CRA practices in small-scale farming run by women.</p>	<p>3.2.7.1 Activity 3.2.7.1: Support 3 women-headed farmers' associations to implement identified CRA practices (as reflected in the NDCs) to support soil restoration.</p> <p>This includes providing capacity-building, technical guidance and know-how transfer support to these associations and their members based on the CRA practices identified and tested under activity 3.2.6.2</p> <p>This will include training sessions, field days, know-how transfer tours to the CRA pilots, tailored technical guidance and extension and others. Capacity-</p>	<p>3.2.7.1: Reports of implemented activities as well as detailed list of beneficiaries.</p>

Outcomes	Baseline	Targets	Outputs	Activities (brief description)	Deliverables
				development support to these associations and their members will be provided by the professional staff assigned to the project and the extension persons from the MoA who are qualified under activity 3.2.3.1. Thus, related expenses are already included within the costs of the project's technical staff.	
3.3 Private sector engagement in climate adaptation is catalyzed	The NDA has initiated public-private meetings to discuss how the private sector could support CSA. There is not yet a public-private partnership based on the solid climate data and CSA information.	Public-private partnership developed for making climate-resilient agriculture solutions more easily accessible to small-holder farmers.	3.3.1. Public and private stakeholders' partnership and knowledge on CRA approaches, technologies, and value chains strengthened.	3.3.1.1 Organize 1 stakeholder workshop over 4 days (60 participants), including private sector (including local telecom companies, insurance companies, banks, and micro finance institutions, exporting companies and farmer associations and farmers), to <ol style="list-style-type: none"> 1. Evaluate and discuss climate risks (available through new and updated MET equipment) and how CC risks to farmers will be minimized due to new technology and alerts, 2. Evaluate and discuss results from CRA pilots from a CC resilience, commercial and socio-economical perspective and identify best performing value chains that are attractive to famer associations, farmers and companies. 3. Discuss and identify how to best facilitate the access to microfinance and 	3.3.1.1 D1: Workshop report on: <ol style="list-style-type: none"> 1. Agricultural produce and value chains most resilient to CC and supportive of small-holder farmers (and of commercial interest) – and how to further enhance CC resilience in the interest of small-holders and companies (e.g., through shortened supply chains, different technologies/ practices that allow for improved storage or initial processing and thus higher quality of produce, restructuring of associations to generate higher quantities). 2. Currently available insurance and micro-finance services available to farmers and how to further improve and facilitate access to them. 3. Recommendations on regulatory changes needed, if any, to further support public-private partnership in the agriculture sectors.

Outcomes	Baseline	Targets	Outputs	Activities (brief description)	Deliverables
				insurance for smallholder farmers and associations. 4. Discuss and identify changes required in regulatory framework to further facilitate private-public CRA partnerships, if any.	D2: List of participants and materials used
3.4 Adaptation finance increased	3.4.1 One CRA-related project “Water Banking and Adaptation of Agriculture to Climate Change in Northern Gaza” has been approved in 2019 and covers sustainable water management practices in agriculture.	3.4.1. At least one additional CCA program is defined through a national consultative process.	3.4.1. Public-private partnership enhanced, and pathways identified for mobilizing public-private finance for CRA	3.4.1.1. Develop a strategy for enhanced public-private partnerships in the domain of CRA, based on results, data and information generated under this NAP Readiness.	3.4.1.1. D1: Strategy document finalized and publicly available.
				3.4.1.2. Develop one GCF Concept Note (CN) ⁸ that builds upon observations and data from CRA pilot plots, is informed by data on CC and extreme events made available under this NAP Readiness and considers closely stakeholder consultations with the Private and Public Sector organized under this NAP Readiness (3.3.1.1.). Based on above points, this CN will be the foundation for a GCF Funding Proposal that brings together the public and private sector to support climate resilient and low carbon agriculture livelihoods and value chains in Palestine.	3.4.1.2 D1: One CN developed, agreed upon by the NDA and the AE and submitted to GCF.

⁸ The Palestine/ GCF Funding Proposal Improving farmers’ climate resilience and water use efficiency has been approved in 2019. This project covers i.a. sustainable water management practices in agriculture and implementation results will be considered for developing this GCF CN. The approved project is not providing farmer associations with the possibility to test and adjust best CRA practices, which is however provided by this NAP Readiness for future CRA projects.

Outcomes	Baseline	Targets	Outputs	Activities (brief description)	Deliverables
				3.4.1.3. Develop one Pre-feasibility Study (PFS) to support the GCF CN (3.4.1.2). This PFS will be informed by the results achieved under this NAP Readiness and cover (but not be limited to) relevant baseline data and information on conventional agriculture and CRA (including results from pilot plots), CC and extreme events, local socio-economic conditions, relevant legal and policy frameworks, complementary projects.	3.4.1.3. D1: One PFS developed and submitted alongside the CN to GCF.

4. THEORY OF CHANGE

Palestine aims to ensure a paradigm shift away from conventional agriculture practices towards climate resilient agriculture. As per the NDCs (2016) of Palestine, the target is to support 50 percent of Palestinian farmers to adopt CRA by 2040. As outlined in section 2, agriculture is key in supporting Palestinian livelihoods and food security while being among the most vulnerable sectors to CC.

Problematically, conventional – often heavy input dependent – farming systems can be especially vulnerable to observed and projected changes in climate and weather variables. This is *i.a.* due to the non-diversified approach of agriculture practices, which often causes *i.a.* soil depletion, which in turn translates into a less CC resilient milieu for agriculture production. On the contrary, climate resilient agriculture (closely related to as climate-smart agriculture and inclusive of approaches such as such as conservation agriculture, agroecology, and agroforestry) promotes *i.a.*: diversified agricultural productivity and innovation (including mixed crop-livestock systems), minimizing mechanical tillage where possible, maintaining a protective organic cover on the soil surface, and cultivation of a wider range of plant species – both annuals and perennials – in associations, sequences and rotations that may include trees, shrubs, pastures and crops. It promotes, for example, the integration into cropping systems of pulses and legumes that help build up and maintain soil nitrogen levels. In fact, integrating different plants with different root structures and properties will also support healthier soils, with a higher water retention capacity (hence reducing sensitivity of agriculture systems to increasingly erratic precipitation, which has been observed and projected for Palestine, thereby contributing to CC resilience of the agriculture system as well as dependent livelihoods).

