

Concept Note

Strengthening the resilience of small and medium-sized fruit and vegetable producers to climate change induced water insecurity in Central Serbia

Serbia | UNDP

12 October 2019



**GREEN
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FUND**

Concept Note

Project/Programme Title:	Strengthening the resilience of small and medium-sized fruit and vegetable producers to climate change induced water insecurity in Central Serbia
Country(ies):	Republic of Serbia
National Designated Authority(ies) (NDA):	The Minister, Ministry of Agriculture, Forestry and Water Management (MAFWM)
Accredited Entity(ies) (AE):	United Nations Development Programme
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Date of current submission/ version number	<u>2019-10-11 [V.2]</u>



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Please submit the completed form to fundingproposal@gcfund.org

Please use the following naming convention in the subject line and the file name:

"GN-[Accredited Entity or Country]-[Project Title]"

PROPOSAL | 2017

GN-[Accredited Entity or Country]-[Project Title]

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 (tCO2eq over lifespan)	n/a	A.7. Estimated adaptation impact (number of direct beneficiaries and % of population)	450,000 of indirect beneficiaries (all farmers in Central Serbia region; 6.26% of population), including 20,000 farmers (0.28% of population) as direct beneficiaries from irrigation investments.
A.8. Indicative total project cost (GCF + co-finance)	Amount: USD 104.65 million	A.9. Indicative GCF funding requested	Amount: USD 13 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: 7 years b) repayment period, if applicable: n/a	A.12. Estimated project/ Programme lifespan	20 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 checked="" type="checkbox"/> B or I-2 <input 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 type="checkbox"/> No <input type="checkbox"/>
A.19. Project/Programme rationale, objectives and approach of programme/project (max 100 words)	<p>Climate change is causing an increase in the frequency and intensity of droughts in Central Serbia, which is leading to significant losses in fruit and vegetable production for small farms relying on rainfed agriculture. The projected increase in climate-induced water deficits during the crop growing season calls for the introduction of climate resilient farming management practices, including the use of smart and efficient irrigation technologies to mitigate climate-induced crop losses. Technical, managerial, informational and financial barriers prevent fruit and vegetable farmers from adopting climate adaptation solutions and resilient practices. The project will remove these barriers and: (i) establish the enabling environment and information services benefiting 450,000 farmers in the region and resulting in scaled-up investment into the climate resilience; and (ii) secure resilient irrigation solutions for up-to 20,000 farmers. The project will unlock significant public and private investment in enhancing the climate resilience of the agricultural sector in Central Serbia.</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](#))

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

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

The intervention area and the target population. The Republic of Serbia lies in Southeast Europe and occupies a total land area of 88,361km². The terrain ranges from the rich, fertile plains of the northern Vojvodina region, limestone ranges and basins in the eastern territories and ancient mountains and hills in the southeast. The “Central Serbia” region comprises 52,500 km² with an approximate total population of 3.63 million (2011 figures) in 17 administrative Districts. Central Serbia consists mainly of hills, low and medium-high mountains, interspersed with numerous rivers and creeks. Central Serbia has 450,684 (2011 figures) registered farmers, with a total farming area of 1,074,087 hectares and average farm size of just over 2 hectares. The vast majority of these farms are small, family-run units; and the vast majority of farmers cultivate cash crops adapted to the area’s topography, soils and climate. Key crops include apple, strawberry, raspberry, tomato, onion and okra.

Climate. Central Serbia has a warm, temperate climate. Annual precipitation rises with average altitude from 540 to 820 mm in lower regions; to 700 to 1000 mm in areas over 1000m above sea level, and to 1500 mm on mountainous summits. Snow cover is typical everywhere in the colder months. The months with the least rain are July and August. Meteorological drought frequency mapping⁴ shows Central Serbia to have the highest drought risk during the summer months and the vegetation growing period (typically April to September).

Observed climate changes. There is clear observed climate change evidence in Serbia. The change is stronger the further south. The key changes are: (i) an increasing trend in average annual temperature (0.3°C/decade), which is even higher in the summer months (>1°C/decade) and (ii) increased precipitation variability, with a marked decrease⁵ in precipitation of 20-30% during June to August (i.e. when agricultural production and plant physiology is highly dependent on precipitation) in Central Serbia. These factors contribute to the resulting increases in hydrological and agricultural drought. Droughts are becoming more common and more severe in Central Serbia. This is illustrated through the SPEI6⁶ index during March – August (see figure below). The SPEI6 oscillated mildly in the century until 1990 from whence it has experienced a clear and strong downward trend – 10 out of 26 years since 1990 were dry years.

