

Concept Note

Promoting Climate Resilient Livelihoods of Food Insecure People in Southern Iraq

Iraq | WFP

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Concept Note

Project Title:	Promoting Climate Resilient Livelihoods for Food Insecure People in Southern Iraq
Country:	Republic of Iraq
National Designated Authority (NDA):	Dr. Jasim Abdulazeez Humadi Deputy Minister of Health and Environment for Environmental Affairs Ministry of Health and Environment
Accredited Entity (AE):	United Nations World Food Programme
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Notes

- The maximum number of pages should **not exceed 12 pages**, excluding annexes. Proposals exceeding the prescribed length will not be assessed within the indicative service standard time of 30 days.
- As per the Information Disclosure Policy, the concept note, and additional documents provided to the Secretariat can be disclosed unless marked by the Accredited Entity(ies) (or NDAs) as confidential.
- The relevant National Designated Authority(ies) will be informed by the Secretariat of the concept note upon receipt.
- NDA can also submit the concept note directly with or without an identified accredited entity at this stage. In this case, they can leave blank the section related to the accredited entity. The Secretariat will inform the accredited entity(ies) nominated by the NDA, if any.
- Accredited Entities and/or NDAs are encouraged to submit a Concept Note before making a request for project preparation support from the Project Preparation Facility (PPF).
- Further information on GCF concept note preparation can be found on GCF website [Funding Projects Fine Print](#).

A. Project/Programme Summary (max. 1 page)			
A.1. Project or programme	<input checked="" type="checkbox"/> Project <input type="checkbox"/> Programme	A.2. Public or private sector	<input checked="" type="checkbox"/> Public sector <input type="checkbox"/> Private sector
A.3. Is the CN submitted in response to an RFP?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, specify the RFP: _____	A.4. Confidentiality¹	<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Not confidential
A.5. Indicate the result areas for the project/programme	<p>Mitigation: Reduced emissions from:</p> <input type="checkbox"/> Energy access and power generation <input type="checkbox"/> Low emission transport <input type="checkbox"/> Buildings, cities and industries and appliances <input type="checkbox"/> Forestry and land use <p>Adaptation: Increased resilience of:</p> <input checked="" type="checkbox"/> Most vulnerable people and communities <input checked="" type="checkbox"/> Health and well-being, and food and water security <input type="checkbox"/> Infrastructure and built environment <input type="checkbox"/> Ecosystem and ecosystem services		
A.6. Estimated mitigation impact (tCO₂e over lifespan)		A.7. Estimated adaptation impact (number of direct beneficiaries and % of population)	Direct beneficiaries: 43,500 (2.45 % of total rural population in the 3 target Governorates)
A.8. Indicative total project cost (GCF + co-finance)	Amount: USD 10 million	A.9. Indicative GCF funding requested	Amount: USD 9.4 million
A.10. Mark the type of financial instrument requested for the GCF funding	<input checked="" type="checkbox"/> Grant <input type="checkbox"/> Reimbursable grant <input type="checkbox"/> Guarantees <input type="checkbox"/> Equity <input type="checkbox"/> Subordinated loan <input type="checkbox"/> Senior Loan <input type="checkbox"/> Other: specify _____		
A.11. Estimated duration of project/ programme:	a) disbursement period: 4 Years b) repayment period, if applicable: NA	A.12. Estimated project/ Programme lifespan	4 Years
A.13. Is funding from the Project Preparation Facility requested?²	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other support received <input type="checkbox"/> If so, by who: _____	A.14. ESS category³	<input type="checkbox"/> A or I-1 <input type="checkbox"/> B or I-2 <input checked="" type="checkbox"/> C or I-3
A.15. Is the CN aligned with your accreditation standard?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	A.16. Has the CN been shared with the NDA?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
A.17. AMA signed (if submitted by AE)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If no, specify the status of AMA negotiations and expected date of signing: _____	A.18. Is the CN included in the Entity Work Programme?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
A.19. Project/Programme rationale, objectives and approach of programme/project (max 100 words)	<p>1. Climate change is expected to increase Iraq's mean annual temperature by 2°C and decrease its mean annual average rainfall by 9 percent by 2050. Increasing temperatures, declining precipitation rates, extreme weather events and droughts have become very frequent. This is decreasing land productivity, diminishing yields, increasing harvest losses and threatening the livelihoods of 23% of the population who depend on agriculture for their living. This figure reaches around 40% in the southern governorates⁴. Long years of instability have left the country with high food insecurity and limited capacity to tackle climate change adaptation at scale.</p>		

¹ Concept notes (or sections of) not marked as confidential may be published in accordance with the Information Disclosure Policy ([Decision B.12/35](#)) and the Review of the Initial Proposal Approval Process ([Decision B.17/18](#)).

² See [here](#) for access to project preparation support request template and guidelines

³ Refer to the Fund's environmental and social safeguards ([Decision B.07/02](#))

⁴ Strategy for the Reduction of Poverty in Iraq 2018-2022

2. This project aims to introduce practices that build the resilience of vulnerable households whose livelihoods are at risk from climate change. This will be achieved through: increased irrigation efficiency and water availability; enhanced agricultural productivity through the promotion of stress tolerant seed varieties; fostering multi-level efforts for mentoring and capacity strengthening; improved climate decision-support tools and services; as well as livelihood diversification through provision of climate-resilient economic assets⁵. The project will capture knowledge on climate adaptation to influence local and regional adaptation plans in selected governorates in southern Iraq. The project will be executed by WFP in along with the Ministry of Environment. The Ministry of Agriculture will support implementation.

B. Project/Programme Information (max. 8 pages)

B.1. Context and baseline (max. 2 pages)

3. Climate change in Iraq is currently manifesting itself in prolonged heat waves, erratic precipitation, higher than average temperatures and increased disaster intensity (von Lossow 2018). The World Bank⁶ projects that by 2050 annual average rainfall is expected to decrease by 9 per cent, with the greatest reduction of 17 per cent occurring during December, January and February, which fundamentally affects winter crops that are usually grown in Iraq from November to March. Mean annual temperatures have increased in Iraq by approximately 0.7 degrees Celsius since 1950, and it is projected that they will further increase by 2 degrees Celsius by 2050. The frequency of heatwaves will increase and heat stress is expected to be more frequent in the next five years (World Bank 2017). Along with higher temperatures, the occurrence of both sand and dust storms is also likely to increase. It is estimated that 53% of the population in Iraq are vulnerable to food insecurity⁷. Climate change, and specifically extreme weather events in the southern governorates, including the recently recorded high temperatures and flash floods, has further impacted the livelihoods of vulnerable households and is forcing their migration to urban areas. The Government is referring to them as "climate-migrants".
4. The increased number and duration of droughts and more prevalent sand and dust storms are projected to lead to significant declines in agricultural yields and livestock production, thus further challenging food security. The levels of water salinity and soil salinity, especially in the Euphrates River basin, is high and is expected to increase in parallel with the temperatures increase as a result of rising evapotranspiration. Consequently, water stress will increase and efficient irrigation techniques are crucial to maintain productivity and food security (Adamo et. al 2018).
5. In 2013, severe flooding damaged approximately 75,000 acres of cropland in south-eastern Iraq. The southern province of Basra, for example, has dealt with salinization of once arable land, and salinization rates are expected to increase with future sea level rise. The agricultural production of vegetables for 2017 in Basra was 60% less than the set plan due to drought. As for date palm which is a major marketable crop in the region, out of 6,196,382 palm trees, only 1,959,394 were productive in 2017. More than 70% of the date crop was damaged before harvest due to excessive temperatures that exceeded 55 degrees⁸. These are clear impacts of the extreme weather events like floods, droughts and heatwaves.
6. Women in rural areas face greater food insecurity as well as more barriers to education, formal employment and access to finance, which hinders their progress out of poverty and limits their adaptation to climate change. Women are especially impacted by the effects of climate change; in a drought situation, women and girls bear the increased burden of fetching water and facilitating other basic household needs from longer distances as water resources dry up. In 2017, the agriculture sector provided employment for an estimated 44% of the total female workforce⁹, yet limited financial proficiency, poor access to approaches/technologies that promote agricultural productivity, compounded by capacity constraints, hinder women to diversify their livelihoods and maintain the food security of their households in the face of climate change.
7. The project concept note was developed upon a request from the Government of Iraq and was prepared in collaboration with the NDA and relevant national partners. National and district level consultations were undertaken jointly by WFP and government counterparts, in addition to a validation workshop (December 2018) to discuss the proposed concept note, geographic targeting, barriers to climate change adaptation, and project outputs. The finalized concept note was shared with national government partners prior to submission to GCF to ensure country ownership. Further details on the consultation process at national and district levels are included in the pre-feasibility annex.

⁵ Assets to promote income generating activities – further details in pre-feasibility annex paragraph 51.

⁶ World Bank. (2017). Iraq - Systematic Country Diagnostic (English). Washington, D.C.: World Bank Group.

⁷ WFP. (2016). Comprehensive Food Security and Vulnerability Analysis (CFSVA).

⁸ Ministry of Agriculture records

⁹ UN WOMEN. (2018). Iraq Country Gender Profile.

8. Geographical targeting considered the high climate vulnerabilities in southern Iraq which are mainly manifested in water stress, reduction in active agricultural area and yields, extreme climate events and droughts, and the subsequent impact on food security (details in Annex 3). This analysis was overlaid with socio-economic data (mainly rural poverty and marginal food insecurity at governorate level), productivity challenges, probability of increased temperatures as well as adaptation priorities set by the Government of Iraq. Based on these considerations, project interventions will focus on three governorates: Qadisiyah, Thi-Qar and Basra. During design of the full proposal, a targeting validation exercise will be carried out to further determine specific project intervention sites.
9. The government of Iraq has been subject to long years of instability and conflict. As a result, the Government has struggled to make the necessary developmental investments in rural communities, and even less investments have been possible to support climate adaptation planning and budgeting at the national and sub-national levels. Consequently, the vulnerability to climate change in the country has been left largely unaddressed, with climate impacts likely to be further compounded as a result of very low adaptive capacities.
10. Because of that, lack of technology transfer, low knowledge base to ensure climate-smart choices (i.e. crop choices and crop marketability) and constrained technical capacities within local governments make it very challenging to test, innovate and scale-up climate resilient agricultural production options without adequate financial and technical support. All these barriers hinder climate resilient food production and lead to loss of livelihood opportunities and increased migration. A business-as-usual approach has not been effective to address the climate change impacts on agriculture, the decreased productivity and the migration of farmers in search of other opportunities. Greater investment and technical assistance are needed to inform efficient practices and broaden the knowledge base, and consequently enhance the adaptive capacities of farmers. Currently there are no mechanisms to protect farmers from extreme climate events, so they resort to Government compensation which is becoming less reliant over time. The outcomes of this project are designed to reduce the vulnerabilities of exposed communities, which will lead to a reduced need for compensation. With that reduced need, the freed budget from the government can be used to further support adaptation planning and adaptation needs.
11. National and district level consultations held in preparation of this concept note identified all the different barriers (listed below) that hinder the adaptation of poor rural communities, thus undermining their livelihoods and food security. The Theory of Change (Annex 2) is to address these barriers and ensure that the project contributes to promoting climate resilient livelihoods of food insecure people in the targeted governorates in southern Iraq.

Barriers to climate change adaptation in southern Iraq

Social	Limited awareness of impacts of climate change on rural livelihoods and food security.
Gender	In the context of southern Iraq where gender inequality is significant, droughts, floods and other extreme weather events mean women and girls are often among the last to receive support and means to enhance their adaptive capacities. Rural women in Iraq face barriers related to education and access to resources to promote their livelihoods. The agriculture sector has a particularly high share of women, whose participation in the sector has increased from 30 to 50 percent between 1980 and 2010 (World Bank 2016). Drought and extreme climate events are hugely impacting their almost sole source of livelihood. Women are often not involved in discussions regarding climate change and means of adapting to its impacts. With lack of diversification and financing of assets, they are being pushed into extreme poverty, food and nutritional insecurity and increased displacement and migration. As climate events lead to crop failures - the women, women headed households and widows left behind are the overlooked victims of climate change.
Regulatory	Limited integration of climate-related issues in key sectoral strategies and plans, leading to weak one-dimensional adaptation interventions on different levels.
Technological	Lack of efficient irrigation technologies (drip, sprinkler...) that allows efficient management of stressed water resources; reliance on climate-sensitive livelihoods; limited livelihood diversification; Dependence on varieties that are not stress-tolerant (especially for wheat and barley); limited access and/or inadequate dissemination channels to climate information on different levels, especially to smallholder end users.
Financial	Iraq has been facing increasing financial constraints in the last decades. Currently, most public and international financing is directed to humanitarian assistance and reconstruction in the north. Only limited climate adaptation investments are channelled to the south, which is considered a main food producing area, and where most of the poor live and depend on agriculture. There are several studies that have stressed the dire impacts of climate change on Iraq. However, the Government has still not integrated climate change challenges into national strategies and plans, and hence, limited financing towards climate change adaptation is currently being dedicated. This is compounded by the weak capacities of local institutions regarding climate change adaptation to be able to support farmers to reduce their economic and financial risks.

Institutional Limited coordination and collective action regarding climate change adaptation among relevant institutions, resulting in fragmented ownership of climate change adaptation portfolio and elusive responsibilities; Limited understanding of impacts climate change and awareness of adaptation measures on different levels: policy makers, relevant district officials, and local officers.

12. **National Strategies, Priorities, Plans and Programmes:** The project is designed in alignment with national strategies, priorities, and plans to enhance the resilience of smallholder farmers to the impacts of climate change, reduce poverty and food insecurity. The project mainly aligns with: (i) Strategy for the Reduction of Poverty in Iraq 2018-2022; (ii) Intended National Determined Contributions (INDC); (iii) UNFCCC First National Communication; (iv) National Environment Strategy and Action Plan; and (v) National Development Plan. Other planned initiatives in southern Iraq involve 2 projects that are being designed, but where implementation has not been initiated. These include: The World Bank Iraq National Horticulture Development Project (implementation to start by end of 2020) which will support the recovery and modernization of the agriculture sector and contribute to creating jobs and improving food security with a focus on technology transfer and innovation in the date palm and horticulture value chains; as well the IFAD Smallholder Agriculture Revitalization Project and the Building Resilience of the Agricultural Sector to Climate Change (funded by the Adaptation Fund and implementation to start by end of 2019) which will work on irrigation rehabilitation and livelihood support of poor rural communities. During the project design stage, WFP will further analyze these and other relevant interventions, and develop synergies to increase impact, especially in areas related to rehabilitation of irrigation networks and other areas where complementarity can be achieved.

B.2. Project/Programme description (max. 3 pages)

13. **Project Components and Outputs:** Through 2 components, the project will mainly contribute to the following SDGs: SDG 1, SDG 2, SDG 6, and SDG 13. In addition to other SDGs including: SDG 5, SDG 8, SDG 15, SDG 16. Adopting a differentiated implementation approach allows the project to address the needs of targeted group in each geographical location, based on a specific needs assessment of target beneficiaries in each governorate (to be further elaborated during full proposal development stage).
14. Based on the predicted impacts of climate change on the southern Governorates of Iraq, the adaptation actions identified through the different strategies and policy documents, as well as the challenges and needs highlighted during the consultation process, the Theory of Change was developed to define and guide the main project interventions. Hence, the project proposes a 'package' of integrated solutions that aim at building adaptive capacities of vulnerable households - including women-headed households - to adverse impacts of climate change. This will be achieved through: (i) Increased irrigation efficiency and improved water availability and management; (ii) enhanced agriculture productivity of smallholder farmers through investment in stress-tolerant varieties to enhance productivity and minimize harvest losses; (iii) Strengthened resilience of livelihoods through climate-smart diversification targeting women and youth; (iv) enhanced climate risk management through improved decision-support tools and services; and (v) strengthened capacities and improved knowledge and learning to influence policy relevant to climate change adaptation. The project components, expected outcomes and proposed activities are outlined below, however, the pre-feasibility study (Annex 3) provides further details on the proposed project activities.