In addition, intercropping or combination with nitrogen fixating plants reduces the need to apply GHG-intensive chemical fertilizers, thereby reducing costs to the environment and farmer. Furthermore, smart cropping practices and combination of plants (and animals) in agriculture systems contribute to the reduction of required chemical pesticides, further benefitting the environment and the climate while reducing costs to farmers. This reduced input dependency and cost reduction is particularly relevant for Palestinian farmers as it allows for reduced imports of costly commodities. The FAO Biovision Study (2020) provides tangible evidence that diversified and integrated agriculture systems result in higher yields and are less prone to extreme weather events relative to non-diversified systems. This study also outlines how climate-resilient agriculture practices contribute to increased CC resilience while helping to support mitigation objectives. Finally, this study provides information on how diversified systems contribute to the reduction in chemical fertilizer/ pesticide use (relative to conventional farming), which contributes to the preservation of the natural resource base, increasing climate resilience and sustainability of the farm systems. NB: best climate resilient agriculture practices are always context specific, which is why the Palestine NAP Readiness proposes the pilot plots to be run. The data from the plots will contribute to the baseline information that will inform future full funding proposals.

Currently, inter-institutional coordination to support the transition from conventional to CRA is still somewhat lacking due to limited financial resources for kick-starting a CRA inter-institutional working group mechanism. In addition, such mechanism requires a strong science foundation in terms of access to 1. short-term as well as long-term agro-met data and 2. An enhanced knowledge base on CRA best practices in the different agro-climate zones of Palestine. As described in section 2 of this proposal, CC observations indicate *inter alia* a rise in temperatures coupled with reduced/ increasingly erratic precipitation, which causes a shift of traditional growing seasons while increasing periodic soil moisture stress. Currently, the Palestinian Meteorological Department

(PMD) is not well equipped to produce and disperse real time alerts for farmers with regard to weather variables thus making it difficult for smallholder farmers to identify best timing for planting and harvesting. The currently poor agro-met station network translates also into the inability of Palestine to produce its own CC projections and hence to make informed long-term strategic decisions for its agriculture as well as other sectors. At the moment, CC projections for Palestine are mostly derived from neighboring countries and can thus not provide tangible information on local weather/ climate conditions.

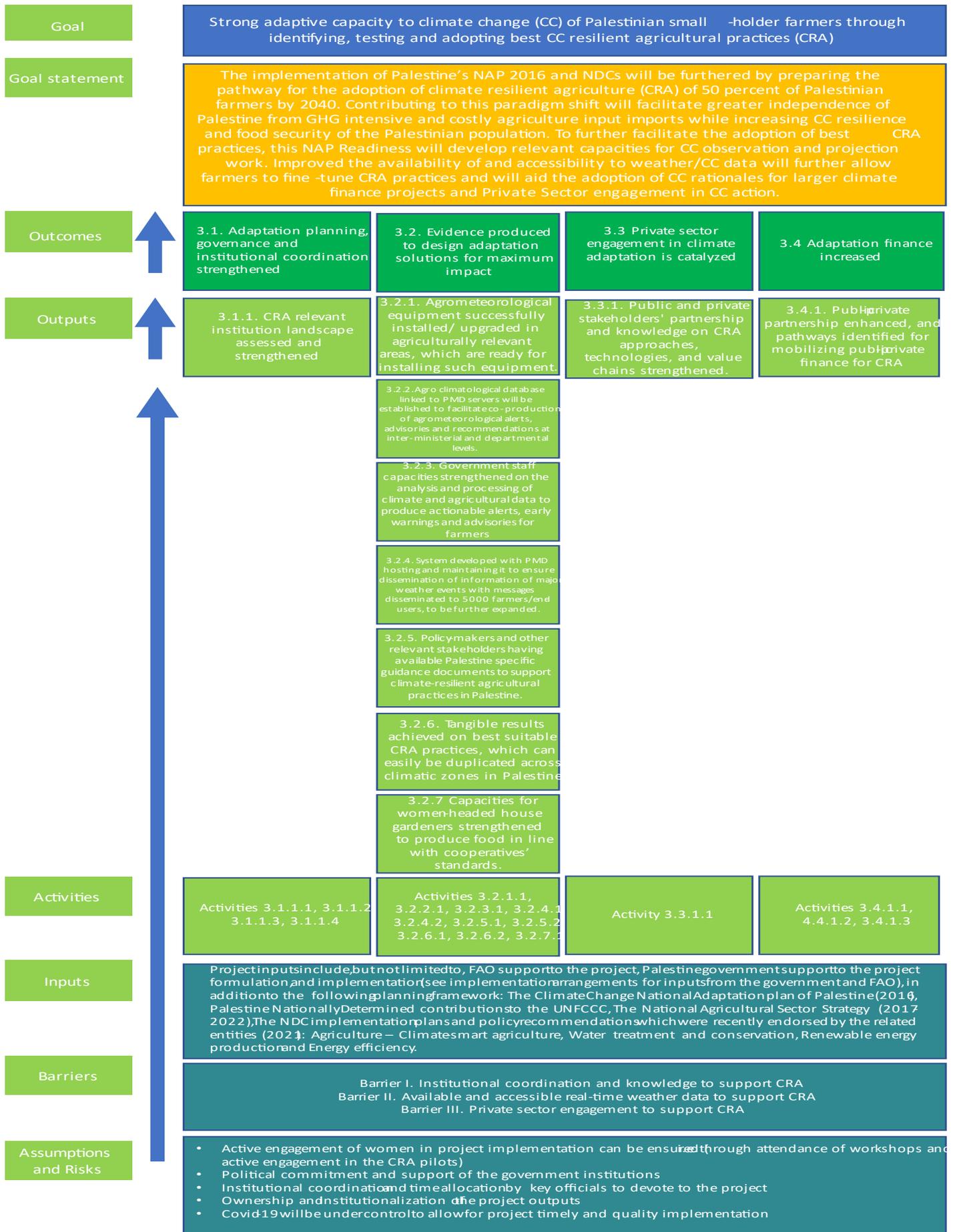
This challenging lack of CC data is combined with limited information on best CRA practices and extension services. As the change in applying agriculture practices is connected to the potential risk of short-term yield reduction, it is of utmost importance to provide test plots to collect data on best suitable CRA practices. Ensuring the shift – and the informed support by larger future projects thereof – towards 50 percent of Palestinian farmers applying CRA practices therefor requires studies to take place that examine the best local context specific CRA approaches. Due to the currently weak inter-institutional coordination as well as lacking CC and CRA data, private sector investment in CC resilient agriculture value chains is currently limited.