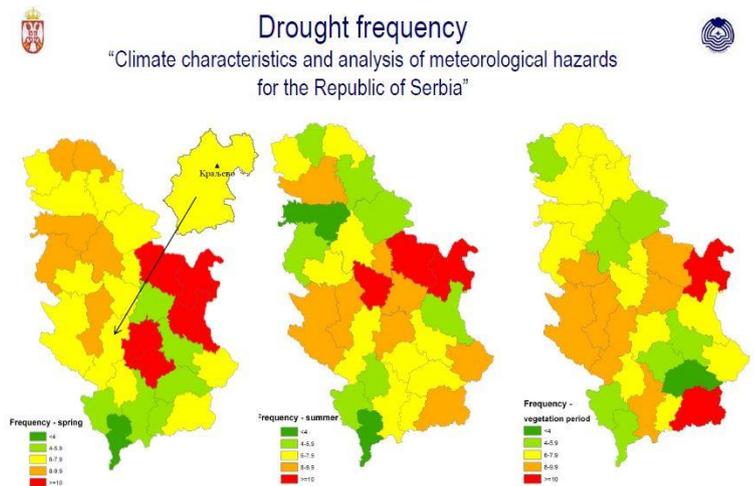


Fig. 1: Drought frequency in spring, summer and during vegetation period

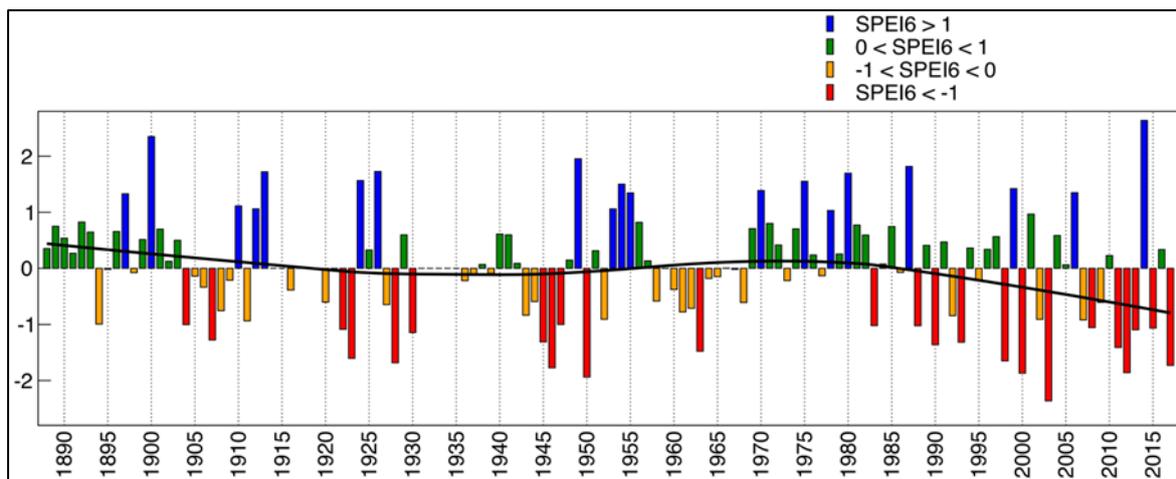


Figure 2: SPEI6 Index for Belgrade, central Serbia

⁴ Agrometeorological activities in RHMSS Department for applied climatology and agrometeorology

⁵ See Climate Change annex in PFS

⁶ The SPEI index takes into account the precipitation deficit and the increased evapotranspiration of moisture from the soil due to air temperature for the given period. An SPEI index value below -1 indicates a dry period/year.

Projected climate changes and physical impacts.

In coming decades, the following is expected in the region : (i) decline in snowfall, leaving the soil less moist in spring (90% reduction in Annual Snowmelt Equivalent by 2070⁷); (ii) increase in summer temperatures (by up to 5°C by 2100) leading to increased evaporation from soil and increased transpiration from plants in the growing months; and (iii) decline in summer rainfall (by 15 to 55% by 2100) leading to decreased levels of replenishment of soil moisture and natural water for growth in the growing months. The result is a trend towards increased severity and frequency of agricultural drought during the plant growing periods. Projections for Leskovac (see figure on the right) - one of the project target areas - show the number of droughts equivalent to the 2012 drought, to increase from 1 per decade to 8 per decade by the end of the century⁸.