Component 1: Introduction of climate resilient approaches and livelihood diversification for vulnerable and food insecure households

Expected outcome: Increased adaptive capacities of targeted vulnerable households through climate-proofing agricultural practices and diversifying livelihoods.

Output 1.1 *Increased irrigation efficiency and improved water availability and management*
(further details paragraphs 45-47 of pre-feasibility study)

Proposed activities:

- *Introduce efficient irrigation technologies to replace flood irrigation and ensure water use efficiency;*
- *Improve water harvesting techniques through rooftops, ponds, micro-dams, pits...to capture water from flash floods;*
- *Deliver training for farmers on the introduced technologies, including effective means for operation and maintenance. (When water tanks are to be installed, these will be supplied with solar pumps).*

Output 1.2 *Enhanced agriculture productivity of smallholder farmers through investment in stress-tolerant varieties to enhance productivity and minimize harvest losses*
(further details paragraphs 45-47 of pre-feasibility study)

Proposed activities:

- *Identify tested/adequate stress tolerant varieties, including fodder varieties;*
- *Organize awareness/learning/training on demonstration sites for farmers, including on multi-seasonal cropping methods, crop diversification, climate change adaptation, risk management...;*

- Provide vouchers for very vulnerable households to acquire seeds and basic equipment/inputs for propagation.

Output 1.3 *Strengthened resilience of livelihoods through climate-smart diversification targeting women and youth*
(further details paragraphs 45-47 of pre-feasibility study)

Proposed activities:

- Define a maximum of 4 climate-resilient income generating activities to be supported (henna production, mushroom production, tunnels for vegetable production; date pressing and processing);
- Deliver start-up packages and provide training and mentoring to beneficiaries to ensure success;
- Build capacities of beneficiaries to engage in climate resilient livelihood streams, including training on marketing, financial literacy....

Component 2: Strengthening of enabling environment for enhanced climate risk management and integration of climate change adaptation in development plans

Expected Outcome: Strengthened technical and institutional capacity in the targeted governorates to support climate-resilient agricultural development and integration of climate risks in regional and local plans.

Output 2.1 *Enhanced climate risk management through improved decision-support tools and services*
(further details paragraphs 45-47 of pre-feasibility study)

Proposed activities:

- Develop/upgrade the agro-meteorological network and climate information and response system;
- Disseminate climate information to beneficiaries;
- Provide training on utilization of climate information and advisory services at institutional and local beneficiary levels;
- Define sustainability needs and possibilities for wider dissemination to farmers.

Output 2.2 *Strengthened capacities of government institutions and partner organizations to enhance resilience of smallholder farmers*
(further details paragraphs 45-47 of pre-feasibility study)

Proposed activities:

- Train relevant government staff and CSOs on climate change adaptation and risk reduction approaches;
- Train civil society organizations – including women associations - to be better prepared to provide guidance, services and support relevant to climate change adaptation, food security and disaster risk reduction;
- Build capacities of Water User Associations to effectively manage water-use in the target areas.

Output 2.3 *Climate change adaptation experiences documented and disseminated to support replication and integration into regional and local adaptation plans and strategies*
(further details paragraphs 45-47 of pre-feasibility study)

Proposed activities:

- Capture good practices and lessons learned on climate change adaptation;
- Use knowledge generated and M&E systems to inform policy efforts, strategies and plans relevant to climate change adaptation;
- Support the development of agricultural development strategies and drought management plans.

15. The main premise for the project's Theory of Change (ToC) is to address key barriers to climate change adaptation in southern Iraq and enhance climate resilient livelihoods through (i) climate-proofing agricultural practices and diversifying livelihoods, and (ii) Strengthening technical and institutional capacity in the targeted governorates to support climate-resilient agricultural development and integration of climate risks in regional and local plans. The project logic, including its components and outputs are designed to effect this change and enable vulnerable households in southern Iraq to be better prepared to face climate change impacts. The Diagram of the Theory of Change is included in Annex 2.

16. Potential for Transformation: This proposal delivers on the priorities of the National Environmental Strategy and Action Plan, as well as the Nationally Determined Contributions relevant to drought management, and mainly the activities related to efficient irrigation, water harvesting, introduction of stress-tolerant crops and the weather information system. Learning from the implementation of the planned activities paves the way for further expansion and replication as it builds capacities of relevant stakeholders and institutions, while solidifying Iraq's climate adaptation experience. Moreover, through climate adaptation policy efforts through the contribution to the development of governorate-level climate adaptation plans, climate vulnerable governorates are enabled to provide a platform to expand climate resilient investments and facilitating expansion throughout other regions.

17. Implementation Arrangements: WFP has considerable experience and capacities in Iraq since operations were initiated in 1968. These capacities include; strong operational presence at field level, robust monitoring capacities, expertise in food security assessment, as well as excellent relationships with key stakeholders. WFP is the accredited entity, and will be co-executing this project along with the Ministry of Environment. The Ministry of Agriculture will support implementation. The project will be implemented in close coordination with different authorities at Governorate level. Although the Ministry of Environment will not be directly managing GCF funds, it will have a major role in the implementation of the project and in providing strategic advice. This will be undertaken through a Coordination Committee designated by the Ministry of Environment as the NDA. The Coordination Committee will include key experts from the Ministry of Environment, and will have the following responsibilities: facilitate coordination between Project Management Unit (PMU) and the project stakeholders (partners and beneficiaries within the target governorates) through the Environment Directorates within the different target governorates; ensure alignment with national climate change adaptation strategies and priorities; coordinate and bring together the different actors and partners implementing climate change adaptation projects in the country to ensure complementarities; ensure that the project activities will have no negative environmental and social impacts; and coordinate all activities relevant to policy dialogue and to regional and local adaptation plans and strategies.
18. The project will also have a Steering Committee chaired by the Ministry of Environment, and have as its members the Ministry of Agriculture, the Ministry of Water Resources, and other members as seen appropriate. The Steering Committee will meet on bi-annual basis and will be responsible for the following: Provide strategic advice to the execution of the project; ensure that the project delivers on national priorities; approve annual work plans and budgets; and provide support to the project management unit to achieve project objectives. WFP will act as the Secretary of the Steering Committee.
19. In terms of day-to-day management, a PMU with 4 staff members (Project Manager, Finance Officer, Procurement Officer and M&E Officer) will be based at WFP in Baghdad and will be complemented with 3 Governorate Field Coordinators based in the 3 target Governorates. The Governorate Coordinators will be selected based on experience and competence. Detailed Terms of Reference of the PMU will be prepared by WFP and the Ministry of Environment. WFP HQ as AE, will ensure that the project is executed in compliance with GCF and WFP rules and regulations, policies and procedures, including relevant requirements on fiduciary, procurement, monitoring and evaluation, environment and social safeguards, and other project performance standards.
20. Main Risks and Mitigation Measures

Main Risks	Risk Level	Mitigation Measures
Low adoption of project activities by project beneficiaries	Low	Project interventions were designed based on needs derived during the consultation process, and are expected to increase water availability, irrigation efficiency, introduce stress-tolerant crops, which will increase yields and therefore act as incentive to embrace project interventions. Furthermore, the project will include awareness and various dissemination activities, thereby stimulating uptake.
Availability of appropriately experienced and qualified non-government service providers	Somewhat likely	WFP will capitalize on its experience in country through the engagement of reliable and technically sound service providers, while building adequate capacity within institutions to accompany implementation and monitoring.
Activities have a moderate or high environment or social risk	Unlikely	All the project interventions have been conceived to have minimal or no adverse environmental and/or social risks and/or impacts. WFP will undertake all the necessary due diligence and ensure that the requirements of the GCF ESS policy are applied to both the detaining of activities and their implementation.
Political instability in Iraq might affect implementation of project activities within the governorates.	Low	The situation in Iraq has been steadily improving, with the south being mostly stable. Most international organizations are currently present in Iraq and embarking on supporting the government towards recovery and resilience building.
High security threat in Iraq, thus restricting movement of UN staff.	Low	Security threat in the south has been low, with less movement restrictions. Project coordinators will be national staff and based within the target governorates.
Limited government capacity for operational purposes	Somewhat likely	Government capacity will be reinforced based on an agreed capacity strengthening plan and a mentoring approach will be adopted throughout plan, design and implementation.

B.3. Expected project results aligned with the GCF investment criteria (max. 3 pages)

<p>Impact potential</p>	<p>The project is designed to induce change within the target areas of south Iraq through increasing resilience and enhancing livelihoods and well-being of the most vulnerable. This will be demonstrated through the revitalization of agricultural productivity, which is the key economic activity of the rural poor, as well as the promotion of diversification to enhance adaptive capacities. Climate information services will have a fundamental impact on reducing economic losses and strengthening awareness and institutional and regulatory systems for climate-responsive planning and development. The project will be tackling one of the most dire constraints impacting reduced productivity, which is the availability of water resources for production. The project will be introducing and training farmers on efficient use of water resources, which is considered as an innovation for smallholder farmers in southern Iraq. This is deemed to have an important impact on the future of agriculture in the region.</p> <p>Moreover, the project will be training government institutions as well as community-based institutions on best approaches for climate change adaptation. This, coupled with the climate information system, will ensure that the main actors will be trained and empowered to provide support services to vulnerable communities, thus reducing risk and enhancing their resilience. This will ensure a longer-term impact regarding the creation of a point of reference for communities regarding knowledge and advice relevant to climate change adaptation.</p> <p>The project will be implemented in the 3 Governorates of Qadissiyah, Thi Qar and Basra. The population in these Governorates constitutes around 17% of the total population of the country. The preliminary estimate of total direct beneficiaries of the proposed project activities are 43,500 individuals (0.11% of the total population / 2.45 % of total rural population in the 3 target Governorates) - and the indirect beneficiaries a minimum of 60,000 individuals**. At least 30% of beneficiaries will be women. The project will have a gender transformative approach that will aim at offering women specific opportunities to enhance their skills and livelihoods. The number of direct and indirect beneficiaries will be further refined during detailed design.</p> <p><i>** Indirect beneficiaries: Not directly targeted by the project but may also benefit from it. For example, supporting a group of women (direct beneficiaries) to develop small businesses, is likely to increase the well-being of their children and families, as well as of some other families of suppliers and service providers.</i></p>
<p>Paradigm shift</p>	<p>A business-as-usual approach in the project target areas will not prove effective in addressing the climate change impacts on agriculture, the decreased productivity and the migration of farmers in search of other opportunities. Targeted investment, innovative approaches and technical assistance are needed to catalyze impact, inform efficient agricultural production and water management practices and broaden the knowledge base regarding climate resilient agricultural approaches. Through the paradigm-shifting approach of enhancing adaptive capacities of vulnerable households through climate-proofing agricultural practices, strengthening technical and institutional capacities to support climate-resilient agricultural development, as well as integrating climate risk in regional and local plans, the project will attain its theory of change. The planned activities will enhance smallholder communities' productive and social assets to tolerate extreme weather events and build their capacities to invest in sustained maintenance of investments and continued climate-risk management over the longer term. The capacity strengthening of government institutions and empowerment as the drivers of change within the southern governorates, will ensure addressing a very binding constraint regarding adequate knowledge and capacity to deliver climate-smart services, and sustaining the longer-term results addressed through the project. The sharing of the successes, learning and knowledge will support further scaling up and expansion.</p> <p>The Theory of Change, which was the basis for conceiving the project approach, has unveiled an integrated approach to deliver on the GCF results of (i) Increased resilience of the most vulnerable people, communities and regions and (ii) Increased resilience of health and well-being, and food and water security. This will be achieved through the combination of innovation, diversification, provision of assets, training and making available climate information services. This integrated approach, in addition to enhancing adaptive capacities, will help in delivering on the main priorities of the NDCs, as well as generate knowledge and learning that will feed into policy dialogue regarding local and regional adaptation strategies for the benefit of vulnerable smallholder communities. This "knowledge – policy" nexus approach will be key in transiting the paradigm regarding priorities relevant to adaptation, risk reduction and enhancement of food security. The outcomes of this project will help the government and other partners in better understanding the best approaches to enhance the resilience of vulnerable rural communities based on concrete interventions that could be scaled-up and/or replicated.</p>

<p>Sustainable development</p>	<p>The project will be structured around two Components that will deliver on the following Sustainable Development Goals: SDG target 1.5; SDG target 2.3; SDG target 2.4; SDG target 6; and SDG 13. In addition, the proposed project will also contribute to achieving other SDGs related to gender equality (SDG 5), decent work (SDG 8), halt land degradation (SDG 15), and promoting inclusive societies for sustainable development (SDG 16).</p> <p>The project would build capacity at the governorate level and support the governorates to set their sustainable development agendas. Through its activities, the project would also promote collaborative ways of working among different government and non-government service providers, which involve rural communities themselves, including women’s local organizations, in planning and decision making at the local level. In support of the latter agenda, the project would also invest in building the capacity and organization of the rural communities themselves, with a special focus on women, to enable them to participate more effectively in local planning, operation and maintenance processes. The activities to be undertaken by the project will be carefully studied to ensure economic and environmental/social viability and serve as grounds for replicability and learning.</p> <p>The project is expected to play a key role in generating economic, social and environmental co-benefits. This will be brought about through improvements in areas such as diversification and enhanced job creation for poverty alleviation; contribution to an increase in productivity and competitive capacity; improved sector income-generating capacity; contribution to an increase in food security; change in water use efficiency in targeted areas and shifting away from traditional approaches of flood irrigation which contribute to erosion and salinity. The transformation of gender inequalities will be attained through dedicating specific indicators and a specific budget to ensure that women will constitute at least 30% of project beneficiaries. All this will also contribute to the Government’s sustainable development agenda and the fulfilment of the Sustainable Development Goals. The M&E system will be used to capitalize on lessons learned and inform sustainable development policies and strategies.</p>
<p>Needs of recipients</p>	<p>As confirmed by the studies and analyses undertaken, climate change is expected to have a major impact on Iraq’s socio-economic make-up. The increased number and duration of droughts and more prevalent sand and dust storms are projected to lead to significant declines in agricultural productivity, thus further challenging food security. These impacts are currently left unaddressed in southern Iraq, which is posing significant risks to livelihood conditions and livelihood security of the most vulnerable.</p> <p>This project comes at an optimal time where the conflict in Iraq has ended and the country is embarking on reconstruction and re-building its institutions. This is putting a heavy demand on the already limited national financial resources and leaving minor investment for implementing climate change adaptation strategies. Besides the social safety nets that some families have access to, very little support is given to vulnerable households to face the consequences in which climate change is impacting their livelihoods, and no alternative financing sources are directed to them to help them enhance their adaptive capacities. Dedicated international financing is critical to address issues of climate change, poverty reduction, food security for vulnerable and extremely vulnerable households. This project will help set the pathway for further investments in these sectors.</p> <p>This optimal time for implementing the proposed GCF project implies filling the current gaps and demonstrating concrete actions that serve in fulfilling the commitments of these strategies, reversing rural-urban migration, reviving smallholder agriculture, introducing approaches relevant to efficient water use, and providing economic assets to vulnerable women and their households. All of that, coupled with strengthening institutional and implementation capacity of Government institutions, will help in setting stage for adopting these measures at the national level and replicating them to deal with similar challenges elsewhere in the country.</p>
<p>Country ownership</p>	<p>The proposed project was designed based on priorities and gaps identified through national climate change strategies and other relevant policies as well as regional or international commitments. Intervention logic was verified through consultation meetings with Government entities, civil society organizations, academic and research institutions and other stakeholders and partners, as well as visits to vulnerable households and agro-ecosystems in the southern governorates of Iraq. The consultation process has identified the following priorities which the project will tackle through its different planned activities.</p> <ul style="list-style-type: none"> - Reduced water availability and lack of access to efficient irrigation or water harvesting techniques is leaving smallholders with reduced potential to produce what is enough for their families and for maintaining their economic well-being; - Lack of access to proper climate information services is augmenting risk under extreme climate scenarios;