This NAP Readiness proposal builds on the NDCs and NAP of Palestine and is designed to strengthen the CC adaptation planning capacity of Palestine. Outcome 3.1 (adaptation planning, governance and institutional coordination strengthened) will enhance the inter-institutional; collaboration to identify and streamline CRA practices and technologies into national and local policy frameworks, by using a cross-sectoral perspective. Outcome 3.2 (Evidence produced to design adaptation solutions for maximum impact) will strengthen the capacity of the PMD to produce, collect, and disperse agro-met data and information to relevant stakeholders, especially small-holder farmers. Enabling such know-how and service will help the farmers to quickly adjust their agriculture activities to sudden changes in weather variables (including shifting growing seasons). In addition, improving the station network will benefit Palestine's ability to produce strong CC rationales for future climate finance projects, either with GCF or other donors (and this beyond the agriculture sector and livelihoods). The second part of Outcome 3.2. will support the creation of a solid overview of CRA practices, tools and technologies that are suitable for the agro-climatological conditions in Palestine. In addition, two CRA pilot projects will be set-up under this project to implement and test best CRA practices. In this context, this NAP Readiness proposal will ensure the availability of required CRA expertise to be available for designing such plots and scientifically documenting achieved results (CSA practices vs conventional practices). This Readiness project is designed to identify and test the best CRA practices for Palestine in cooperation with the National Agricultural Research Centre (NARC) and selected farmers associations. This will ensure maximum ownership and participation. Outcome 3.3. will bring together all relevant stakeholders, including farmer associations and other private sector entities, to review the results from the pilot plots, first data from the newly established agro-met stations, and discuss best future collaborations for CRA that support small-holder farmers in Palestine. Outcome 4 will further enhance public-private partnerships in support of CRA agriculture practices through developing a strategy for future action. In addition, the most suitable CRA practices (from a CC, weather, socio-economic and commercial point of view), will be reflected in GCF CN and PFS, which will be the next step to further up-scaling achievements of this project.

To support above mentioned outcomes, this project will support the Palestinian Government in overcoming three key barriers to CC adaptation: Barrier I: Institutional coordination and knowledge to support CRA, Barrier II: Available and accessible real time weather data to support CRA, and Barrier III: Private sector engagement to support CRA. The assumptions for project implementation success are active engagement of female beneficiaries/ small holders, the government will provide

support to the project during the entire period of implementation and after (see exit strategy), outputs of the project will be institutionalized. Limited risks to the successful project implementation are foreseen. The main risk is currently the COVID-19 pandemic with its potential impact on timely project implementation. However, risk mitigation measures have been identified (see 6.3).

THEORY OF CHANGE DIAGRAM



5. IMPLEMENTATION ARRANGEMENTS AND OTHER INFORMATION

5.1 Budget plan

Please see attached budget plan.

5.2 Procurement plan

Please see attached procurement plan.

5.3 Implementation Plan

Please see attached implementation plan.

5.4 Disbursement schedule

Please see attached disbursement schedule.

Readiness Proposal that falls within a Framework Agreement with the GCF

- a. Disbursements will be made in accordance with Clause 4 “Disbursement of Grants” and Clause 5 “Use of Grant Proceeds by the Delivery Partner” of the Amended Preparatory Support Grant Agreement, which entered into force between GCF and FAO on 25 August 2020 (the “Framework Agreement”). The Delivery Partner is entitled to submit 2 requests for disbursement each year and an Interim Request for Disbursement within 30 days of approval by the GCF of a proposal, which must be in accordance with the Framework Agreement.

6. IMPLEMENTATION ARRANGEMENTS AND OTHER INFORMATION

6.1 Implementation arrangements

Under the strategic oversight of the Palestinian Government (GoP), represented by the NDA, this project will be implemented by the Food and Agriculture Organization (FAO), which will be the Delivery Partner (DP) for this Readiness proposal. FAO is also an Accredited Entity (AE) to the Green Climate Fund (GCF). As DP, FAO will be responsible for the implementation of the readiness support and will carry out all fiduciary and financial management, procurement of goods and services, monitoring and reporting activities under this proposal in compliance with FAO's policies and procedures and with the Framework Agreement.

A **Project Steering Committee (PSC)** will be established to provide strategic guidance, assess progress and support the achievement of project results in accordance with the project document and approved work plan. It will be chaired by the NDA, with the FAO technical advisor acting as rapporteur. In his capacity as chair of the PSC, the NDA will convene the PSC every three months to take stock of project milestones and deliverables while ensuring that the project is coordinated with other relevant initiatives in Palestine such as the Country Programme of Palestine. The PSC shall be the highest decision-making body of this project. Primary stakeholders include but are not limited to: The Ministry of Climate and Natural Resources, Environment Quality Authority (EQA); Palestinian Energy and Natural Resources Authority (PENRA); Water Authority (PWA); Palestinian Meteorological Authority (PMD), The Ministry of Women (MoWa), participating farmers, and farmer associations and NGOs (see outcome 3.2.), provincial governments and communities, village councils, civil society organizations, and other bilateral partners related to implementation of other GCF/ climate change related projects.

The **Government of Palestine** will make the following contributions to support this NAP Readiness proposal: First, the Government will establish the appropriate institutional structures and coordination mechanisms to support the implementation of deliverables and alignment with country priorities. Second, the Government will support and ensure coordination from the involved ministries and all other relevant government institutions, directly or indirectly related with CC; Third, the Government will provide access to available CC data and information as well as prior studies relevant to the activities of this project.

A **Project Management Unit (PMU)** shall be established as the unit responsible for the day-to-day implementation of the project. The PMU will comprise the following elements:

1. A full-time Lead Technical Consultant (LTC), who will lead the PMU. The LTC will be recruited by FAO Palestine (in collaboration with NDA) and hosted by FAO. The LTC will provide technical oversight and coordinate implementation of this project and be accountable to FAO Palestine and work in close cooperation with NDA. The LTC will be supported by a designated counterpart from the NDA staff. In addition, the LTC will be supported by the FAO project task force, the FAO Representative of Programmes to Palestine, and the NDA. The LTC and the FAO Representative will meet once a month to take stock of project implementation.
2. Support staff, which will support the LTC on matters related to Operations, Admin, Finance, Assistant, Logistics and Human Resources. This staff will be based in the FAO Palestine office. Please see Table 2 below for the brief ToRs for the key staff to be assigned for the project including the LTC.