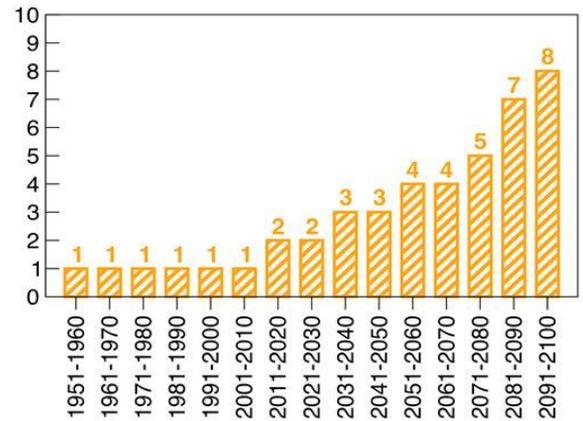


Fig. 3: Projected drought frequency in Leskovac district.

Impacts of climate change on the intervention area/target population. Since 2000, increases in drought have caused significant agricultural losses in Central Serbia. The 2012 drought resulted in agricultural yield reductions of between 10% and 40%⁹, compared to the immediately preceding 5 years (see figure below).

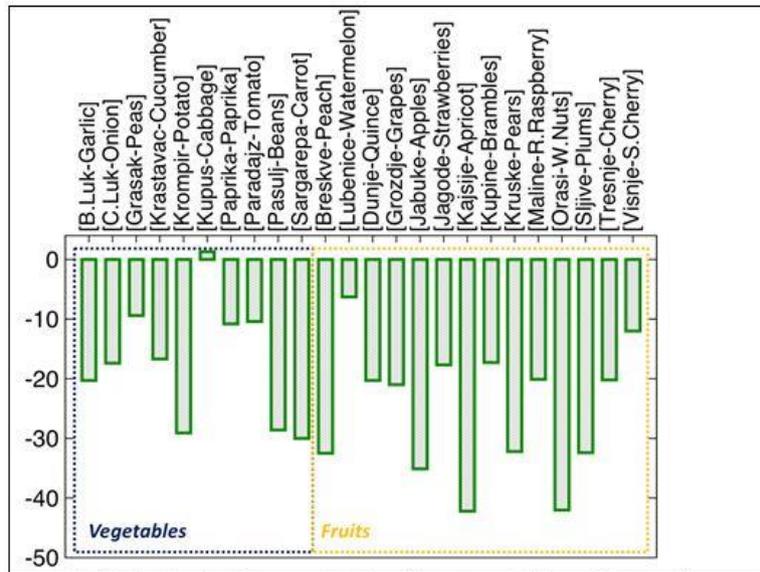


Fig. 4: Yield reduction (in %) for year 2012 for different vegetables and fruits, with respect to five years average (2007-2012). Source: National Statistical office www.stat.gov.rs

In the future, projected climate change will lead to a decline in both fruit and vegetable productivity and in the quality and economic value of fruit. It should be noted that the decline in yield and cash value may be observed in the year following the drought for fruit crops.

Small fruit and vegetable producers in Central Serbia have significantly lower adaptive capacities to cope with these climate change impacts compared to the farmers in the northern Vojvodina province where larger, better established farms have historically well developed and continuously expanding irrigation systems. In Central Serbia there was no historical state investment in developing operational irrigation systems, with the flatter plains of the north prioritized for such public support instead of the small farm plots of the mountainous south, and flood prevention works being the focus of state support in Central Serbia. The small plot size and household scale operations in Central Serbia also contribute to the vulnerability of such farms compared to the well-resourced commercial enterprises in the north. A combination of increasing climate risk and the high vulnerability of small fruit and vegetable producers in Central Serbia to climate impacts guided the geographic focus of this GCF proposal.

⁷ <http://edge.climate.copernicus.eu/>

⁸ See PFS Annex on Climate Change

⁹ See PFS Annex on Climate Change – source National Statistics Office

Alignment to national climate change priorities. The Second National Communication (SNC, 2017) and the National Adaptation Plan (draft, 2015) identify agriculture as one of the sectors to be most affected by climate change, and therefore one of the priority sectors for adaptation support. Specifically, both the SNC and NAP prioritize the importance of improving/expanding appropriate irrigation technologies and providing support to small and medium scale fruit and vegetable farmers. Furthermore, the Serbian Nationally Determined Contribution (NDC, 2015) lists agriculture as one of the most vulnerable sectors, due to increasing temperatures and the increasing intensity and frequency of droughts. The NDC states that urgent interventions are needed in this sector.