	<ul style="list-style-type: none"> - Lack of diversification of economic activities, especially for women and youth, is reducing their adaptive capacities and leaving them more prone to food insecurity; - Local institutions have reduced capacities to help and guide vulnerable populations in terms of climate change adaptation and provide advice relevant to enhancing adaptive capacities; - Very limited investments and technical and financial support is being directed to the southern governorates to help vulnerable smallholders cope with adverse impacts of climate change. <p>The project development stage will undertake further visits and interviews and broaden evidence relevant to interventions that specifically target women and women-headed households. The proposed project is in line the following country plans, policies and strategies: Intended National Determined Contributions (INDC) document; Strategy for the Reduction of Poverty in Iraq 2018-2022; National Environment Strategy and Action Plan; UNFCCC First National Communication; National Development Plan; National Strategic Review of Food Security and Nutrition in Iraq Towards Zero Hunger. All the adaptation priorities highlighted in those documents were distilled and validated through the project approach and theory of change to ensure that the proposed project responds to national needs. Further details on the adaptation needs and main findings of the consultation process are detailed in Annex 3.</p>
<p>Efficiency and effectiveness</p>	<p>GCF support will introduce good practices related to improving climate change adaptation and resilience building, which could be integrated into government programmes, thereby extending the value of the investment. The application of good practices in terms of climate-resilient agricultural production, as well as the innovation in terms of efficient irrigation techniques will ensure effective and sustained production for vulnerable households. Lessons learned will be shared and the approach could be mainstreamed into other plans and initiatives of the Government or other donors.</p> <p>As per the guidance set through the UNFCCC Nairobi work programme, the adaptation logic that the project will follow is divided into four stages: (i) assessment of impacts, vulnerability and risks; (ii) planning for adaptation; (iii) implementation of adaptation measures; and (iv) monitoring and evaluation of adaptation interventions. The findings from the monitoring and evaluation will feed back into understanding the efficiency (are the outcomes achieved adequate relevant to the resources allocated) and effectiveness (will the outputs defined help in achieving the set objectives) of the adaptation measures undertaken to ensure that adaptation action is iterative and dynamic over time.</p> <p>The following steps will be undertaken to assess cost and benefit of adaptation options, which will shed light on the efficiency and effectiveness of the project approach:</p> <ol style="list-style-type: none"> 1. Ensure that the adaptation options are well defined and their attainment quantifiable in monetary terms. 2. Establish a baseline. It is essential to define a baseline (the situation without the adaptation intervention being carried out) and the project-line (the situation with successful implementation of the adaptation option) to determine the costs and benefits by comparing the two situations. This allows for comparing a 'with' and 'without' situation rather than comparing a 'before' and 'after' situation, which is often mistakenly done. 3. Quantify and aggregate the costs over specific time periods. Costs of an adaptation action include direct costs (e.g. investment and regulatory) and indirect costs (e.g. social losses and transitional costs). 4. Quantify and aggregate the benefits over specific time periods. Benefits of an adaptation intervention should include the avoided damages from climate change impacts and co-benefits, where relevant. 5. Compare the aggregated costs and benefits. The bottom line for choosing an adaptation option is the comparison of the monetized elements of costs and benefits. <p>Additional details on efficiency and effectiveness will be developed during the full-proposal stage through a detailed cost-benefit analysis, coupled with an economic and financial assessment of project interventions.</p>

B.4. Engagement among the NDA, AE, and/or other relevant stakeholders in the country (max ½ page)

21. In May 2018, the NDA contacted WFP to support the Government in the development of a concept note the GCF. An initial consultation workshop was held in August 2018 in Baghdad, jointly hosted by the Ministry of Environment and the World Food Programme (WFP). This consultation workshop included a wide representation of different national stakeholders and experts including the NDA; General Director of Planning Directorate - Ministry of Environment; Representatives from the National Center of Climate Change; Representatives from the Division of Land Use and Combatting Desertification - Ministry of Environment; Representatives from Department of

International Environment Relations – Ministry of Environment; Representatives from the Division of Biodiversity - Ministry of Environment; Representatives from the Ministry of Agriculture; Representatives from the Ministry of Water Resources; Representatives from Ministry of Higher Education and Scientific Research; Representatives from Ministry of Planning.

22. The concept preparation team (WFP and NDA counterparts) undertook consultation meetings in the 5 southern Governorates of Basra, Muthanna, Qadissiyah, Thi Qar and Missan. These meetings were organized by the NDA and undertaken jointly by WFP and Government counterparts, and included representatives from the different departments at the Governorate level (Environment, Agriculture, Water Resources, Planning), representatives from the Governorate Council (including the representative of women affairs), Civil Society Organizations, Women Affairs Groups, Farmer Associations and Academic and Research institutions. The team spent 2 days in each governorate, identifying challenges, priorities and adaptation needs, validating the capacity of local stakeholder to manage and implement adaptation actions, validating the particular adaptation needs of women, women-headed households and youth, as well as recognizing needed capacity strengthening support, including for local institutions. The result was a set of priority interventions to help reduce the vulnerability of poor households to the main impacts of climate change in these governorates, strengthen food security and rural economies. Further details on the results of the consultation process are detailed in Annex 3.
23. A validation workshop was held on 11 December 2018 to present and discuss the concept note, the target areas and the activities to be implemented. The finalized concept note was shared with all national partners prior to submission to ensure that it responds to Government priorities and vision. Continued stakeholder engagement took place through a consultative process during the concept note development and is envisioned to continue for the full proposal. Direct engagement with national partners in addition to providing a platform for wider coordination and engagement with different national partners collectively, will ensure that the outcome is owned by the relevant stakeholders and responds to their priorities. Community level consultations are planned during full proposal development to further develop and validate community level activities and ensure specific community considerations are taken up and incorporated in the project implementation.

C. Indicative Financing/Cost Information (max. 3 pages)

C.1. Financing by components (max ½ page)

Component	Indicative cost (USD)	GCF financing		Co-financing		
		Amount (USD)	Financial Instrument	Amount (USD)	Financial Instrument	Name of Institutions
Component 1	7,800,000	7,440,000	Grant	360,000	Cash and in-kind financing In-kind financing	WFP Ministry of Environment / Ministry of Agriculture / Ministry of Water Resources
Component 2	2,200,000	1,960,000	Grant	240,000	Cash and in-kind financing In-kind financing	WFP Ministry of Environment / Ministry of Agriculture / Ministry of Water Resources
Indicative total cost (USD)	10,000,000	9,400,000		600,000		

* A detailed budget per activity will be developed during project design stage. This will also include details on co-financing.

C.2. Justification of GCF funding request (max. 1 page)

24. Although classified as an upper-middle income country, the instability for almost 35 years created a major humanitarian crisis with 10 million people in need and over 3 million internally displaced persons. The standard of living has deteriorated and a noticeable share of the population has fallen into poverty or is extremely vulnerable to falling into poverty. The National Debt was around 60% in 2017. (World Bank 2018).
25. Currently, most Government and donor efforts in Iraq are directed towards humanitarian aid, reconstruction and institutional building, with limited interventions addressing the adverse impacts of climate change. Thus, climate financing is needed to support a transformational approach that directly addresses the root causes underlining limited adaptation to climate change and resilience building.

26. GCF resources play a critical role in introducing initiatives that reduce water use, improve water management, and enhance productivity, and merit to be made available to vulnerable households, without which their livelihood security would be seriously undermined. Support from the GCF will contribute to achieving the priorities set within environment and climate change adaptation plans and strategies, ensure that gender empowerment and social inclusion are mainstreamed within climate change action, as well as ensure that the government of Iraq adequately responds to the adverse impacts of climate change through strengthening the institutional capacity at central and governorate levels. The project will be introducing innovative approaches to tackle climate change adaptation in Iraq, and grant financing is legitimate to do so, especially in a country where very few climate change adaptation interventions have been brought about.

C.3. Sustainability and replicability of the project (exit strategy) (max. 1 page)

27. The project integrates a set of considerations that aim to ensure that the project investment is sustained beyond its duration and facilitates replication, these considerations include: (i) focus on capacity strengthening of key institutions to drive the interventions forward and support replication; (ii) building consensus and ownership over operation and management plans by relevant stakeholders; (iii) contributing to policy and strategy formulation to ensure to support continuity; and (iv) development of a solid Operations and Management Plan with clear responsibilities.
28. The design of capacity building programmes will be tailored for the needs of women, youth and smallholders for self-employment and enhancing agricultural production. The relevance of the training and mentoring will ensure the use of the skills and adoption of the crop production practices imparted. The project would also ensure that the delivery mechanisms used to impart different types of trainings are appropriate for the target group. Thus, the timing and location of the training would be carefully planned especially for women to ensure their participation. The training content for the youth would be discussed with them and the potential for employment and self-employment opportunities available would be assessed.
29. This project will be crucial to support climate change adaptation in the southern governorates of Iraq and instrumental in empowering the local institutions and building their capacities to be able to provide services to the rural poor and planning for sustainable development. This institutional support will lead to a transformation regarding the responsibility for sustaining project activities as these institutions will be in the driver's seat for implementation, thus fostering institutional ownership and sustainability of project outcomes. Most importantly, the project can demonstrate that through financing assets rather than subsidizing only food packages, the Government can assist in creating a sustainable source of income generation and poverty alleviation. This approach can be scaled-up and aligned within government development plans once its success and impact are demonstrated.

D. Supporting documents submitted (OPTIONAL)

- Map indicating the location of the project/programme
- Diagram of the theory of change
- Economic and financial model with key assumptions and potential stressed scenarios
- Pre-feasibility study
- Evaluation report of previous project
- Results of environmental and social risk screening

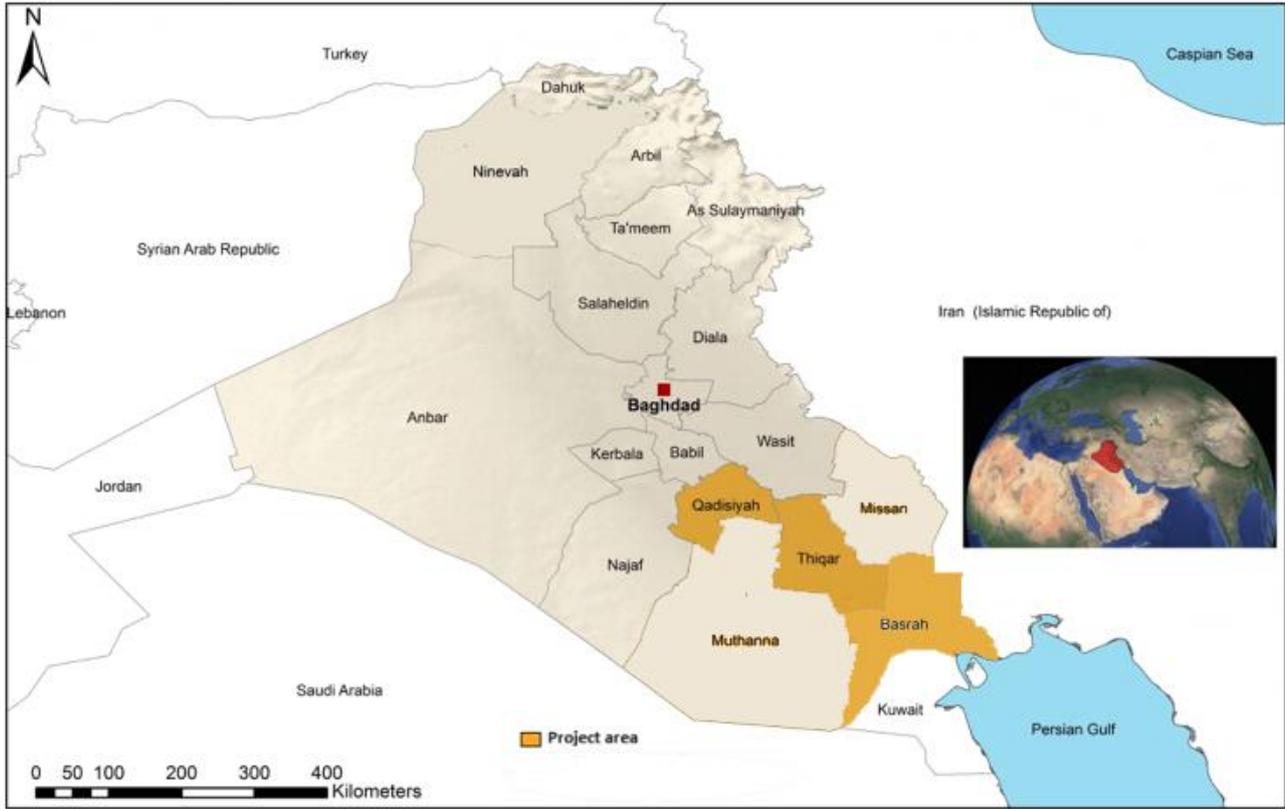
Self-awareness check boxes

Are you aware that the full Funding Proposal and Annexes will require these documents? Yes No

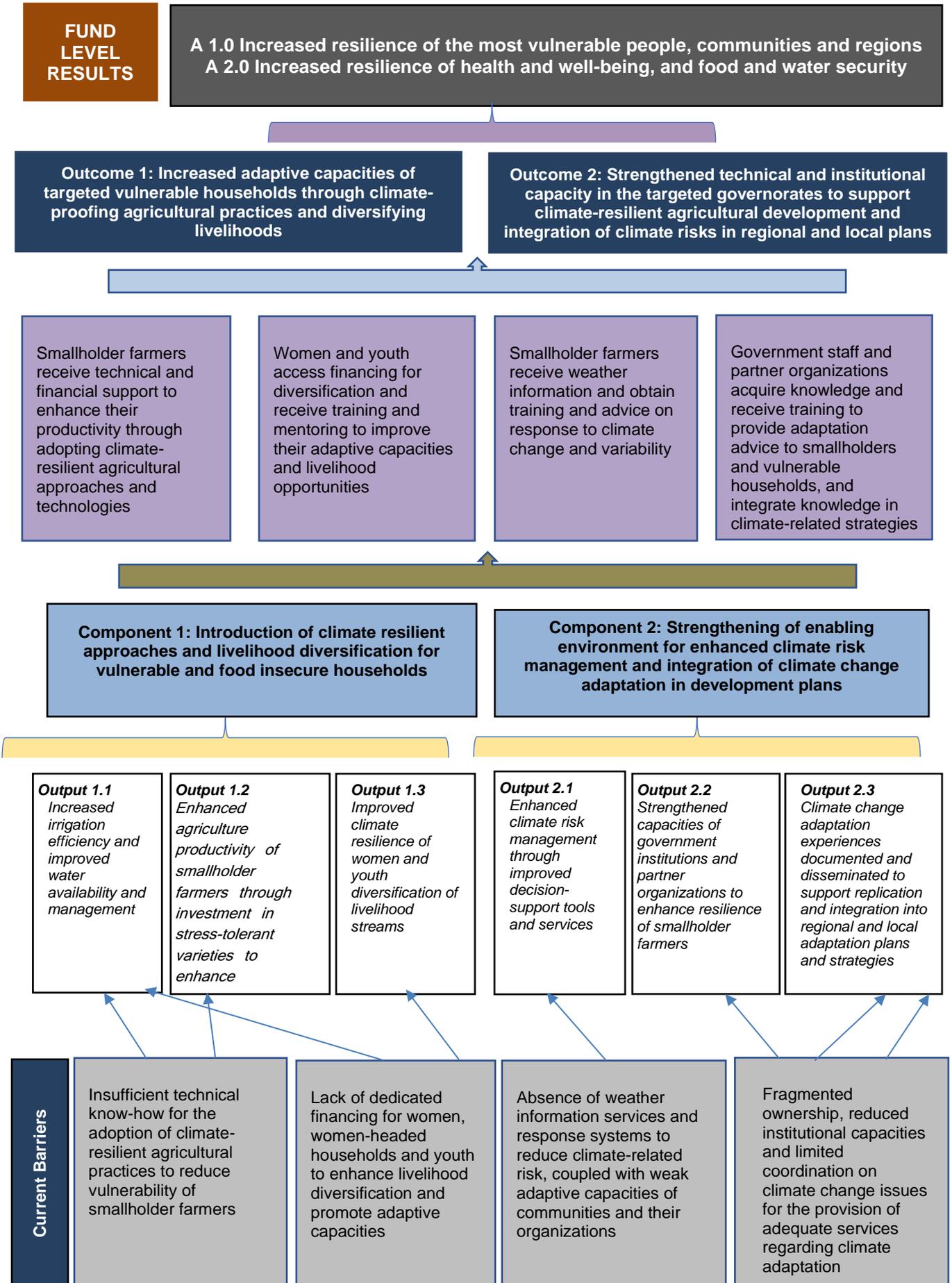
- Feasibility Study
- Environmental and social impact assessment or environmental and social management framework
- Stakeholder consultations at national and project level implementation including with indigenous people if relevant
- Gender assessment and action plan
- Operations and maintenance plan if relevant
- Loan or grant operation manual as appropriate
- Co-financing commitment letters