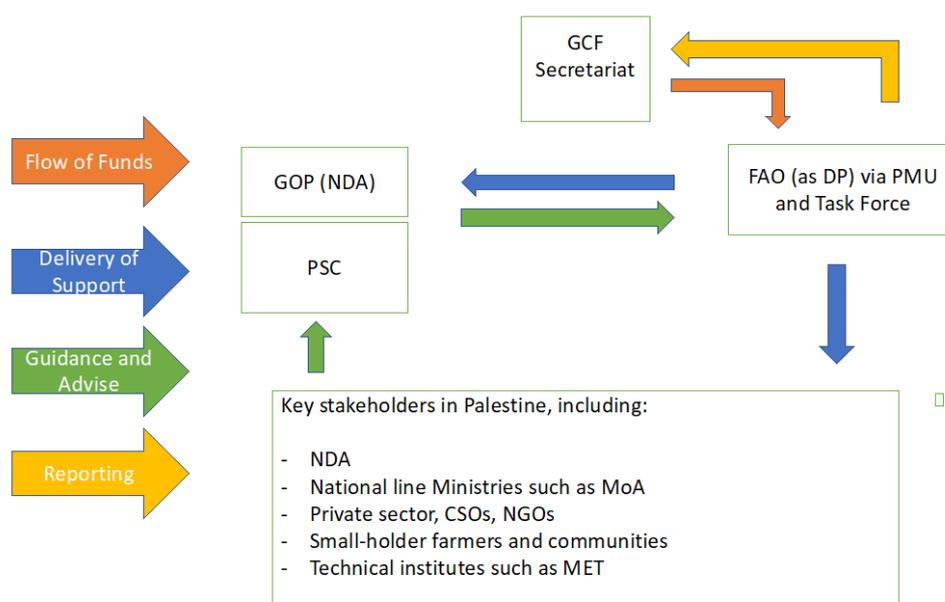
Internally FAO will establish a **Project Task Force (PTF)**, which will be chaired by the FAO Head of Programmes in Palestine and FAO Technical Officers based in Palestine, FAO Regional Office (in Cairo), and FAO headquarters (in Rome). The PTF is a management and consultative body established for each FAO climate programmes, regardless of donor or geographic coverage. The PTF consists of

FAO staff who possess the appropriate authority and mix of skills to ensure that the project receives effective technical, operational and administrative support throughout its duration. The PTF will support the PSC and the PMU on the project implementation.

Stakeholder engagement has been planned for at strategic points throughout the proposal. At the national level, the list of stakeholders for the implementation of this proposal includes but is not limited to the NDA, MoA, PMD, EQA, and other Government Entities. The project will be implemented through a transparent, participative and inclusive consultative process, which aims to engage all stakeholders. In addition, the pilot project site will also provide the possibility for all small-holder farmers and communities to provide feedback on best CRA practices as well as policies that might create maladaptation or do not utilize potential synergies of development projects.

The GCF will be the main resource partner providing funding to support start-up of Readiness implementation related to activities, recruitment and procurement of agreed budget, logical framework and workplan. The resource partner will support the funding for assessment, risk management and assurance activities required during the project planning, execution and reflection phases.

MAP 2: Implementation Arrangements NAP Readiness Palestine (MET = PDM)



Starting date of this Readiness Proposal: the start date for implementation will be as outlined in the Second Amended and Restated Framework Readiness and Preparatory Support Grant Agreement entered into between GCF and FAO dated 25 August 2020 (Framework Agreement).

Table 2: Brief ToRs for the key technical, admin and operations staff to be assigned for the project.

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Lead Technical Consultant	<p>The Lead Technical Consultant (LTC) will be overall results delivery of the technical activities with a background in climate resilient agriculture/ agroecology under the supervision of FAO Lead Technical Officer.</p> <p>Main responsibilities:</p> <ul style="list-style-type: none"> - Provide the day-to-day management of the technical activities. - Coordinate and mobilize stakeholder (government agencies, UN, private sector, academic institutions, farmer associations) to conduct project activities. - Attend and support project-related meetings with government counterparts and experts. - Ensure the timely delivery of technical results against the GCF approved project log frame. - Ensure continuous risk analysis of the local context to be able to flag and advice upon any necessary deviations from the original workplan and change non-remote work arrangements to remote arrangements, where needed. - Develop communication and advocacy materials for the project activities. - Draft detailed Terms of References for experts.
International gender-sensitive CSA consultant	<p>International consultant, with a gender-sensitive profile, responsible for gender mainstreaming and consultations</p> <p>Main responsibilities:</p> <ul style="list-style-type: none"> - Providing gender integration and mainstreaming support for the development of program framework - -Providing advisory on mainstreaming gender considerations in CRA relevant policies and programs. - Supporting the development and integration of gender-responsive indicators in designing and implementing the activities. - Providing advisory for the program development on the CSA gender needs, gaps and opportunities
Climate-smart agriculture consultant - crop management consultant	<p>15+ years of experience in climate-smart agriculture with a special focus on integrated crop management (ICM)</p> <p>Main Responsibilities:</p> <ul style="list-style-type: none"> - Providing advisory support and technical oversight on policy, governance, and intuitional capacity development. Will Work together with the national capacity and governance specialists. - Supporting the development and delivery of the different CSA capacity development and awareness modules and activities. - Co-drafting the work program framework, collating inputs, and facilitating workshop + finalizing program framework
Climate-smart agriculture expert	<p>National consultant, with a technical background in climate-smart agriculture.</p> <p>Main responsibilities:</p> <ul style="list-style-type: none"> - Supporting the international consultants for developing program framework. - -Supporting the development and delivery of the different CSA capacity development and awareness modules and activities.
Institutional capacity assessment and development expert	<p>National consultant, with background and sufficient experience in institutional capacity assessments and development.</p> <p>Main responsibilities:</p> <ul style="list-style-type: none"> - Supporting the development of the program framework and integrating institutional assessment and development aspects. - Supporting the development and delivery of the different institutional capacity development and awareness activities.