Alignment to national development and economic priorities. Agriculture is one of the most important economic sectors in Serbia, providing around 11.9% of GDP (2016), 21% of the total labour force and a significant contribution to exports. Agriculture is also key for rural development. Historically, good climate conditions have served as a basis for fruit and vegetable production in the country. Fruit production is one of the key sub-sectors of Serbia's economic development – in 2017 export of Serbian fruits amounted to €584.8 million. In 2016, 62,000 tons of raspberry were produced and export revenues amounted to US\$230 million. The excellent climate for vegetable production makes Serbia a main exporter and supplier of vegetables to South-eastern Europe. Accordingly, the proposed project is aligned to and supportive of “*The Strategy for the Agriculture and Rural Development of the Republic of Serbia for the Period 2014 – 2024*” (2014). This Strategy highlights the importance of taking measures to adapt to climate change, the importance of developing small and medium-scale holdings, and the importance of achieving water security in the agricultural sector through the use of appropriate irrigation technologies. Finally, the proposed project supports Serbia's EU Accession process, as Accession requires Serbia: (i) to take measures to adapt to climate change; (ii) to ensure agriculture is more competitive; and (iii) to support sustainable development in rural areas and support development of small and medium-scale agricultural holdings.

Baseline¹⁰.

In northern Serbia, decades of state investment during the socialist era in irrigation systems have resulted in large commercial enterprises, with access to major surface water resources, which are resilient to the increasingly arid droughts. In Central Serbia however, whilst the state government supported construction of water impoundments on local rivers, there was no support for irrigation schemes, and so none now exist. With the collapse of the socialist era and the return of land ownership to the citizens, the legal status of how to establish cooperative irrigation systems is only now being codified, and there is no overall strategy for the region to ensure planned, coordinated and sustainable dry period irrigation.

As a result, small fruit and vegetable producers in the mountainous and steep sloped central and southern Serbia have been responding to the increasing drought risk with wide-scale individual on-farm construction of illegal shallow wells to abstract shallow groundwater, usually in the small floodplains adjacent to the smaller mountainous water courses. There is little knowledge of the number of illegal wells that exist, nor their abstraction rates. There is also no systematic monitoring of this shallow groundwater. Anecdotal reports of local groundwater level lowering and hence local over-abstraction of these shallow groundwaters coupled with a wider regulator concern of possible pollution and drought impacts on protected groundwater resources which are reserved for public drinking water supplies, means this illegal groundwater abstraction is both unsustainable, unmanaged and potentially increasing climate vulnerability of both the farms using these irrigation practises and to public drinking water supplies.

The national hydrological service provides meteorological drought warnings, but has neither the resources nor the expertise to apply these to the agricultural sector. It operates an effective surface water monitoring network with a focus on flood warning, but has a limited groundwater network, and this focuses almost only on the deeper bedrock groundwater which is the predominant source for public water supplies, with little understanding and management of shallow groundwater supplies often used by local farmers in central Serbia. Consequently, the state-financed Agricultural Extension Services have little experience working with the meteorological and hydrological services to advise farmers on appropriate climate adaptation planning and responses. The Serbian Extension/Advisory Service (EAS) currently provides knowledge, training and technical support to farmers on technical, planning, administrative and financial issues using a network of national, regional and local technical officers. Currently, the EAS are not able to respond to the farmer's knowledge needs related to climate change risks¹¹.

Serbia – unlike much of the rest of eastern Europe - has only recently been able to access international financing for development. The eventual collapse of the socialist era, followed by the regional political crisis of the 1990's and the later global economic crisis of the late 2000's, has meant Serbia has only in the last ten years started to attract external

¹⁰ See the PFS for detailed description of baseline

¹¹ Pre-Feasibility Study – Section 4.2.3

development assistance. Much of the EIB, World Bank and EBRD agricultural sector support then focused on necessary modernisation of the sector¹². Attention has only turned to climate proofing of such investments in the last 5 years, but there is little technical expertise within the country on how to deliver climate resilient infrastructure, and hence current difficulty in releasing international loans from agencies requiring climate proofing of investments. The national banking and financial system remain in transition and is still modernising its financial products to the needs of the relatively new private sector. The private sector producers therefore have little experience or capacity to access financing to increase their climate resilience, with only 7% of a recent survey responder advising they had taken out loans.