Are you aware that a funding proposal from an accredited entity without a signed AMA will be reviewed but not sent to the Board for consideration? Yes No

Annex 1: Project Location Map



Annex 2: Diagram of the Theory of Change

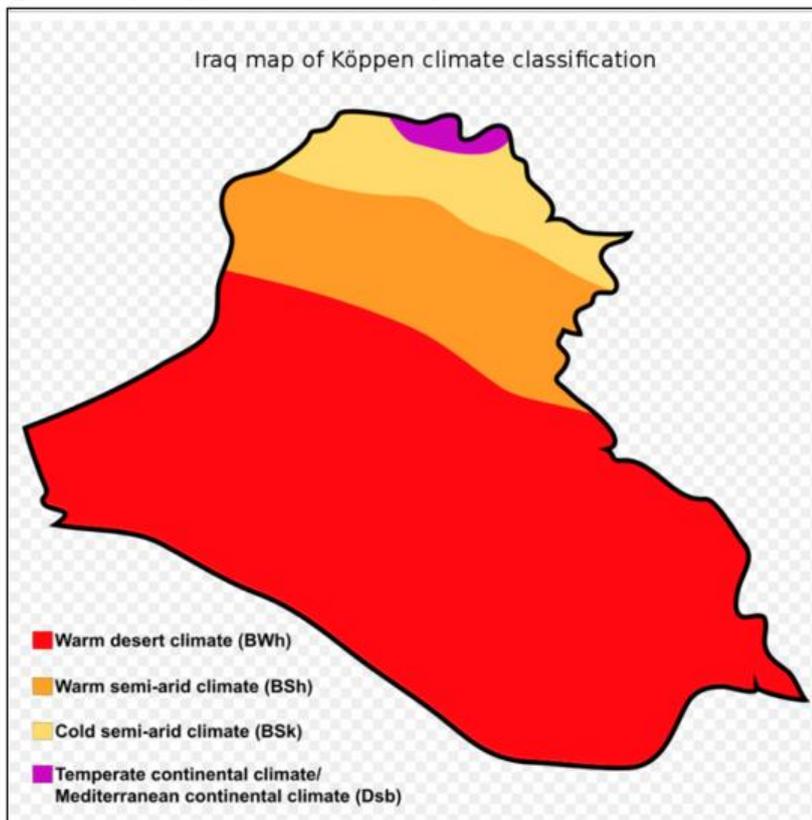


Annex 3: Pre-feasibility Study

Country Context

1. Iraq is an oil-rich upper middle-income country with a population of 38.27 million (2017) growing at 3% per year and of which 33% are rural. It is estimated that the population will rise to 40.4 million by 2025. Although classified as an upper-middle income country, the instability for almost 35 years has created a major humanitarian crisis with 10 million people in need and over 3 million internally displaced persons. The standard of living has deteriorated and a noticeable share of the population has fallen into poverty or is extremely vulnerable to falling into poverty. It is estimated that 23% of the population lives below the poverty line (2014 – Iraq Economic Profile). The National Debt was around 60% in 2017. (World Bank 2018).
2. The agriculture sector accounts for 8.6% of Gross Domestic Product (GDP) including the oil sector, and 32% without the oil sector. Excessive dependence on oil poses significant challenges to Iraq's socio-economic development. Iraq was ranked 141 out of 187 countries in the 2015 Human Development Index. Unemployment rate is estimated at 16% nationally. Youth (15-24 years) unemployment is high at 18% (27% of females and 17% of males). Efforts to diversify Iraq's dependency on oil revenues (85% of GDP in 2017) have not yet led to any significant investment in other sectors, and less so in what relates to the agricultural sector, on which the poor and vulnerable households depend to derive their livelihoods. Despite the fact that agriculture is the second largest employment sector after oil, the sector receives one of the smallest allocations from Iraq's national budget¹⁰. This allocation is becoming even less significant knowing the additional cost required to adapt this sector to the impacts of climate change.
3. The climate in Iraq is influenced by its location between the subtropical aridity of the Arabian desert and the subtropical humidity of the Persian/Arabian Gulf. It has three major climate zones: an arid lowland desert in the center and the south, a semi-arid steppe in the north and a sub-humid upland together with the northern mountainous area.

Figure 1: Iraq - Köppen Classification Map



Source: Ali Zifan <https://creativecommons.org/licenses/by-sa/4.0/>], via Wikimedia Commons

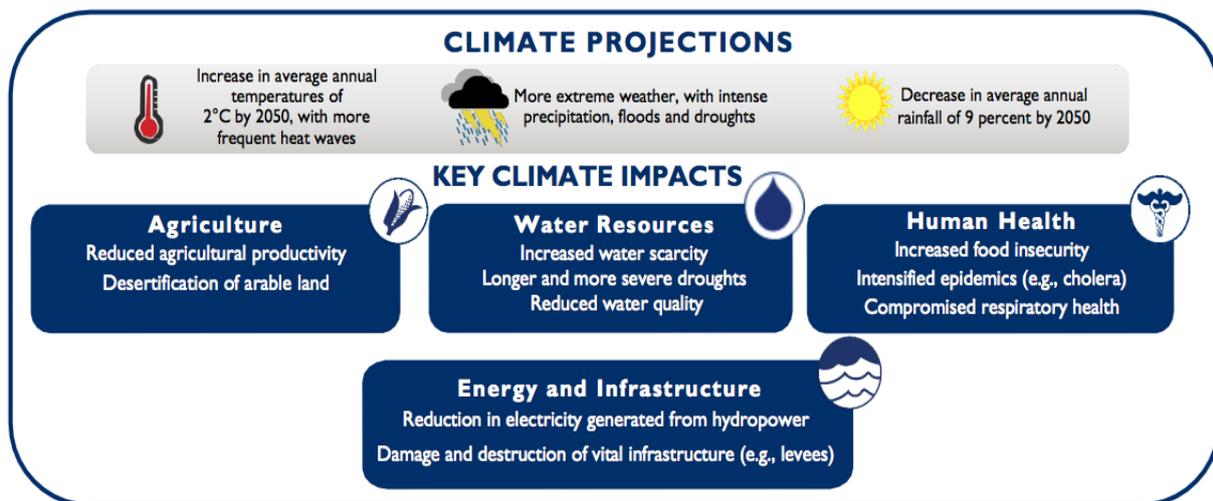
¹⁰ Iraq Climate-related security risk assessment. August 2018

- Due to its unique hydrological limitations—being located in an arid, downstream region— Iraq is considered one of the Middle East and North Africa’s (MENA) most climate vulnerable countries. Increasing temperatures and reduced precipitation inside the country and beyond its borders have contributed to alarming water scarcity as well as severe droughts.¹¹

Impact of Climate Change in Iraq

- Climate change in Iraq is currently manifesting itself in prolonged heat waves, erratic precipitation, higher than average temperatures and increased disaster intensity (von Lossow 2018). The World Bank projects that by 2050 annual average rainfall is expected to decrease by 9 per cent, with the greatest reduction of 17 per cent occurring during December, January and February, which fundamentally affects winter crops that are usually grown in Iraq from November to March. Mean annual temperatures have increased in Iraq by approximately 0.7 degrees Celsius since 1950, and it is projected that the mean annual temperature will further increase by 2 degrees Celsius by 2050. The frequency of heatwaves will increase, heat stress is expected to occur at least once in the next five years, and the number of frost days will decrease (World Bank). Along with higher temperatures, the occurrence of both sand and dust storms is also likely to increase. Furthermore, according to the Iraqi Government, 92 per cent of the total area of the country is at risk of desertification (United Nations 2013).

Figure 2. Main impacts of climate change on Iraq.



Iraq Climate Change Risk Profile (USAID 2017)

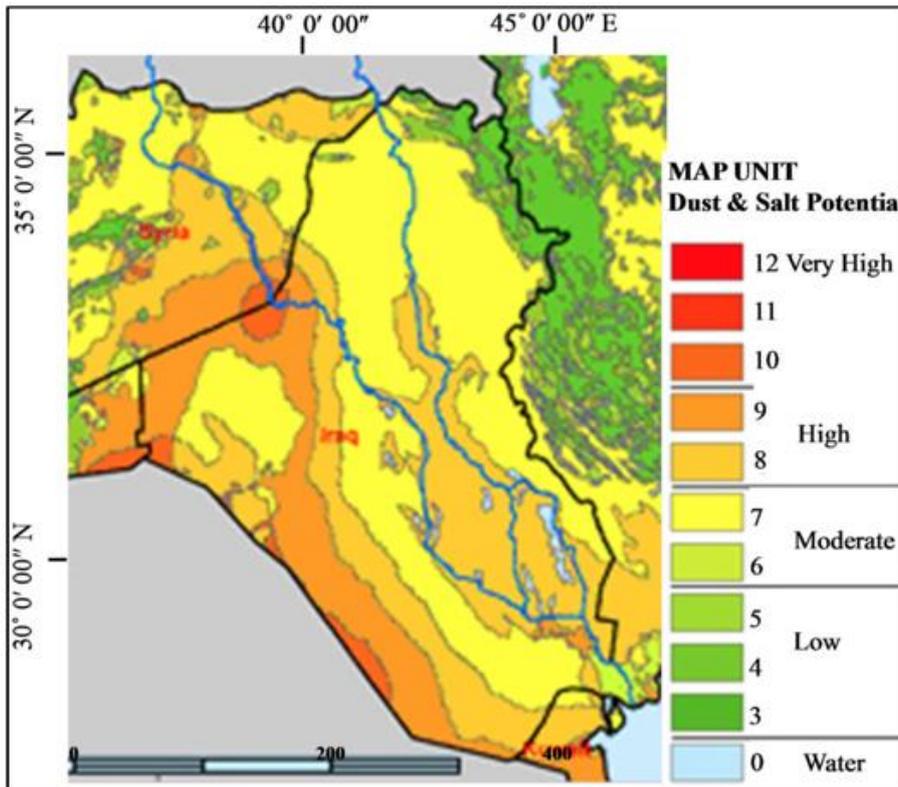
- The overall decrease of rainfall in Iraq (ranging from 1 – 6 % annually), particularly during recent years, has resulted in the decline of the main rivers, a decrease of groundwater level, as well as a decrease in other water resources, such as springs and aquifers. The number of cool nights and days and diurnal temperatures are also significantly decreasing, accompanied by a trend in increasing minimum and maximum temperatures¹². The maximum number of annual dust storms during 1951-1990 was about 24 days/ year, whereas the number of annual dust storms during 2013 was estimated to be 300. One of the main reasons behind the development of sand and dust storms is the climatic changes within the region, especially the drastic decrease in the annual rate of rainfall. There are growing concerns that unless adaptation measures are put in place, most of the agricultural land in Iraq will be converted to desert areas¹³.

¹¹ Expert Working Group on Climate-related Security Risks, 2018.

¹² Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR) 2017.

¹³ Sissakian et al (2013)

Figure 3: Potential of Sand and Dust Storms (SDS)



V.K. Sissakian, N. Al-Ansari, and S.Knutsson (2013). Sand and dust storm events in Iraq. *Natural Science*. 05. 1084-1094. 10.4236/ns.2013.510133.

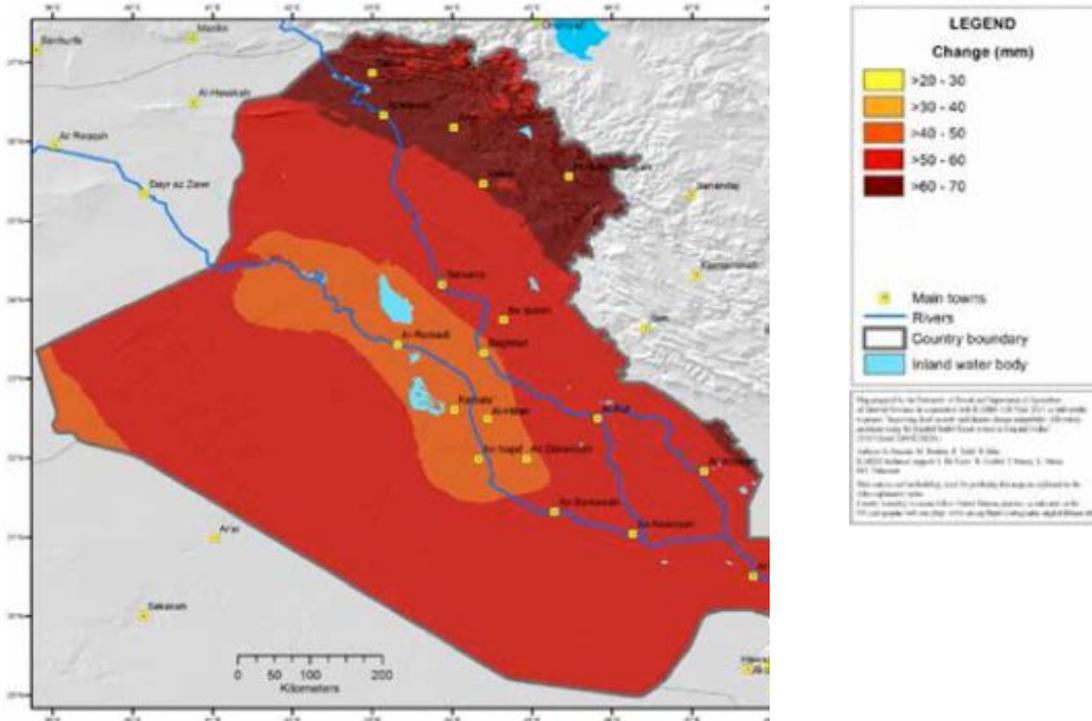
Increased temperatures, prolonged periods of drought and intensified dust and sand storms are likely to reduce agricultural production and have significant impacts on livestock production and communities' livelihoods. This would be likely to increase the risk of displacement and migration in search of better livelihood and resource conditions. For example, during the drought of 2007–2009, almost 40 per cent of cropland throughout Iraq experienced reduced crop coverage, and livestock production was drastically reduced. This caused approximately 20,000 rural inhabitants to move in search for more sustainable and renewable resources and livelihoods (United Nations, n.d.). Furthermore, a recent drought in Diyala province caused around 35,000 people to leave their homes in search of other livelihood opportunities. Such events are likely to become more frequent if communities are unable to mitigate these stressors.