Climate-resilient agriculture-water management consultant	<p>An international consultant with 15+ years of experience in climate-smart agriculture with a special focus on water management.</p> <p>Main Responsibilities:</p> <ul style="list-style-type: none"> - providing professional advisory and technical support to the project in policy, governance, and institutional capacity development. - Supporting the design and delivery of the different institutional capacity development and awareness activities - Co-drafting the work program framework - Support the design of the CSA pilots and the development of the resulted CSA manuals.
Agroecology expert	<p>An international consultant with background and sufficient experience in agroecology in semi-arid and Mediterranean climates.</p> <p>Main responsibilities:</p> <ul style="list-style-type: none"> - Supporting the design and oversight of the CSA pilots and the resulting manuals and guidelines. - Supporting the identification, testing, and integration of agroecological innovations and know-how in the CSA pilots
Climate-smart agriculture-IPM/GAP expert	<p>15+ years of experience in climate-smart agriculture and integrated crop management with research experience.</p> <p>Main responsibilities:</p> <ul style="list-style-type: none"> - Supporting the project design and implementation in sustainable agricultural development, integrated pest management “IPM” and good agricultural practices “GAP”, international agricultural standards (e.g., Global G.A.P., organic farming). - Supporting the design of the CSA pilots and the development of the resulted CSA manuals. - Supporting the development and delivery of the different CSA capacity development and awareness modules and activities. - Supporting the work of the International Agroecology expert
Agrometeorological expert	<p>National consultant with a background and sufficient experience in meteorology/agrometeorology and climate data management software.</p> <p>Main responsibilities:</p> <ul style="list-style-type: none"> - Supporting the development of climate data processing software to produce an automatic data processing system - Supporting the installation and configuration of the software, and connecting the system to the MoA registry - supporting the formulation and dissemination of early warning messages guided by agrometeorological forecasting
Climate/agricultural experts	<p>National consultant with background and sufficient experience in agricultural climatology</p> <p>Main responsibilities</p> <ul style="list-style-type: none"> - Advising PMD in identifying best placement of MET station equipment and which stations to update, and supporting PMD to integrate historical data into an online database - Supporting the formulation and dissemination of early warning messages guided by agrometeorological forecasting
Key admin and operations consultants to be assigned for the project	

Reporting and Communication Consultant	<p>Background in technical reporting and communications on agroecology and/or climate change.</p> <p>Main responsibilities</p> <p>Tracking/monitoring technical project reporting requirements and deadlines; timely consolidating, reviewing, and finalizing of project reports; ensuring that all reports meet the technical content and format requirements of FAO and donors; editing/revising other project-related documentation produced during project implementation such as reports, studies, etc. Work on the development of different project related information products for workshops, consultation, presentations, etc.</p>
Finance Assistant	<p>Background in financial management of projects implemented by FAO and other international donors.</p> <p>Main responsibilities</p> <p>Providing technical financial and accounting and administrative assistance in support of the project's financial management in line with UN/FAO financial rules and regulations. S/he will maintain financial records for the project; ensure the accuracy of accounting codes and recording of receipts and payments; finalize payment requests including checks and bank transfers, settlement of cash advances and travel claims and ensure that supporting documents are always adequate and complete; prepare VAT exemption submissions and refunds; ensure timely preparation of monthly and annual expenditure reports, project balance, transaction reports and project budget status sheets; and maintain a proper filing system for the project's financial records and documents</p>
HR assistant	<p>Main responsibilities</p> <p>Providing HR services in support of the project's personnel recruitment and management in line with FAO and UNDP-PAPP rules and regulations on HR servicing. S/he will draft job descriptions and vacancy announcements for review by the Project Manager and ensure relevant clearances; assist in issuing vacancies and receiving applications; assist in preparing offers of employment with complete information on terms and conditions of service; assist in processing contracts, promotions, separations and other personnel actions related to all project positions; answer queries on, and verify entitlements and procedures for project personnel in conformity with the employment status and ensure that a proper filing system for HR records is maintained</p>
ICT/GIS Assistant	<p>Background in database development and management, particularly related to climate change and agriculture. Proficiency in GIS software.</p> <p>Main responsibilities</p> <p>Providing ICT services in support of project implementation. S/he will provide daily technical support to project staff using information management tools and infrastructure; ensure compliance with corporate information management and technology standards, guidelines and procedures, securing HQ clearance before the acquisition of any IT related supplies, assets and/or services for the project; draft technical specifications of IT-related equipment/supplies and TORs for services to be acquired for project implementation; evaluate bids/CVs received and provide technical feedback, and maintain a supply of spare parts on hand. S/he will also provide GIS services to the project as needed</p>
Senior Emergency and Rehabilitation Officer	<p>More than 25+ years of experience in Programme management.</p> <p>Main responsibilities:</p> <p>Will be accountable for overall project achievements. The Senior Officer leads the Programming; Operations; Reporting; Monitoring and Analysis units in FAO WBGS ensuring adherence by all project staff, partners, contractors, suppliers and service providers to FAO's rules, regulations, and financial procedures.</p>

International Operations Officer	<p>More than 7+ years of experience in Programme management.</p> <p>Main responsibilities: Heading up the Finance, HR, Procurement, Logistics and Administrative units providing implementation support towards the delivery of the project in line with FAO rules and regulations. S/he will also monitor project expenditures, periodically revise the project's financial status and alert the Lead Technical Consultant and BH on impending under/over expenditures; ensure timely submission of financial reports to donors; coordinate with the UN, Palestinian and Israeli authorities for protocol matters and to ensure the safe/ timely passage of project personnel and goods across borders; ensure compliance with UNDSS security requirements and participate in ASMT meetings for the WB.</p>
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Grievance Mechanism

The Project Management Unit will be in charge of the day-to-day monitoring and disclose project information to beneficiaries in Arabic, including relevant information on project activities, timelines, and locations. Upon implementation of activities, the PMU will further ensure effective dissemination of information to the beneficiaries regarding delivery of goods and services.

FAO has established a grievance mechanism where designated focal points are tasked with receiving and screening comments/grievances related to the safeguards in accordance with the Guidelines for Compliance Reviews Following Complaints related to FAO's Environmental and Social Standards.

During the project inception phase, stakeholders are informed about the existence of the grievance mechanism and how they may access it if needed. Not limited to this GCF Readiness initiative, this applies to all projects (regardless of the Environmental and Social Risk classification). FAO's policy is that grievances need to be addressed as close as possible to the source of the problem e.g., at a project location or within the FAO office. Thus, any grievances will be addressed by the PMU.

At organizational level, FAO has the [grievance mechanism](#), and in the project level, FAO WBGS office will coordinate with local partners and stakeholders to set up the channel of grievance mechanism in the throughout the project(email and phone call details for comments and complaints included in application form, regular field visits by the Project Management Unit, pro/post intervention monitoring, and timely review and final evaluation). All cases will be documented for following up and analysis.

6.2 Implementation and execution roles and responsibilities

Please briefly describe how the activities will be implemented and outputs delivered by project staff and consultants.

Agency/ Stakeholder	Type	Role in the project
EQA	NDA	The NDA will chair the PSC and be the main national guidance and consultation point for this project during implementation. The NDA will also preserve all knowledge products and information generated under this proposal, as per his mandate to ensure CC coordination in country.
FAO	Delivery Partner	FAO is the Delivery Partner for this Readiness project. FAO will provide support and project assurance through the FAO Representation in Palestine as

		well as through its regional office based in Cairo and headquarters in Rome. This will include project oversight, technical support and monitoring functions.
Line Ministries	Government Entities	The line ministries such as MoA, PWA and PMD will support the implementation of this project through providing guidance to the PSC, where needed. In addition, these entities will benefit from the generation of knowledge products and trainings under component 3.1 and 3.2.
Private Sector	Private	The private sector will engage with the public sector under this proposal. The private sector entities that will be invited to meetings (e.g., under outcome 3.3) will have a background (and/ or interest in) relevant to CRA relevant tools and technologies and will share knowledge accordingly.
Meteorological Office (PMD or MET)	Government Entity	The PMD will be participating in trainings under outcome 3.2 to expand their expertise on EWS systems and the dispersion of relevant information to farmers.
CSOs/ NGOs	Non-government public entities	The final list of NGOs and CSO will be selected prior to the project inception workshop to ensure participation. The idea is that the NGOs and CSOs will also be benefitting from the data and information generated under this project. By inviting NGOs and CSOs to attend the field trial sides (see outcome 3.2.) and meeting with the private sector, the CRA knowledge generated under this proposal will be spreading much faster than without NGO and CSO support.
Farmer Associations	Non-government public entity	The project – under the guidance of the NDA and the technical advisor (PMU) will work closely with one farmer associations (and/or NGOs) in Palestine. This farmer association (and/ or NGOs) will provide the land plot for the CRA pilot side. The association will maintain the site throughout project implementation, following the instructions and support from a CRA expert, hired under this project. The head of associations are selected by the members of the cooperative on a rotational basis.
Consultants	Personnel	National as well as international consultants will be hired to execute the various activities of this proposal. A brief overview of their technical backgrounds and terms of reference can be found in the Budget and Procurement Plan.

6.3 Risks and mitigation measures

Please include a set of identified risks and mitigation actions for each. Please utilize the risk table below that identifies the probability of a given risk occurring and the entity that will manage the risk. Please refer to Part III Section 6.3 of the Readiness Guidebook for further information on how to complete this section.

Risk category	Specific risk(s) / Risk(s) description	Probability of occurrence (low, medium, high)	Impact level (low, medium, high)	Mitigation action(s)	Entity(ies) responsible to manage the risk(s)
Financial	-Price fluctuations on equipment and restrictions on movement of people and goods.	Medium	Medium	- FAO has previous experience on this matter and monitors the local market situation. - Collaborate closely with the MoA to mitigate or manage these risks.	FAO MoA
Technical and operational	-Insufficient capacity to ensure best governance and management practices leading	Low	High	- Needed technical, security, operational and administrative personnel will be assigned from the current office structure or new personnel hired to ensure a timely,	FAO EQA MoA

Risk category	Specific risk(s) / Risk(s) description	Probability of occurrence (low, medium, high)	Impact level (low, medium, high)	Mitigation action(s)	Entity(ies) responsible to manage the risk(s)
	to delays in implementing the projects activities and compromising the quality of project's results			<p>effective, and efficient implementation ensuring that internal controls are in place to minimize operational risks ensuring accuracy of records, promoting operational efficiency, and encouraging adherence to policies, rules, regulations, and laws</p> <p>- Recruitment plan will be developed in advance to ensure qualified candidates are recruited following FAO rules and regulations in a timely fashion.</p> <p>-FAO will give priority to local procurements to contribute to enhancing the local economy and avoiding possible complications and delays in imports. `</p>	
Technical and operational	<ul style="list-style-type: none"> - Insufficient cooperation among partners and facilitators. - Low utility of information produced could weaken the effectiveness of the implementation. 	Low	Medium	<ul style="list-style-type: none"> - EQA will be leading technical committees and working closely with the MET. - FAO and local facilitators will be implementing partners reporting directly to the PMU. - Strict modalities for lines of reporting. 	EQA PMD FAO
Technical and operational	COVID-19	Medium	Medium	<ul style="list-style-type: none"> - Apply remote modality options (teleworking, online meeting) when face-to-face working conditions are not feasibility. - Ensure that field monitoring visits are conducted using Personal Protective Equipment - Protection of staff, partners and people in need by using protective equipment and physical distancing. 	EQA PMD FAO
Technical and operational	Substantial change in needs and priorities beyond FAO operational capacity to intervene due to recurrent skirmishes, violent conflicts, and protracted crises	Medium	High	<ul style="list-style-type: none"> - Sufficient technical, operational and administrative staff to ensure FAO maintains a solid organizational structure that fits the specific needs of the Palestinian context in line with the criticality Assessment conducted jointly with the UN system and ensuring full compliance with the UNDSS security provisions. - Regular review and monitoring of the situation to ensure timely implementation safeguarding staff security 	EQA PMD FAO

Risk category	Specific risk(s) / Risk(s) description	Probability of occurrence (low, medium, high)	Impact level (low, medium, high)	Mitigation action(s)	Entity(ies) responsible to manage the risk(s)
Implementation risk	Anti-money Laundering and Counter-Financing Terrorism	Low	Low	- The PMU will support the development of a number of technical documents including the ToRs/founding documents and its related work plan with clear roles and responsibilities for the project. The International consultants will assist in bringing the strong technical leadership in relation to climate change and sectorial expertise. The project team will use structures, national and international consultants contained in its database and roster, to ensure they have been working with UN agencies before. New consultants as well as new structures will be assessed before being recruited. Missions in the field will be escorted, when needed, as per FAO's procedures.	FAO and PMU

6.4 Monitoring

Monitoring and Evaluation of the Project

All monitoring and evaluation for this project will be guided by the framework agreement for readiness signed by FAO and the GCF in 2020. The DP, together with the NDA, will prepare and submit to GCF the Interim Progress Monitoring Report as well as the final Completion and Evaluation Report.