7. Adding to these challenges is the decline of the Tigris and Euphrates rivers - estimated at 30 to 70% by the end of the century (Adamo et. al.) - on which Iraq's water security and agriculture is dependent, both of which originate outside its borders. It is anticipated that there will also be a knock-on effect from the impact of climate change in Turkey, Syria and Iran that will further reduce the quantity (and quality) of water entering Iraq. This will cause¹⁴:
 - Diminishing water for agriculture;
 - Land degradation due to expected high salinity;
 - Further drying of the Basra marshes (marshlands) causing more ecological damage;
 - Further deterioration of the already bad water quality of the Euphrates;
 - Less hydropower generation;
 - Demographical implications where farmers and fishermen will leave their homes;
 - Lower groundwater levels.
8. IFAD has financially supported the International Center for Agricultural Research in the Dry Areas (ICARDA) in 2015 to undertake an assessment of climate change impacts in Iraq. According to this analysis, annual precipitation has been declining for a long time and these trends are significant in most of Iraq. Precipitation losses are very serious, as they are predicted to occur in the 'near' future and during the growth cycle of winter crops. Consequently, irrigation demand will be increased dramatically and efficient irrigation techniques are crucial to maintain productivity and food security. For the period 2010-2040, long-term climate change analysis with respect to growing season precipitation found a shift in the onset of the growing season and a 17 percent reduction in precipitation that has resulted in less overall vegetation cover and lower productivity. The spatial pattern of the long-term linear regression

¹⁴ Al-Ansari 2013

trend over a 35-year period (1980–2015) indicates an average delay of 1-2 days per year to receive 20 percent of growing season rainfall to start sowing on time for the period 2000–2015. The anomalies of the vegetation cover and decadal dynamics of the evapotranspiration show the decline of productivity, with a continued loss of active agricultural area, reduction in crop productivity and increased salinity in irrigated area. Sand and dust storms further threaten cropland and productivity by causing soil loss, decreasing soil fertility, and removing organic matter¹⁵.

Figure 4: Absolute Change of Annual Potential Evapotranspiration



Mapping climate change in Iraq and Jordan. De Pauw, E. et al (2015)

Southern Iraq: Increased Vulnerability to Climate Change

9. Between 1970 and 2004, Iraq’s annual mean temperature increased by 1-2 °C and variable changes in annual rainfall for the period 1951–2000 were recorded, with both increases (northeast Iraq) and decreases (southeast and west Iraq)¹⁶. Future expectations suggest that southern Iraq will continue to suffer from higher temperatures, intense heat waves, a decrease in mean annual rainfall and sea level rise in the Gulf ¹⁷. Climate change in the southern governorates threatens to exacerbate water stress, drought, soil salinity and lead to further land degradation. The rural population in southern governorates depends mainly on agriculture for their income and are currently facing increased demand for water, a continued loss of arable land, frequent harvest losses, a reduction in crop productivity and yield and hence an increased impact on their food security¹⁸. Climate change, and specifically the extreme weather events in the southern governorates, including the recently recorded high temperatures and flash floods, has further impacted the livelihoods of vulnerable households and is forcing their movement of to urban areas. The Government is referring to them as “climate-migrants”. The Vulnerability Analysis and Mapping (VAM) Unit of WFP undertook a climate change study for Iraq in 2018 and confirmed that the long-term average of temperatures will be increasing in the southern Governorates of Iraq.

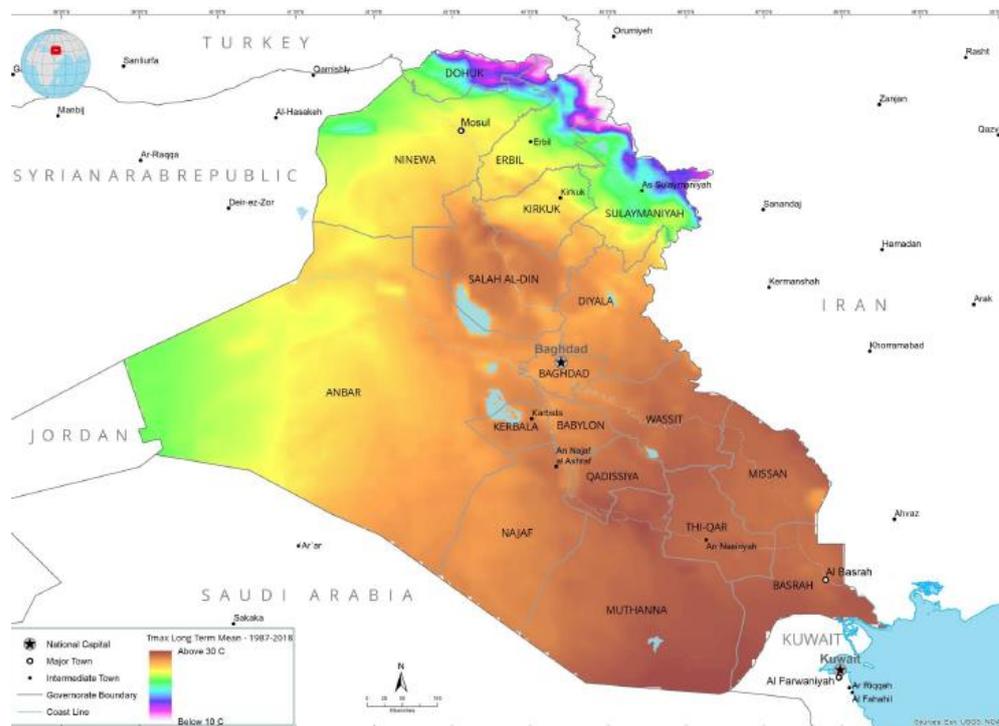
¹⁵ De Pauw, E. et al (2015) Mapping climate change in Iraq and Jordan. ICARDA Working Paper 27.

¹⁶ K4D, Institute of Development Studies. (2018). Environmental Risks in Iraq.

¹⁷ ICARDA, WFP (2018). National Strategic Review of Food Security and Nutrition in Iraq – Towards Zero Hunger.

¹⁸ World Bank. (2017). *Iraq - Systematic Country Diagnostic (English)*. Washington, D.C.: World Bank Group.

Figure 5: Long-term average of maximum temperatures 1987-2017



Climate change analysis for Iraq, WFP, 2018

10. The model developed by the Hadley Centre in the United Kingdom, one of the major models studied and formulated in the IPCC, found that the average annual Euphrates - Tigris Rivers' discharges may decline by 9.5% between 2040 and 2069. Further studies show however a drastic decline of the Euphrates and Tigris water resources at the end of this century by something like 30 to 70% as compared to their resources in the last three decades of the previous century¹⁹. This has a very alarming effect on the governorates of southern Iraq who depend on irrigation. In fact, the impacts of decreasing levels of water are already visible in the southern provinces (Sumeri 2018). Further, in 2017 farmers in southern Iraq had too little water to plant the winter wheat crop, leading to demonstrations and increasing anger among communities (Goering 2017). The arid nature of the southern deserts landscape in Iraq makes water security even more important and increases the risk of crop failure. If no effective adaptation programmes are put in place, increased food insecurity and rural-urban migration should be expected to become more common in the southern provinces.

Climate Change and Food Security

11. The agriculture sector is the major source of livelihood for the poor and food insecure and is the largest source of rural employment. Crop production is the major source of income for the majority (75 percent) of farmers in Iraq, while the rest depend on livestock or mixed crop and livestock production²⁰. However, past-conflict, coupled with drought, extreme weather events and lack of financing to enhance resilience of smallholders has caused this almost unique source of livelihood for the poor to fall further behind, thus dwindling their income and pushing them to migrate and abandon their agricultural practice in search of better opportunities. As reported by the Department of Agriculture in Basra for example, the agricultural production of vegetables for 2017 was 60% less than the set plan due to water shortage and drought. As for date palm which is a major marketable crop in the region, out of 6,196,382 palm trees, only 1,959,394 were productive in 2017. More than 70% of the date crop was damaged before harvest due to excessive temperatures that exceeded 55 degrees.
12. Climate change in the Governorates of southern Iraq is becoming a key driver to food insecurity, poverty and migration. Livelihood conditions are being further undermined by increasing water scarcity²¹ which is affecting agricultural yield and productivity. Households who depended on the production of wheat

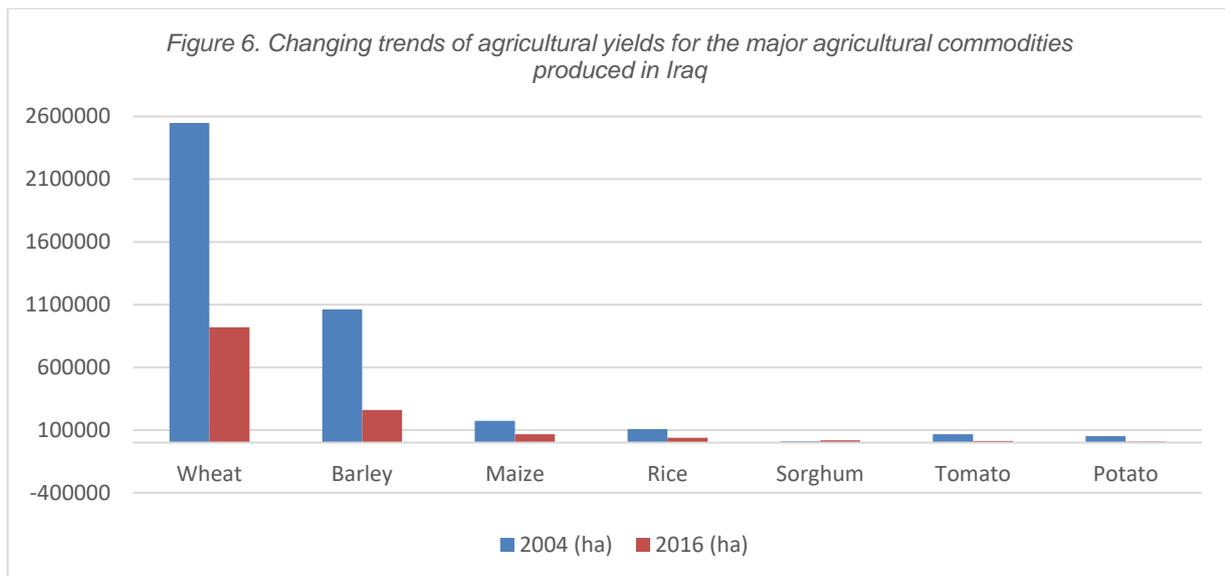
¹⁹ Adamo et. al. Journal of Earth Sciences and Geotechnical Engineering, vol. 8, no. 3, 2018, 59-74

²⁰ Iraq Agriculture Sector Note. FAO 2012

²¹ Iraq Climate-related security risk assessment, August 2018

and barley have been forced to reduce production quotas due to water shortages. Rice production for example, which was very common among smallholders in the south, was lately banned by the Government due to water shortage as well. Lack of economic diversification has left thousands of poor households without any source of income, and forced them to migrate to urban areas where they seek poorly paid daily jobs that push them into further poverty and vulnerability. The number of undernourished people increased from 6.5 million in 2002 to 10.1 million in 2016 (CFSVA, 2016).

- The Ministry of Agriculture sets the annual agricultural strategy in consultation with the Ministry of Water Resources, which comprises the targets for agricultural production. Due to water shortages, the targets are no longer being achieved, and the yield has been decreasing on annual basis, hence affecting incomes and food security. An analysis of the agricultural trends between 2004 and 2016 was undertaken and shows a steep decline in yields of the major commodities as shown in the chart below:



National Strategic Review of Food Security and Nutrition in Iraq Towards Zero Hunger (WFP/ICARDA 2018)

- In the coming decades, changes to Iraq's climate will cause transformative shifts in Iraq's socio-economic make-up (World Bank). The increased number and duration of droughts and more prevalent sand and dust storms, are projected to lead to significant declines in agricultural yields and livestock production, thus further challenging food security. Left unaddressed, climatic change together with major salinization in Iraq's main rivers will likely reduce water availability for household use and agriculture. It would also pose significant risks to general livelihood conditions and livelihood security for smallholder farmers. All this is undermining Iraq's agricultural sector, already long in decline. The southern province of Basra, for example, has dealt with flooding and salinization of once arable land. In May 2013, nearly 600 families were displaced by severe flooding, and approximately 75,000 acres of crops were damaged or destroyed by floodwaters in Missan, Qadisiya, and Wassit Governorates²².

Gender Equality and Women's Empowerment

- Iraqi women comprise half of the total population. Iraq ranked 121th out of 188 countries the UN Human Development Index in 2017 and held the 123th rank on the UN Gender Inequality Index (GII)²³. Due to years of war and political instability, 10 percent of households are headed by women, 80% of whom are widows²⁴, while many are divorced, separated or caring for sick spouses. Furthermore, 28.2% of women aged 12 years or older are illiterate, more than double the male rate of 13%²⁵.
- Women represent one of the most vulnerable segments of the population and are generally more exposed to poverty and food insecurity as a result of lower overall income levels and low participation

²² JAPU, mapping flooded areas in southern governorates of Iraq, 2013.

²³ Human Development Index. UNDP. 2017: <http://www.hdr.undp.org/en/data>

²⁴ Gender in Focus. UNDP Iraq, available at: [www.iq.undp.org/content/dam/iraq/docs/Gender_final .pdf](http://www.iq.undp.org/content/dam/iraq/docs/Gender_final.pdf)

²⁵ United Nations Iraq. Women in Iraq Factsheet. March 2013.

in the labor force²⁶. They are also, along with their families, facing migration due to the impacts of climate change on the agricultural sector on which they depend.

17. Women in the Marshlands in southern Iraq, for example, depend on fishing and Buffalo rearing for their livelihoods. As per studies by the Ministry of Water Resources, excessive evapotranspiration from the marshlands (2000mm/square meter) is causing increased salinity at a level above 22,000 ppm. The high levels of salinity is making fodder cultivation very challenging, and women are faced with the additional burden of having to buy water and animal feed. This increased cost is making them unable to continue with this economic activity, and has pushed them into further poverty and migration. As a result of that, many girls have abandoned schooling. The local consultations in the southern Governorates have also indicated that water shortage, sand storms and drought are diminishing yield and economic benefit, and is pushing women out of agriculture as they cannot afford to buy water for their crops and animals. The lack of diversification into a broader spectrum of economic activities and reduced knowledge and capacities to do so is further diminishing livelihood opportunities.
18. Within rural areas, the literacy divide between men and women is wider and the rural unemployment rate is higher for females than males. Only 18% of women are employed and they take up only 7% of employment in non-agricultural sectors. This percentage increased to 14.7% in 2011. The agriculture sector though has a particularly high share of women, whose participation in the sector has increased from 30 to around 50 percent between 1980 and 2011²⁷.

Table 1: Labor force participation in Iraq (% of female and male employment per sector)

	Female (% of total Female Employment)		Male (% of total Male Employment)	
	2011	2017	2011	2017
Employment in Agriculture	49	43.7	17.2	16.1
Employment in Industry	3.5	3.9	21.3	24.2
Employment in Services	47.5	52.3	61.5	59.7

Source: World Bank. (2018). Data Bank based on ILO Modeled Estimates.

19. However, the consequences of conflict and the relative absence of men in the farms created a need for women to go more to the market to buy, sell, and negotiate, which is paving the way for more female presence at this level (UNDP 2012, Integrating women into the Iraqi economy). According to the conflict analysis produced by Oxfam and UN Women (Iraq Gender Analysis, Oxfam 2016) the current context of displacement constitutes a space where gender roles, responsibilities and practices are being re-negotiated. There are also more NGOs who work on the empowerment of women and these have a wide outreach into the most remote rural areas. They work on several issues including health and nutrition awareness, basic home economics and training.
20. The project will develop a proactive strategy for the participation of women in project activities, especially recognizing that women have received a significant setback in Iraq due to years of conflict which has led to the deterioration of women's rights and confined many of them within the homestead in rural areas. The project will have specific gender dis-aggregated targets and budget allocations, service providers with women staff to ensure outreach to women and integrate gender aspects in all activities, M&E systems and reports. The project components would have an approach to encourage the inclusion of women and specific targets will be identified for them. The skills training, mentoring, empowerment and identification of economic opportunities would be designed to address their specific needs. The project will promote participatory and capacity development tools with a gender focus both at the national level (institutional development and policy improvement) and at the local level. The monitoring and evaluation indicators will be disaggregated by gender.
21. The project will include a number of measures to ensure the empowerment of women. These include:
 - Gender targets of at least 40% for the total of project beneficiaries;
 - Working with NGOs at Governorate level that either specialize in or have a proven track record of working with women;
 - Criteria for selection of adaptation and economic diversification activities that is heavily skewed in favor of women's direct participation (vegetable farming in tunnels, agri-processing, etc.);

²⁶ UN Fact Sheet. March 2013.