The FAO country team supported by the Regional Office for North Africa and the Near East (RNE), and FAO HQ shall provide technical oversight for project monitoring and drafting of Interim Progress as well as Final Reports. These reports will track and report on project delivery against the log-frame, budget, and timetable approved by GCF.

6.5 Other Relevant Information

Environmental sustainability

The proposal aims to increase the sustainability of agriculture and livelihoods in Palestine to CC risks. The agricultural sector is operating below capacity and has gradually reduced over the years—with the sector, including fishing in the Gaza Strip, experiencing a decline in contribution to GDP from 37% at the end of the 1970s, to 22% at the end of 1980s to 3.8 % in 2014. However, this contraction has not been a result of reduced prioritization of the sector, but rather increasing stresses that have inhibited full operation of its potential. In order to ensure sustainability, the proposal reflects on this historical trend by filling gaps identified in the NAP, which were submitted to the UNFCCC. The Readiness initiative is also incorporated into the Palestine GCF Country Programme.

Stakeholder consultation and participation

Building on good practice from previous projects and programmes, this request relies on extensive stakeholder consultations and participation with stakeholders from all States, including ministries and governmental departments, civil society organizations, local communities, unions and groups, as well as private sector organizations. In October 2019, a workshop was organized among relevant stakeholders on Palestinian Technology Roadmap. Information on gender, agriculture and energy sectors were communicated and discussed in order to guiding and amending further implementation on towards CRA in Palestine.

Gender equality

The forthcoming FAO WBS 2021 Gender Equality Stocktaking & Capacity Needs Assessment Report collected a series of evidence of which indicated Palestinian women play a prominent role in agriculture. This is exhibited by women carrying out 87 percent of the agricultural animal production labor and 54 percent of agricultural plant production labor, which are a source of income for thousands of Palestinian families in Palestine, in addition to their role in securing the food basket by supplying fruits and vegetables.

A gender analysis report carried out by FAO in 2011 showed similar results including that over 30 percent of informal agricultural work is done by women as part of their domestic responsibilities. Particularly in rainfed farming, which is often considered an important supplementary source of livelihood to rural households, and heavily dependent on climate conditions, women are historically the major contributors to farm work. The project will promote gender-sensitive CRA benefitting from FAO and others' work wherever applicable, such as "Good Practices for Integrating Gender Equality and Women's Empowerment in Climate-Smart Agriculture Programmes", "Gender in CSA" and "A Gender-responsive Approach to Climate-Smart Agriculture: Evidence and guidance for practitioners".

Exit Strategy and sustainability

The four outcomes supported under this NAP Readiness project will directly contribute to the implementation of Palestine's Country Programme Framework for the Green Climate Fund by ensuring providing enabling conditions for the pipelined GCF project in agriculture and beyond. This will be achieved by addressing key barriers to CC adaptation by improving the inter-institutional cooperation of relevant actors, strengthening the capacity of the PMD to generate and disperse data (needed for short-term agro-climate alerts and future CC modelling that can support the development of a well-informed long-term CC strategy), identifying and testing best possible CRA practices (which will provide the research needed to inform the formulation of full funding proposals, either with GCF or other donors), and enhancing access to climate finance and public-private sector partnerships. The enhanced engagement with the private sector – now based on CC and CRA data and information – will help to identify CC resilient, socio-culturally and commercially viable value chains in which the position of small-holder farmers can be strengthened under bigger climate finance projects. The now added activities 3.4.1.2 and 3.4.1.3 will enable the direct translation of project results into larger climate finance interventions, in close collaboration with the private sector. The PMD has all needed capacities to operate and maintain the agro-met equipment procured under this project (as outlined by the PMD letter, shared with the last submission of the project). All outputs relevant for the public will be stored by and made available through the Ministry of Agriculture website (<https://moa.gov.ps/>), in close collaboration with the NDA.

The NDA is planning to use the additional USD 1.35 million to further enhance collaboration among private sector entities, including small holder farmer associations and update the 2016 NAP document (based on data and information collected under this NAP Readiness project)

Anti-money laundering and countering the financing of terrorism

As per clause 11.01 (f) of the Framework Readiness and Preparatory Support Grant Agreement between the GCF and FAO, FAO will apply its own fiduciary principles and standards relating to any “know your customer” checks, AML/CFT, and financial sanctions imposed by the United Nations Security Council, which should enable it to comply with the objectives of the Policy on Prohibited Practices and the principles of the AML/CFT Policy.

No risks of money laundering, terrorist financing, corruption or prohibited practices are foreseen during project implementation. The project team will use structures, national and international consultants contained in its database and roster, to ensure they have been working with UN agencies before. New consultants as well as new structures will be assessed before being recruited. Missions in the field will be escorted, when needed, as per FAO’s procedures.

Conflicts of interest

In order to avoid any conflicts of interest arising from FAO’s role as an Accredited Entity, the prioritization of technology, investments and projects under this grant will be made through a broad consultation process with relevant stakeholders as part the Government of Palestine’s led Priority Roadmap. The final validation of the priorities outlined in the Technology Roadmap will be carried out through Palestine’s own coordination mechanism and institutional arrangements for implementation, with the participation of relevant authorities (MoA and PNA), as well as civil society and private sector representative to ensure selected priorities are fully aligned with national plans.

FAO Palestine is well suited to act as Delivery Partner of this project as it has mainstreamed climate change adaptation within the implementation of various projects such as the use of hydroponic solutions to promote agriculture livelihoods among farmers facing land scarcity, water harvesting structures, and seed and crop diversification. Apart from adaptation projects, FAO is also currently supporting the MoA with NAMA Support Project which seeks to upgrade Palestinian olive value chains by engaging more the private sector and encouraging deeper involvement of stakeholders into environmental concerned practices to better coping with climate change. This is being coordinated under a common climate-portfolio at FAO to link NAMA mitigation efforts with GCF Readiness NAP implementation by complementing related technologies and approaches, where possible. As a leading partner to support governments with climate change adaptation, FAO published the [Programme Framework on Climate Change Adaptation](#) as a guiding document to ensure all FAO adaptation projects are implemented with a clear direction and unified goal. At the global level, FAO is the lead technical agency on climate change adaptation within the agriculture sector, such as through the [AVAACLIM](#)¹ project. This project supports adaptation processes by addressing the knowledge and data gaps by evaluating the effects of climate innovations across drylands.