²⁷ World Bank, 2016

- Gender sensitive selection of interventions to maximize returns to women's adaptive capacities and support their social and economic empowerment;
- A gender inclusive programme management and implementation team; and
- Adherence to best practice in gender sensitive monitoring and evaluation of programme impact.

National Policies and Strategies

22. The project approach and activities are in-line with national strategies, priorities, plans and programmes to help enhance resilience to climate change, reduce poverty, food insecurity and migration, boost economic recovery and create employment opportunities. The table below briefly states the priorities set within selected country strategies.

Selected National Planning/Strategy Documents	Priorities
Strategy for the Reduction of Poverty in Iraq 2018-2022	To contribute to improving standards of living, protection against risks and hazards, and to achieve economic empowerment needed to turn the poor into productive individuals who are economically and socially integrated, rather than being dependent on their communities or charity of others. Particularly, this Strategy and the Iraqi Vision 2030 share the common pillars of: (i) Creating opportunities for generating sustainable income; and (ii) Empowerment and building human capital.
Intended National Determined Contributions (INDC)	Introduction of efficient irrigation techniques; climate information services; stress-tolerant climate resilient crop varieties; restoration of Badia rangeland; water harvesting; increasing agricultural productivity and adaptive capacity.
UNFCCC First National Communication	Improvement of efficiency of using currently available water resources; develop early warning procedures to warn of drought and flood disasters; follow modern alternative irrigation methods such as drip and sprinkler irrigation and raise awareness among farmers; find plants that are resistant to drought and other effects of global warming; find different patterns of agriculture such as covered agriculture to rationalize water consumption; water harvesting techniques.
National Environment Strategy and Action Plan	Development of environmental monitoring and early warning systems; Water use rationalization in different sectors; Water harvesting; Institutional support for the state ministries and institutions; Institutional support for CSOs and NGOs.
National Development Plan	Reducing national poverty rates; broadening opportunities for women and youth; combating desertification, strengthening water management, and ensuring more effective and environmentally sustainable agricultural policies.
The United Nations Development Assistance Framework (UNDAF)	Government capacity at national and subnational levels enhanced for evidence-based decision-making; strengthened resilience through enhanced government and community disaster risk management capacities; economic and livelihood opportunities increased for women and youth in both public and private sectors; capacity of civil society strengthened to promote behavior change through raising awareness among the vulnerable population.

23. Humanitarian aid and support for reconstruction have been the priorities for international funding for Iraq. However, technical and financial support is currently being provided by several UN and partner agencies to deliver on the NDC and other climate change-related plans and strategies. Some of these initiatives are summarized below:

Name of Project	Agency/Fund	Amount of Funding Approved (USD millions)	Disbursed (USD millions)	Dates
Readiness and Preparatory Project	UNDP/GCF	.67		2017-2019
Developing Disaster Risk Management Capacities	UNDP	6.5	1.6	2013-2016
Support Development of First National Communication to UNFCCC	UNDP	1.0	1.0	2013-2015
Catalysing the use of solar photovoltaic energy	UNDP/GEF	2.4	n/a.	2014-2018
Building Resilience of the Agricultural Sector to Climate Change (BRAC)	IFAD/AF	10	n/a.	2019-2025
Iraq Crisis Response and Resilience Programme	UNDP	58.7		2014-2018

Adaptation needs

24. All the above strategy documents set the adaptation priorities required to face the impacts of climate change in Iraq. As the main source of livelihoods for the most vulnerable is agriculture, the priorities for the agriculture sector in terms of adaptation needs have been further detailed, categorized and summarized below.²⁸

Reduced arable land, crop yields and crop production challenges:

- Raise the irrigation efficiency in irrigated agriculture through development of field irrigation and usage of micro-pressurized efficient irrigation technologies (e.g. drip irrigation, sprinkler irrigation), the promotion of alternative crops of less water consumption, and the establishment of water users' associations.
- Establish agro-meteorological stations to provide relevant information and analysis of weather data (also for climate change assessment), including early warning system.
- Establish an effective monitoring system of weather/crop production and natural pastures conditions, including early warning systems for drought, floods, and desertification trend.
- Research and promote crop species and varieties resistant to drought, salinity, and adapted to predicted changes in climate.
- Improve management of rain-fed agriculture by digging water wells and applying complementary irrigation.
- Strengthen strategic crops storage conditions for crops like wheat and barley to address potential drought seasons.

Increased water scarcity:

- Use modern methodologies for an integrated management planning of water resources in Iraq.
- Continue establishing small dams in desert and non-desert areas for drinking, agriculture and livestock requirements.
- Follow modern efficient irrigation systems (drip irrigation, sprinklers, deficit irrigation), raise awareness of farmers to adopt them, and support the establishment of water users' associations.
- Increase the efficiency of field irrigation, like the adoption of close irrigation method and lining field channels to reduce waste.
- Introduce alternative/innovative approaches such as covered agriculture in tunnels or greenhouses and hydroponics to rationalize water consumption and dispose of prevailing salinity in soil.
- Apply and expand water harvesting techniques in desert areas to take advantage of rain floods.
- Diversify economic activities to ensure increased incomes of vulnerable households.
- Build institutional and technical capacity on climate modelling, hydrological modelling, and mainstreaming adaptation measures into water management.

Yield losses and emergence of new types of pest and diseases affecting plants and animals:

- Conduct further research to identify and/or promote crop varieties which are low water demanding, and resistant to drought, high temperatures, pests, and/or soil salinity, as well as livestock breeds climate-adapted, disease-resistant and highly productive.
- Use integrated methods for agricultural pest management and reduce reliance on pesticides and herbicides in agricultural systems.
- Develop livestock breeds adapted to climate change, disease-resistant and highly productive.
- Conduct studies on climate change impact and adaptation needs for livestock and plant crops.

²⁸ The adaptation priorities were narrowed down to initiatives that are relevant to the mission of WFP and that can be undertaken through GCF financing. All major infrastructure work was omitted.

Rangeland degradation and desertification issues:

- Establish rangeland stations in pastoral areas to test innovative techniques for the production of drought- and salinity-tolerant wild fodder seeds and seedlings to restore degraded rangelands.
- Expand natural reserves in desert areas.
- Stabilize and establish green belts around movable sand dunes affecting cultivate land, water infrastructure and roads, making use of innovative methods suitable for the Iraq context.
- Develop an effective system to monitor desertification and natural rangeland.

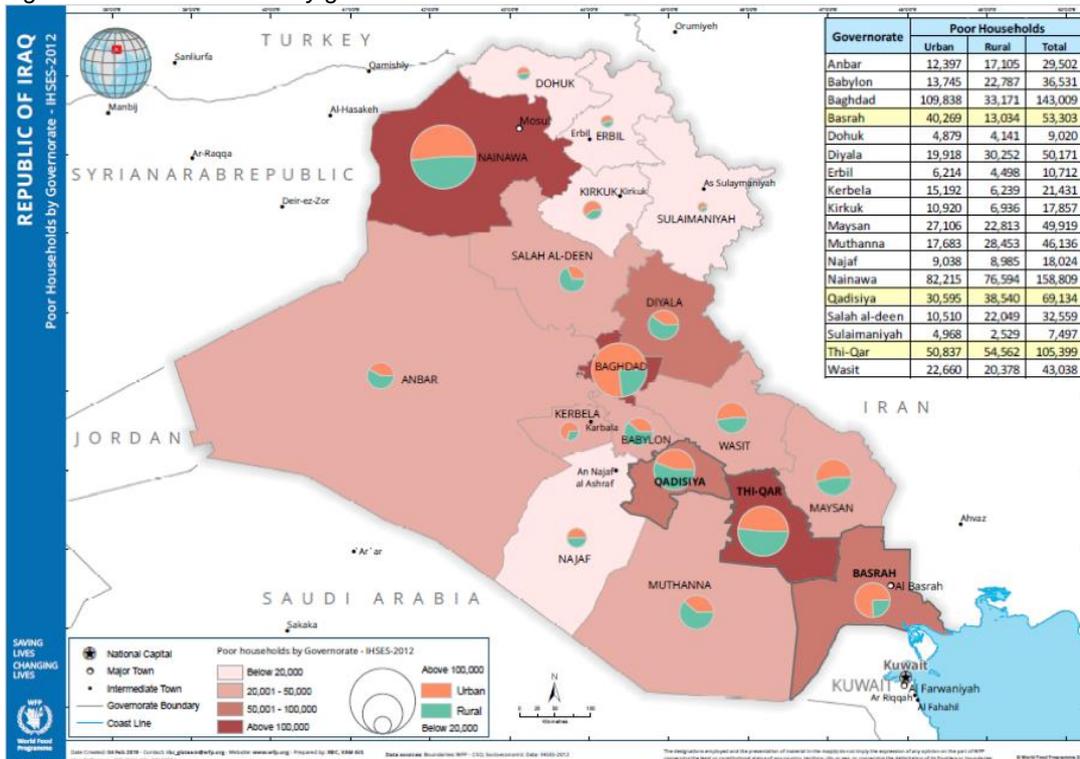
Institutional issues:

- Review agriculture policies and strategies regarding climate change impacts and adaptation needs.
- Promote policy and research on climate change adaptation in agriculture systems.
- Develop effective monitoring system of climate change trends, ensuring awareness and access to information to government and farmers for timely responses and decision making on adaptation procedures.

Geographic Targeting

25. In addition to the predicted severe impacts of climate change on the southern part of Iraq, the southern governorates of Iraq are among the poorest in the country, and very limited support is being directed to them. As per the map below (WFP 2018) depicting the number of poor households by each Governorate, the highest number of poor households can be found in Baghdad, Nainawa, Basra, Qadissiyah and Thi-Qar, the last 3 being in the south where poor households depend on irrigated agriculture for their livelihoods and where climate change impacts are extreme. While poor rural households exceed urban ones in Qadissiyah and Thi-Qar, urban poverty in Basra is quite high due to excessive migration from rural areas to the city in search of better opportunities.

Figure 7: Poor households by governorate



26. To further refine the geographic targeting and better understand the response of the ecosystem to different magnitudes of climate warming and corresponding precipitation changes, the WFP Vulnerability Analysis and Mapping (VAM) Unit undertook an assessment (May 2019) to derive the probability of extreme temperatures (above 50 degrees) within the Governorates²⁹, as well as the trajectory of gross primary productivity (GPP) in the country over a 15-year period. The analysis is summarized in the tables below.

²⁹ Based on Land Surface Temperature recorded by MODIS Aqua Satellite around 1300Hrs daily during Apr 2002 - May2019 (6162 images)

Table 2: Probability of increased temperatures

Governorate	Probability of Temp > 50°C
Babylon	13%
Baghdad	14%
Basrah	29%
Erbil	16%
Kerbala	22%
Missan	28%
Dohuk	8%
Muthanna	28%
Ninewa	25%
Qadissiya	24%
Salah al-Din	25%
Sulaymaniyah	15%
Kirkuk	22%
Thi-Qar	23%

27. The analysis on GPP shows an overall national negative trend, which in the case of GPP can be attributed to water scarcity as a primary factor, and to extreme temperatures in a secondary role³⁰. The contribution of the 5 southern governorates is highlighted.

Table 3: Gross primary productivity per governorate (2002 – 2017)

Province	Total pixels* in province	Negative pixels	Gross Primary Productivity - Mannkental Trend	
			Negative Trend by Governorate	Share of Province in overall national negative trend
Anbar	759791	3998	1%	6%
Babylon	29626	2693	9%	4%
Baghdad	28900	5736	20%	9%
Basra	94874	4089	4%	6%
Diyala	104707	2450	2%	4%
Erbil	89876	975	1%	2%
Kerbala	27638	666	2%	1%
Missan	92061	10811	12%	17%
Dohuk	38478	185	0%	0%
Muthanna	282143	1879	1%	3%
Najaf	155894	419	0%	1%
Nainawa	216405	952	0%	1%
Qadissiya	47123	6279	13%	10%
Salah al-Din	140939	3173	2%	5%
Sulaymaniyah	100245	588	1%	1%
Kirkuk	55738	604	1%	1%
Thi-Qar	74523	12264	16%	19%
Wassit	98599	7033	7%	11%

*Every pixel is 500mx500m

³⁰ Zscheischler et. al. Extreme events in gross primary production. 2014

28. The preliminary data and information on climate change impact was shared with the Government. With the available resources for the project, and to be able to deliver better impact, it was agreed with the Government of Iraq that the project will be working in only 3 Governorates out of the 5 southern governorates. As all the 5 southern provinces share the same climate change challenges, it was imperative to analyze socio-economic data relevant to poverty and food security, productivity challenges and probability of increased temperatures to be able to select the most vulnerable governorates to be targeted. The data was sorted from “high” (red) to “Low” (yellow) to help in narrowing down the selection to 3 Governorates. The table below summarizes the findings:

Table 3. Combined indicators for geographical target selection

Governorate	Marginal Food Security (individuals)	Rural Population (individuals)	Total poor households	GPP negative trend	Probability of Temp > 50°C
Muthanna (Al- Samawa)	539,000	427,476	46,136	1%	28%
Qadissiyah (Diwaniyyah)	793,000	521,948	69,134	13%	24%
Thi Qar (Nasirriyah)	1,167,940	719,539	105,399	16%	23%
Basra	878,322	536,406	53,303	4%	29%
Missan (Al-Amara)	441,243	283,374	49,919	12%	28%

Iraq Socio-Economic Atlas (WFP 2018)

29. Based on the above, and comparing the different criteria, the project interventions will be narrowed down to the three Governorates of Qadissiyah, Thi Qar and Basra. This was shared with the Government prior and during the validation workshop who endorsed this selection and the prioritization of these 3 Governorates to benefit from Green Climate Fund resources.

Stakeholder Consultation

National Level

30. In May 2018, the NDA contacted WFP to support the Government in the development of a concept note to be submitted to the GCF. An initial consultation workshop was held on 12 August 2018 in Baghdad, jointly hosted by the Ministry of Environment and the World Food Programme (WFP). This consultation workshop included the following experts/departments:
- Dr. Jasim Abdulazeez Humadi/ NDA and national focal point of GCF.
 - General Director of Planning Directorate - Ministry of Environment.
 - Representatives from the National Center of Climate Change.
 - Representatives from the Division of Land Use and Combatting Desertification - Ministry of Environment
 - Representatives from Department of International Environment Relations – Ministry of Environment
 - Representatives from the Division of Biodiversity - Ministry of Environment
 - Representatives from the Ministry of Agriculture.
 - Representatives from the Ministry of Water Resources.
 - Representatives from Ministry of Higher Education and Scientific Research.
 - Representatives from Ministry of Planning.
31. The project concept note was prepared in very close collaboration with the NDA and other national partners and institutions. The consultation meetings and visits were undertaken jointly by WFP and Government counterparts. A validation workshop was held on 11 December 2018 to present and discuss the concept note, the geographic targeting and the activities to be implemented. The finalized concept note was shared with all national partners prior to submission to ensure that it responds to Government priorities and vision. After receiving preliminary comments from the GCF, the main issues were discussed again with national counterparts, and the concept note revised and shared again for endorsement.

Governorate Level

32. The concept preparation team (WFP and NDA counterparts) undertook consultation meetings in the 5 southern Governorates of Basra, Muthanna, Qadissiyah, Thi Qar and Missan. These meetings were organized by the NDA and undertaken jointly by WFP and Government counterparts, and included

representatives from the different departments at the Governorate level (Environment, Agriculture, Water Resources, Planning), representatives from the Governorate Council (including the representative of women affairs), Civil Society Organizations, Farmer Associations and Academic and Research institutions.

33. The team spent 2 days in each governorate, identifying challenges, priorities and adaptation needs, as well as recognizing needed capacity strengthening support, including for local institutions. A standard consultation process was undertaken in each governorate, which captured information relevant to: (a) specificities of the governorate; (b) poverty profile; (c) women’s challenges and needs; (d) agricultural sector profile; (e) climate change impacts; (f) adaptation needs and barriers to cope with vulnerability; (g) training and capacity building needs; and (h) needed interventions.
34. The result was a set of priority interventions to help reduce the vulnerability of poor households to the main impacts of climate change in these governorates, revive agricultural productivity, recover livelihood economies and deliver on the adaptation needs identified within the different national strategies and plans. Although the needs for recovering livelihoods and reducing vulnerability in the southern provinces are extensive, the priority interventions were also filtered based on: (i) solving issues that are directly related to climate change impacts; (ii) priorities that are in line with GCF result areas; and (iii) interventions with minimum or no environmental and social risk.
35. The consultation process was vital in identifying the key challenges of poor rural communities relevant to climate change impacts and to reduced adaptive capacities that are pushing vulnerable people into food insecurity, poverty and migration. The Table below summarizes the findings in the 5 southern Governorates:

GOVERNORATE	SPECIFICITIES & MAIN FINDINGS
<p>QADISIYYAH (DIWANIYAH)</p>	<p>The overall area is 3,266,000 dunums, and the population is 1.35 million, where around 58% derive their livelihoods from agriculture.</p> <p>The cultivable area is 1,800,000 dunum, however, the amount of water available is only enough to irrigate around 1.3 million dunums, thus leaving several farmers with no opportunity to practice agriculture without adopting efficient irrigation technologies.</p> <p>The main challenges for the region are mainly related to climate change and can be summarized as: Water shortage, desertification and drought, dust storms, salinity, post-harvest losses and increased pests and diseases which are pushing already poor households into further poverty. This is exacerbated by the lack of financing directed to the region, as most of the funds have been dedicated to the newly liberated areas in the north.</p> <p>Villages that initially depended on agriculture needed to buy water for their animals, and disengaged from cultivation. Water shortage has led to migration out of the villages into urban areas, where people – especially youth – engage in jobs that pay them too little and maintain them below the poverty line. Any support to re-engage them in income-generating opportunities could reverse this migration.</p> <p>Women represent 50% of the population in the Governorate and engage in agriculture (including beekeeping and animal rearing), as well as food processing. Few of them were supported on beekeeping and mushroom production which has proven profitable due to the market potential. However, this was not coupled with proper training and mentoring and was discontinued due to lack of financing and adequate support.</p> <p>There was a good experience on the creation of one Water User Association to support proper management of water resources and train and engage farmers in the management of the resource. However, no further funding or training was available to scale that up.</p> <p>Decreased water availability is affecting families who depend on cropping. Drought has caused crop losses and farmers resort to Government bodies to try to seek compensation, which is very slow and could take up years. Several households who depended on the cultivation of wheat and barley could not continue as the Government has asked for reduction in production due to water shortage. To mitigate harvest losses, some trials regarding drought tolerant wheat varieties (Barcelona and Adana) were undertaken and some farmers have started adopting them, but further expansion and scaling-up is needed.</p>

	<p>Climate advisory services are largely needed and not available. There is an initiative to build an early warning system in Baghdad, but getting the information to the farmers within the Governorate is a priority.</p>
<p>THI QAR (NASIRIYYA)</p>	<p>The Governorate has an area of 12,900 square km and has a population of around 2.1 million inhabitants. It is among the poorest Governorate in Iraq and the 4th in terms of population size.</p> <p>The main difficulties are related to water shortage, increased temperatures, desertification and drought and dust storms which are making agriculture more challenging and reducing its productivity. This is also impacting the Marshlands with decrease in water levels, and causing mass migration of families who lived in them and depended on their resources. It is estimated that around 61% of the population in rural areas live below the poverty line, compared to 41% in urban areas.</p> <p>Women constitute around 60-65% of the population. They are extremely vulnerable and suffer from poverty and illiteracy. There are around 37,000 widows in the region who rely on Government safety nets. The Fund for Development of Rural Women was formed years ago with an effort to support women in terms of income generating activities, but it was never operationalized. Women could especially benefit from greenhouses/ tunnels to produce vegetables for their families to ensure their nutritional security and sell excess produce.</p> <p>The total agricultural area is 5,160,000 dunums but currently, only 58% of that is being used due to water shortage. The productivity per dunum is also decreasing within the cultivated land. Rice used to be produced but its cultivation has been banned due to water shortage. This has greatly affected farmers who depended on that and no compensation was provided.</p> <p>Some trials regarding drought/disease tolerant varieties were undertaken and have proven successful. More support is needed to scale that up and help to reduce harvest losses. There is absence of efficient irrigation technologies or water harvesting facilities which would hugely support farmers in productivity gains.</p> <p>Increased temperature is causing excessive evapotranspiration from the marshlands (at the level of 2000mm/square meter) - this is causing increased salinity at a level above 22,000 ppm.</p> <p>Decreased water availability is causing people to abandon their lands and even sell them at times for construction purposes. This is leading to land transformation in the region. Young people have no opportunities or support to diversify incomes beyond agriculture and are migrating heavily to urban areas, including to Basra.</p> <p>The Governorate views weather information services as very important, but highlighted that staff capacities might not be adequate to manage that.</p>
<p>MUTHANNA (AL-SAMAWA)</p>	<p>The Governorate constitutes 12% of the overall area of Iraq (20 million dunums or 52000 square km), and is among the smallest in population within the country (around 1 million inhabitants). The rural population constitutes 52%. Around 56% of the total population derive their livelihoods from agriculture. The Governorate has 560 villages which are along the Euphrates and its estuaries. The total agricultural area is 570,000 dunums, but currently only 50% of that is being used due to water shortage. Agricultural production is not competitive due to water shortages and this is leading to migration from rural areas.</p> <p>The main challenges can be summarized as water shortage, higher temperatures, desertification and drought and dust storms which are pushing already poor households into further poverty. Very little support is provided to poor farmers in terms of efficient irrigation technologies. This, coupled with water harvesting, could prove useful for fodder production.</p> <p>Livestock is a main economic activity and there are around 1 million sheep in the region. All fodder is important and nothing is produced. The Governorate used to be self-sufficient in terms of meat. Due to decreased rainfall, smallholder farmers who lived depended on livestock had to move from their villages to river banks to provide water for their animals. With the lowering of the water levels in rivers, these farmers started selling their livestock and moved to cities where they started working on very low wages.</p> <p>The state of women in rural areas is very grim and 80% of them are illiterate. There are several cases of aggression and violence against them, and they mainly undertake tasks that are home-based. Only 8.2% of women are economically active. Their situation of women is extremely vulnerable and their capacities are very weak. Some CBOs reported successful experiences with women in bee keeping, sheep and chicken breeding, rose production and other activities such as vegetable production in tunnels. Scaling-up this support and blending it with capacity building could prove effective in improving their livelihoods.</p> <p>Some trials regarding drought/disease tolerant varieties were undertaken have proven successful, but this remained at the level of research and was not scaled-up to reach the level of the farmers. Propagating tolerant fodder varieties could prove very useful.</p>

	<p>Several households who depended on the cultivation of wheat and barley could not continue as the Government has asked for reduction in production due to water shortage. Consequently, rice production was completely suspended. In 2014, some compensation was paid by to rice farmers, as well as to others who have experienced crop loss due to weather events. However, this is not going to be sustainable as the Government is trying to push farmers towards a new initiative on crop insurance. The stakeholders consulted are very pessimistic about this initiative as farmers will never be able to pay the premium.</p> <p>Climate advisory services are not available, but the region has very low capacity to manage any sort of innovation. Farmers check themselves for probability of rain, and the Agricultural directorate does not get involved in providing them with any climate-related services.</p>
BASRA	<p>People depend on agriculture and climate variability is undermining their ability to pursue their economic activities. Poor households who initially depended on agriculture needed to buy water for their animals. Initially, the 1 cubic meter of water used to cost around 5 USD, and then it increased to 12 USD. This diluted any potential economic benefit and thus forced them to abandon agriculture and migrate.</p> <p>Women represent 49.6% of the population in the Governorate and engage in agriculture (including beekeeping and animal rearing), as well as food processing. Their situation is becoming extremely vulnerable due to climate change impacts on the Governorate. They receive basically no support as there are no initiatives in the region that target them specifically in terms of training, mentoring or diversification of income sources.</p> <p>There was a good experience on the creation of one Water User Association to support proper management of water resources and train and engage farmers in the management of the resource. However, no further funding was available to scale that up. Some trials regarding efficient irrigation have been very successful and merit scaling-up. The trials in the Nashwa area implemented land levelling coupled with efficient irrigation. This has resulted in the reduction of water use by 50%, while the production per dunum was increased from 400 to 600 kg.</p> <p>Although the region is known to be the among the hottest in Iraq, last summers have registered excessive temperature reaching above 55 degrees which affected crop yields, especially date palm. In addition to the difficulties farmers are facing in terms of cropping and livestock keeping due to water shortage and salinity, farmers who depend on fisheries have been challenged by the high water temperatures which reaches around 30 degrees, making it less than ideal for fish farming.</p> <p>Climate advisory services are largely needed and not available, and the region regards that as a priority to be able to advise farmers and help them in making choices regarding crops to choose as well as adequate time for seeding and irrigating. The region also mentioned the need for the installation of weather stations within different parts of the Governorate to be able to collect climate data and link that to the climate information system.</p>
MISSAN	<p>The Governorate has an area of 16,072 sq km (3.7% of Iraq) and a population of 824,147 (3% of total country population). The unemployment rate is 17%, slightly above the 15% national average. Female labor force participation is 8%. Two successive years of drought have had a detrimental impact on agriculture in the governorate, with 43% of cropland experiencing reduction in crop coverage. An estimated 325,000 people have been affected by the drought afflicting the governorate during the past two years. The Provincial Government is prioritizing improvements in irrigation systems and water-efficient practices to decrease the likelihood of water shortages in the long term, but lacks technical and financial support to bring that to implementation.</p> <p>Water shortage has greatly impacted the women of the Marshlands who derive their livelihoods from Buffalo rearing and fishing. The high levels of salinity is making fodder cultivation very challenging, and women are faced with the additional burden of having to buy water and animal feed. Families are abandoning the Marshlands to search for alternative economic activities. The Center for Recovery of the Marshlands (part of the Ministry of Water Resources) has several initiatives planned to restore the water levels, but most of these projects are very costly and there was no success in accessing financing.</p> <p>The governorate depends mainly on agriculture. The governorate is also an important industrial center, hosting a range of factories that are mainly producing construction materials like gravel and cement. The crumbling infrastructure and a lack of investment however are hindering industrial development and generating less and less jobs. Missan also hosts a large number of IDPs and is largely dependent on humanitarian aid. The capacities of local institutions are quite low and capacity strengthening is hugely needed at different level, especially in terms of adapting the agricultural sector to climate change. Weather information services are not available, and very little capacity is currently available to manage such services. Farmers depend on local knowledge which is not proving to be currently very reliable.</p>

36. As can be observed from the findings, all the 5 southern governments shared very similar challenges, and these can be briefly summarized as follows:

MAIN CLIMATE CHANGE CHALLENGES FOR POOR RURAL COMMUNITIES

- Rural communities depend on flood irrigation. With less rainfall, reduced water availability and lack of access to efficient irrigation or water harvesting techniques, they do not have enough water to produce what is enough for them to feed their families and sell surplus.
- Smallholders have no access to proper weather information services to help them determine timing for seeding and irrigation, or reduce risk relevant to type of crop/variety to cultivate under extreme climate events.
- Dependence on the production of major crops of wheat and barley and lack of diversification for producing stress-tolerant varieties or other high value marketable crops such as vegetables increased the vulnerability of farmers and their dependence on the Government to decide on quotas and amount of crop purchased.
- Women are mainly dependent on farming activities. Lack of diversification and involvement in off-farm activities made them more vulnerable to climate change impacts.
- Almost all smallholders cultivate in open fields with no access to protected forms of agriculture. This is making their exposure risk to extreme weather events (floods, dust storms...) very high, and crop loss more frequent.
- Local institutions, including extension agents, have reduced capacities to help and guide vulnerable populations in terms of climate challenges and provide advice relevant to enhancing adaptive capacities.
- Very limited investments and technical and financial support is being directed to those southern governorates to help vulnerable smallholders cope with adverse impacts of climate change.

37. The identification of main climate change challenges was coupled with identification of priority interventions within each governorate:

TABLE 4: PRIORITY INTERVENTIONS IDENTIFIED THROUGH CONSULTATIONS

PRIORITY INTERVENTION	QADISIYYAH (DIWANIYAH)	THI QAR (NASIRIYYA)	MUTHANNA (AL-SAMAWA)	BASRA	MISSAN
Efficient irrigation techniques (drip irrigation, sprinkler irrigation...) to replace flood irrigation and overcome reduced water availability for cropping.	√	√	√	√	√
Green houses / tunnels to help farmers in regaining access to cultivation, reduce yield losses and improve livelihoods.	√	√	√	√	√
Water harvesting which could help in supporting farmers in cropping and providing water to animals.	√	√	√	√	√
Income-generating activities for women and youth to enhance their resilience and promote diversification such as henna production, beekeeping, date pressing...	√	√	√	√	√
Development of shelter belts (olive trees for example) to increase reforestation and protect agricultural fields from sand storms	√			√	√
Promotion of drought/heat/salinity tolerant crops, including fodder, wheat (Sham-6, Dijla and Furat) and barley cultivars, coupled with demonstrations to act as learning grounds for famers for their later adoption and scaling-up	√	√		√	

Development of Water User Associations, training them and developing their management skills to efficiently manage water resources within their communities.	√	√	√	√	√
Development of a weather information system coupled with climate advisory services and make the information reach farmers.	√			√	
Restoration of pasture land in the Badia through drought of tolerant fodder crops, medicinal plants, fencing and re-seeding			√		

Planned stakeholder consultation during project design

38. During the project design stage, WFP will maintain the consultative process and ensure that the outcome is a collaborative project that responds to priorities and support the Government in responding to the urgent needs of vulnerable communities in the southern Governorates through enhancing their resilience to extreme climate change impacts.
39. In addition to national and governorate consultation, a detailed approach and methodology will be developed for local consultations and for capturing the challenges and needs of the most vulnerable and the main beneficiaries of the project. This will involve community-based participatory planning, in collaboration with civil society, to identify climate shocks, livelihood challenges, available skills and capacities, and identify concrete interventions and most appropriate activities per each target group. Special session will be facilitated with women and women-headed households to capture needs, vulnerability reduction interventions, and capacity building needs. All findings will be documented to provide a solid base for refining project scope, and for serving as a reference for project implementation. Although somehow framed within the concept development stage, diversification and income-generating activities for women and youth will be further verified and coupled with a market analysis to ensure economic benefit.
40. The focus may vary from one community to another based on profile, capacities and needs. The mentoring and capacity building will be planned to ensure that the project interventions foster potential for sustainable increased incomes. Best practices for climate-resilient agricultural interventions will ensure the participation of the most vulnerable community members and give equal voice to men and women in decision-making and benefit-sharing.