In accordance with FAO rules and regulations, the FAO will implement the project in full compliance with any UN sanctions list that may be of relevance. No entities or individuals who are the subject to or affected by United Nations Security Council sanctions regimes will be involved in projects’ activities, either as counterparties or as beneficiaries.

Project alignment to FAO Outcomes

WBGS Country Programme Framework Output Indicator:

Indicator: 1.3.7 The capacities of MoA and other relevant government stakeholders to collect, analyse and disseminate agro-climatological information is strengthened to address climate change through FAO support (2.4.2).

FAO Corporate Outcome and Indicator:

Outcome: 2.4.2 - Capacities of institutions are strengthened to collect analyses and report data for decision making on sustainable production, climate change and environmental degradation, including relevant SDGs

Indicator 2.4.2.A - Number of institutions that received capacity development support from FAO to collect, analyses and report data for decision making that foster sustainable production, address climate change and environmental degradation, including relevant SDGs.

¹ UNDP/PAPP. *Climate Change Adaptation Strategy and Programme of Action for the Palestinian Authority* (p. X). Retrieved from http://eprints.lse.ac.uk/30777/1/PA-UNDP_climate_change.pdf

² Smithers, R., Harrison, M., Mimi, Z., Hardan, K., Abdelall, S., & Hasan, A. (2016). *National Adaptation Plan (NAP) to Climate Change* (p. 91). State of Palestine, Environment Quality Authority. Retrieved from https://unfccc.int/files/national_reports/non-annex_i_parties/application/pdf/national_adaptation_plan_state_of_palestine.pdf

³ IFAD. 2017. "Palestine Resilient Land & Resource Management Project Final Project Design Report". <https://operations.ifad.org/documents/654016/be016995-b126-400c-992e-804f7962ca81>.

⁴ Richard, Matthew, and Jad Issac. 2012. "Analysis Of Climatic Variability And Its Environmental Impacts Across The Occupied Palestinian Territory". https://www.arij.org/files/admin/specialreports/Climate%20change%20analysis%20_PDF.pdf.

⁵ National Agriculture Sector Strategy (2017-2022) "Resilience and Sustainable Development"

⁶ Bayer, Amanda & Van Iersel, Marc & Chappell, Matthew. (2017). What is a weather station and can it benefit ornamental growers?. UGA Cooperative Extension Bulletin. 1475. 1-6.

Annex 1 – additional info on agro-met equipment and locations

While meteorological stations have technical specifications for installation (issued by the WMO), agrometeorological stations must be installed within agricultural plots and at the height relevant for agricultural production, to ensure that data is representative of the climatic conditions experienced by the crops. The following technical requirements will serve as criteria to inform the installation sites of agro-met stations procured under this NAP Readiness project:

- a. Specified parameters measured at 2m height to be relevant for agriculture
- b. Soil sensors installed in ground near crops
- c. Site selected within agricultural plot or close by to ensure calibration relevant for agricultural practice
- d. Leaf wetness sensor installed in agricultural plot/tree or vine

To ensure safety and sustainability of the stations, the agricultural plots will be selected together with the network of farmers in the database of MoA. This selection process is already underway.

In addition:

- e. Consultations will take place with PMD, MoA and farmers/communities of sites for installation
- f. Site visits will determine geographical and agricultural representation of stations

g. Site visits will ensure coverage of agro-ecological zones

It is confirmed that only sites will be selected that are ready to install such equipment.

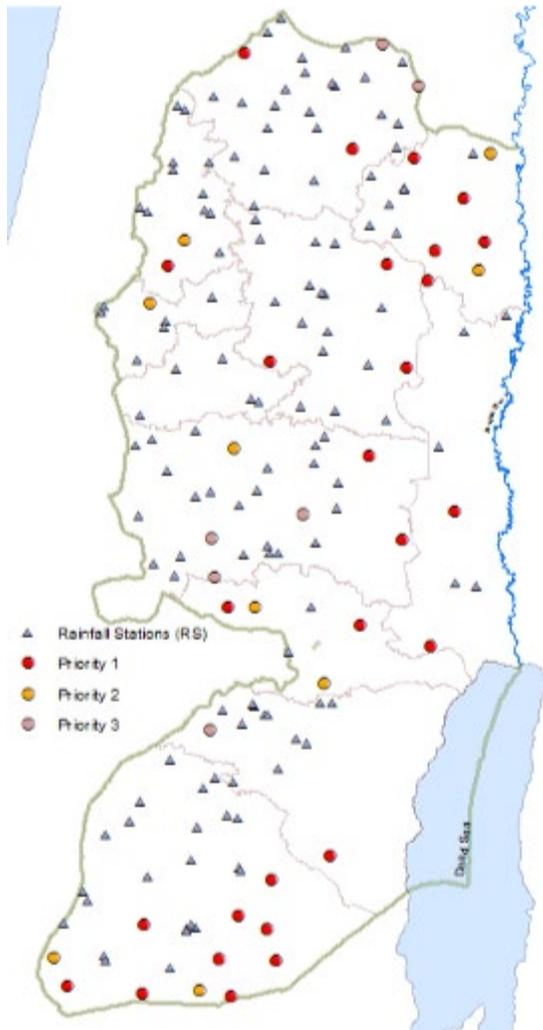
The 2017 assessment “Modifying the climatic database and establishment of dynamic weather map” provides guidance for the PMD on agro-met stations locations most suitable for ensuring accurate and reliable data generation (representative of agro-ecological zones).

Map 1, below from 2017 assessment) will be used for guidance when deciding where to best to upgrade/ position (new) agro-met stations in the West Bank. This map considers above mentioned selection criteria. Priorities 1-3 indicate where agro-met stations are needed, with Priority 1 indicating that respective locations are meeting all the criteria as outlined above. A similar mapping is currently being developed by the PMD for the Gaza Strip and will be available by June 2021.

The final decision on station locations will be made during project inception, in close collaboration with *i.a.* farmer associations, PMD, NDA, and MoA.

b. The map of agro ecological zones presented in the project document and Map 1 below highlights the distribution needs of agromet stations considering both (1) current network and (2) the 4 agro ecological zones of the country.

The new stations will be enhancing the coverage and monitoring capacity in agro ecological zones that currently have limited data collection capacities. The procurement and installation of these stations in close collaboration with PMD and MoA will ensure the longevity and sustainability of this enhanced network for future data collection and planning. Farms situated within each of the agro-ecological zones will be hosting respective equipment. Further details are available in the 2017 national assessment reference above and final site specifications will be determined during the Inception Phase.



Map 1