Proposed Project Interventions

41. The project will adopt a differentiated implementation approach, and not all activities will be undertaken within all the target governorates. This will be based on extensive local consultations during detailed project design, specific needs and thorough analysis of the target beneficiaries to maximize success and impact. The project will be structured around two Components that will deliver on the following Sustainable Development Goals: SDG target 1.5; SDG target 2.3; SDG target 2.4; SDG target 6; and SDG 13. In addition, the proposed project will also contribute to achieving other SDGs related to gender equality (SDG 5), decent work (SDG 8), halt land degradation (SDG 15), and promoting inclusive societies for sustainable development (SDG 16).
42. Based on the predicted impacts of climate change on the southern Governorates of Iraq, the adaptation actions identified through the different strategies and policy documents, as well as the challenges and needs highlighted during the consultation process, the Theory of Change was developed to define and guide the main project interventions. Hence, the project proposes a 'package' of integrated solutions that aim at building adaptive capacities of vulnerable households - including women-headed households - to adverse impacts of climate change. This will be achieved through the introduction of: (i) climate-resilient best practices to enhance productivity, promote water-use efficiency and recover agricultural-based livelihoods; (ii) capacity strengthening of beneficiaries, civil society, farmers and their groups, as well as local and national institutions to enhance adaptive capacities; (iii) mentoring and provision of economic assets for women and youth to promote diversification and improved climate change

adaptation capacity, food security and nutrition; (iv) decision-support tools and services to reduce risk; and (v) knowledge and learning to influence policy relevant to climate change adaptation.

Component 1: Introduction of climate resilient approaches and livelihood diversification for vulnerable and food insecure households

43. This component will focus on climate-resilient investments to enable vulnerable communities to resume their agricultural activities and increase productivity, diversify sources of income and promote stress-tolerant crops to enhance food and nutritional security.

Expected outcome: Increased adaptive capacities of targeted vulnerable households through climate-proofing agricultural practices and diversifying livelihoods.

Outputs	Proposed Activities
<p><i>Output 1.1 Increased irrigation efficiency and improved water availability and management</i></p>	<p><i>Introduce efficient irrigation technologies to replace flood irrigation and ensure water use efficiency;</i></p> <p><i>Improve water harvesting techniques through rooftops, ponds, micro-dams, pits...to capture water from flash floods;</i></p> <p><i>Deliver training for farmers on the introduced technologies, including effective means for operation and maintenance.</i></p> <p><i>(When water tanks are to be installed, these will be supplied with solar pumps).</i></p>

44. The Iraqi Government halved the irrigated area it plants with wheat and other winter grains. Cereal production for 2018 was 4.3 million tonnes below average. The decision came in response to water shortage which was one of the causes that triggered protests in southern Iraq. The Government acknowledges that alternative measures, such as increasing yields from cultivated areas and introduction of efficient irrigation approaches will help ease the burden of decreasing cropped land and enhance food security of vulnerable households ³¹.

45. The activities under this output aim at improving food security by making cropping again possible and enhancing productivity that was limited by lack of water availability through water harvesting that will help in supporting farmers in cropping as well as providing water to animals; and the introduction of efficient irrigation technologies. A pilot experience on the introduction of efficient irrigation which was undertaken by the Department of Agriculture in Basra has reported a reduction of water use by 50%, while the production per dunum was increased from 400 to 650 kg. Although efficient irrigation technologies are not considered as an innovation elsewhere, vulnerable smallholders in Iraq do not have access to that. They still depend on flood-irrigation, which in addition to increasing soil salinity, is leading to diminishing yields as the amount of water available to these farmers is not anymore enough to irrigate their whole land, and they end up cropping around 50% of this land.

46. In order to increase green cover and reduce the impact of sand storms on crop production, the project design team will analyze the possibility of engaging farmers benefitting from the activities under this output in the development of shelter belts around their farms. The modality to ensure that could be stipulated in an agreement between the project and the beneficiaries. This activity was identified during the consultation process and including it within the output related to improved water availability and management would enhance the sustainability of the investment in these shelter belts.

<p><i>Output 1.2 Enhanced agriculture productivity of smallholder farmers through investment in stress-tolerant varieties to enhance productivity and minimize harvest losses</i></p>	<p><i>Identify tested/adequate stress tolerant varieties, including fodder varieties;</i></p> <p><i>Organize awareness/learning/training on demonstration sites for farmers, including on multi-seasonal cropping methods, crop diversification, climate change adaptation, risk management...;</i></p> <p><i>Provide vouchers for very vulnerable households to acquire seeds and basic equipment/inputs for propagation.</i></p>
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Adoption of stress tolerant crops to increase agriculture productivity in face of climate related stressors

47. With the support of IFAD and USAID, ICARDA worked with Iraq's national agricultural research stations and identified 11 high potential lines of wheat. Some were suitable for rainfed cultivation and others for irrigation, while all were tolerant to abiotic stresses such as drought and salinity, or diseases such as rusts. These were tested and grown in in Babil, Baghdad, Nineveh, Salahaddin, Wasit and Erbil, the idea being to produce enough seed for large-scale seed multiplication. Working with the Ministry of Agriculture, ICARDA helped increase the supply of certified seed for these tolerant wheat varieties from 2500 kg in 2003 to 155,000 kg in 2015, this will greatly support increasing food security and farmers' incomes. Some of these varieties include:

³¹ Sleet, P. Global Food and Water Crises. 2018

Variety	Type of wheat	Key traits
Al-Rasheed	Bread	High yielding
Bououth 22	Bread	High yielding
Digla	Bread	Salt tolerant
Faris	Bread	Rust resistant
Furat	Bread	Salt tolerant
Omrabie	Durum	High yielding
Sham 1	Bread	High yielding
Sham 6	Bread	High yielding
Tamooz 3	Bread	High yielding
Waha Iraq	Durum	High yielding

48. These varieties are available in the country, the success of their cultivation and stress-tolerance has been demonstrated, they are certified by the Government, and scaling-up their production throughout farmers' fields in the southern governorates would enhance the resilience of these farmers who have been witnessing significant yield losses due to severe climate change impacts (low precipitation, salinity, disease...). Some of these varieties were tested in advanced yield trials under irrigated conditions, generating 6-7 t/ha and are hence very promising for the southern governorates. One improved variety promoted by the initiative – Bohouth 22 – is now being disseminated by the Iraqi government to all extension centers for distribution to farmers. The Digla and Furat varieties have a high potential in the southern Governorates, especially for farmers whose fields have been affected by salinity. Activities under this output will help make agriculture economically profitable again through minimizing harvest losses.
49. The provision of vouchers would be done after a detailed targeting exercise to identify beneficiaries and needs (depending on economic activity, some smallholder farmers might be interested in fodder varieties rather than wheat or barley). The monetary amount of these vouchers will be defined during project design stage, and it will cover the necessary inputs and basic equipment to cultivate tested stress-tolerant varieties, including fodder crops if needed. A specific targeting exercise will identify the beneficiaries from among those very vulnerable households. Agreements with input providers will be established to exchange vouchers and provide needed services.

<p><i>Output 1.3 Strengthened resilience of livelihoods through climate-smart diversification targeting women and youth</i></p>	<p><i>Define a maximum of 4 climate-resilient income generating activities to be supported (henna production, mushroom production, tunnels for vegetable production; date pressing and processing);</i></p> <p><i>Deliver start-up packages and provide training and mentoring to beneficiaries to ensure success;</i></p> <p><i>Build capacities of beneficiaries to engage in climate resilient livelihood streams, including training on marketing, financial literacy....</i></p>
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50. The preliminary selection of the climate-resilient income generating activities was based on market information, available skills, priorities defined during consultations, as well as adaptation potential of these activities. During the design stage, a proper economic and financial analysis will be undertaken to better refine these income-generating activities, as well as detailed targeting criteria to ensure they specifically target women and youth.

Proposed income-generating activity	Adaptation potential
<p>Processing of dates: Iraq is one of the major producers of dates in the region, and date palm is a major and demanded fruit crop in the south. Date fruits are high-energy food source with 72 to 88% sugar content at maturity, as well as essential minerals and vitamins. Dates are also processed into paste, date syrup called 'Dibs', vinegar, liquid sugar, bread yeast, citric acid, etc. which are used throughout the region. During the past 50 years, date palm plantations in Iraq were subjected to degradation. The Government has a very ambitious plan to revive this economic sector. Several development agencies are supporting that, including the World Bank and FAO, specifically relevant to date-palm tissue culture.</p>	<p>Date palm (<i>Phoenix dactylifera</i> L.) is a fruit tree resilient to adverse climatic conditions predominating in hot arid regions of the Middle East and North Africa. The production of date palm is very abundant in southern Iraq because of the inherent requirement for hot climate which is necessary for successful pollination and fruit setting.</p> <p>Involving women and youth in date-processing can be an excellent opportunity for diversifying their livelihoods through their involvement in off-farm activities and accumulating capital to mitigate any climate shocks. This will be facilitated and stimulated by the project, and coupled with the provision of the necessary assets, mentoring and training, including marketing training.</p>

<p>Henna production: Water shortages and ensuing use of salty water from the polluted Shatt al-Arab river for irrigation had eaten up areas that grew henna (<i>Lawsonia inermis</i>) plants, whose ground leaves make the dark paste used as a dye, and which was a major source of income for rural families. Once bearing some 425 farms producing 5,000 kilograms (11,023 lb) of henna leaves annually, mainly for export, that number has now fallen to around 50 farms producing around 300 kilograms. (FAO, March 2019). The collection season is from January to April and then May – where leaves are reaped every 45 days and sold at local markets. There is broad knowledge on the production of the henna plant, which, if revived, could be a very relevant income-generating activity for women, provided they are supported with training and mentoring on its production.</p>	<p>Henna production is important for diversification as it can boost regular income with least input and thus favors early pay back. Henna has a high market value, including for export markets. Henna is efficient in conserving moisture and preventing soil erosion (reinforcement of embankments and drainage channels). Henna cultivation is very compatible and can be done in combination with other several horticultural crops, thus diversifying income sources.</p>
<p>Mushroom farming: Mushroom farming is taking root in Iraqi Kurdistan, with new farms opening and producers eyeing local demand and exports. The production of the mushrooms is very simple: No chemicals are used. Farmers use hay and American mushroom seeds. This experience could be scaled-up to the target Governorates of southern Iraq. Until very recently, residents of the Kurdistan Region could purchase mushrooms only in the spring, when mushrooms grew naturally. This led to high demand and high prices on imported mushrooms that came mainly from neighboring Iran.</p>	<p>Diversification of rural livelihoods and developing capacity for the production of a market-competitive crop in order to increase job opportunities and incomes. Smallholders, especially women, youth and vulnerable households who are disadvantaged because they do not have enough land to produce crops and raise animals could benefit from mushroom production since mushrooms can be grown on nearly any type of agricultural residue. By taking into consideration the drought problem in Iraq, mushroom production could help soil and water conservation. However, careful consideration should be done to ensure the selection of mushroom strains that tolerate higher temperatures (<i>Volvariella volvacea</i>, <i>Agaricus subrufescens</i>...).</p>
<p>Tunnels for vegetable production: The Agricultural Initiative has identified a set of priorities for the agriculture sector that are in line with the overall objectives of the National Development Plan (NDP) of Iraq. One of those priorities refers to promoting the protected cultivation of vegetables in plastic houses or tunnels. Many vulnerable households in the target southern Governorates do not own significant land for cultivation, and depend on open home-gardens for the nutritional and food security of their families. Plastic tunnel structures are cheap and could fit within small plots.</p>	<p>Climate change is affecting the yield of vulnerable households, especially that unprotected agriculture is prone to damage by extreme events (dust storms, floods...). Tunnels can reduce risk and enhance food security. Tunnels are easy to manage, and they can be used all year long, thus helping those families in earning supplemental income by selling some of the surplus.</p>

Component 2: Strengthening of enabling environment for enhanced climate risk management and integration of climate change adaptation in development plans

51. This component focuses on improving decision-making regarding climate change adaptation through better use and dissemination of climate services, strengthening capacities and knowledge for vulnerability reduction, in addition to fostering learning and knowledge to benefit climate adaptation policies and strategies.

Expected Outcome: Strengthened technical and institutional capacity in the targeted governorates to support climate-resilient agricultural development and integration of climate risks in regional and local plans.

Outputs	Proposed Activities
<p><i>Output 2.1 Enhanced climate risk management through improved decision-support tools and services</i></p>	<p><i>Develop/upgrade the agro-meteorological network and climate information and response system;</i></p> <p><i>Disseminate climate information to beneficiaries;</i></p> <p><i>Provide training on utilization of climate information and advisory services at institutional and local beneficiary levels;</i></p> <p><i>Define sustainability needs and possibilities for wider dissemination to farmers.</i></p>

52. The activities under this output will build on the successful experience of WFP in other countries, including countries in the region, to upgrade the capacity of weather/climate monitoring stations as well as develop the

climate information and response system to effectively monitor, forecast, analyze, and report/disseminate climate data and information. This will be coupled with capacity building/training of Government staff, NGOs and farmers at the Governorate level on the use of the system. The response system will be developed in the form of advice/tips to farmers on how to address climate variability and reduce risk. Information will be transmitted in Arabic to facilitate use. Relevant institutions from other governorates will be included in the training to encourage uptake/replication. A strategy for maintenance and sustainability of the system will be developed and agreed with the government at mid-term. This will be an integral part of the project exit strategy.

<p><i>Output 2.2 Strengthened capacities of government institutions and partner organizations to enhance resilience of smallholder farmers</i></p>	<p><i>Train relevant government staff and CSOs on climate change adaptation and risk reduction approaches;</i></p> <p><i>Train civil society organizations – including women associations - to be better prepared to provide guidance, services and support relevant to climate change adaptation, food security and disaster risk reduction;</i></p> <p><i>Build capacities of Water User Associations to effectively manage water-use in the target areas.</i></p>
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53. In addition to the known challenges that are facing post-war Iraq, one of the main factors that are leading to increased vulnerability in the country is related to reduced institutional capacities to provide guidance and support services regarding climate change adaptation and disaster risk reduction. This is the premise for this output and its focus on building capacities to enable government actors, civil society and farmer associations to be in the driving seat regarding resilience building and updating/upgrading their knowledge to be able to provide adequate services to the most vulnerable households. Moreover, the project will undertake training on ESS to ensure that interventions undertaken by government and partner organizations ensure and are cognizant of social and environment safeguards.

<p><i>Output 2.3 Climate change adaptation experiences documented and disseminated to support replication and integration into regional and local adaptation plans and strategies</i></p>	<p><i>Capture good practices and lessons learned on climate change adaptation;</i></p> <p><i>Use knowledge generated and M&E systems to inform policy efforts, strategies and plans relevant to climate change adaptation, agricultural development strategies and drought management plans.</i></p>
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54. The knowledge management dimension of this output will help in building on the introduced climate-resilient and economic diversification interventions of the project to learn and acquire a hands-on experience on best approaches for enhancing adaptive capacities of vulnerable communities. This ‘learning’ will prepare the ground for replication and expansion. Moreover, and through monitoring success and impact, integration of those best-practices into adaptation policies and strategies – and in particular, smallholder agriculture strategies – will ensure resilience building and risk reduction in the light of predicted climate change impacts in Iraq. This could also benefit other countries in the region that share common challenges.

In-Country Experience of Accredited Entity

55. WFP has been working in Iraq since 1968. Throughout these long years of in-country experience, WFP has been able to develop strong relations with all Government partners and situate itself as an organization of choice when it comes to building resilience, fighting poverty and hunger and enhancing institutional capacities to deal with issues related to food and nutritional security. WFP has several developed tools and data analysis methodologies that would support beneficiary targeting and promote climate-resilient development pathways. Some of these include:

- Comprehensive and in-depth analysis of the root causes of poverty, vulnerability and food insecurity;
- Detailed climate analysis at country level, identifying anomalies, challenges and promoting climate change adaptation and resilience building at national and local levels;
- Identifying, prioritizing and implementing livelihood rehabilitation, creating jobs and employment through participatory community mobilization and participation;
- Optimization of food security and nutrition, social protection and safety net systems, including strategy and programme formulation, targeting, systems design and awareness raising and advocacy;
- Robust Monitoring and Evaluation (M&E) to ensure effectiveness, efficiency, accountability, impact and a return on investments;
- Support to capacity development through investments in institutional capacity and human capital;
- Mainstreaming of gender, nutrition and natural resource management.