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

Adaptation Options. The cumulative effects of less spring snow melt, higher temperatures, and longer rainless periods in the growing season (typically March/April to August/September) are leading to more frequent and more severe agricultural drought, and declining productivity and quality of produce.

The project will support a range of adaptation options including supply side improvements, demand side efficiencies, and knowledge, legal and financial reforms to the enabling environment to promote and encourage the uptake of these adaptation approaches.

Depending on the exact geographical location and socio-economic position of the farm, farmers can follow one or more of the adaptation pathways to address the climate change intensified growth season water deficit in order to continue to cultivate fruit and vegetables at current levels.

(a) Water Supply Side Adaptation Options

- (i) Constructing irrigation systems using water from the medium and large rivers in Central Serbia. This option is only viable in places close to a large, surface water source. This option will **not** be supported by the GCF project. Parallel projects, including supported by the Abu Dhabi Development Fund (ADDF) are currently supporting this option;
- (ii) Constructing irrigation systems using shallow groundwater wells. There is reportedly widespread unmanaged and uncontrolled use of groundwater by farmers, in the absence of access to surface water irrigation schemes. Shallow groundwater resources are poorly defined in the country; hence they are not targeted to support irrigation by the national water resources strategy, and few government schemes are promoted. Furthermore, most farmers do not secure permits to drill wells and abstract groundwater, meaning their activities are both illegal and actual groundwater exploitation is unknown. Accordingly, this option will not be supported by the project. However, the project will support activities on climate informed water management planning and an enhanced groundwater monitoring, assessment and protection, including the reduction of illegal abstraction through provision of alternative irrigation water supplies from surface water sources;
- (iii) Constructing medium-scale irrigation systems using water stored in pre-existing reservoirs that are currently unused. A series of multi-purpose, small-medium scale accumulation/storage reservoirs were constructed in Central Serbia in the 1970's and 1980's. Although the reservoirs were constructed, in most cases the irrigation systems were not constructed. Typically, each of these reservoirs could sustainably irrigate up to 5,000 hectares of fruit and vegetable farming. This adaptation option will be pursued by the project;
- (iv) Micro-scale on-farm irrigation systems. Many farms are located far from the main surface water sources and existing medium-scale accumulations. In many cases, small and micro-storage systems to capture small amounts of water and provide critical irrigation to a small number (say 2–4 hectares of farm land) is the optimal adaptation option. This adaptation option will be pursued by the project, using a combination of technical upskilling of rural extension services and improving access to credit lines to enable farmers to independently develop on-farm approaches.

(b) Water Demand Side Adaptation Options

- v) Practising soil moisture retention approaches eg mulching, earlier and reduced tilling, cover cropping, shading. These approaches could and should form part of a climate resilient business investment adaptation strategy for each farmer. The project will support advocating these approaches, providing training and facilitating investment;
- vi) Alternative growing of lower water demand drought resilient crops. The small steep mountainous farm plots are not suited to cereal crops, which are considered more drought resilient, the uptake of which has been encouraged in northern Serbia. The project will not support this option in central Serbia.

(c) Early Warning Systems and Drought Preparedness Planning

¹² Pre-Feasibility Study – Annex 9 – Baseline Investments

vii) Meteorological and hydrological drought monitoring and forecasting of soil moisture. The project will support the upskilling of the national agencies to measure soil drought and to provide warnings to the agriculture sector stakeholders.

viii) Agricultural Preparedness and Response Planning. The project will support the upskilling of agricultural extension services to i) provide early warnings on crop types, crop yields and crop quality drought impacts; and ii) increase capacity of agricultural extension services to advise on climate adaptation strategies, options and timing of use. The project will also support improved access to extension services through low cost on-line advisory services and engagement with non-state extension service providers.

(d) Financial Adaptation Options

ix) Improving access to climate financing to invest in climate resilience planning and adaptation measures. The project will support improving access to both public and private financing mechanisms.

GCF Project Outcome. The project's Outcome is that *the small and medium fruit and vegetable farmers in Central Serbia are resilient to the increasing climate-induced drought conditions and water insecurity*. See diagrams illustrating the Theory of Change (TOC) in Annex 2.

Barriers to delivering the GCF Project Outcome. The situational analysis (see Pre-Feasibility Study in Annex 3) reveals a series of barriers to implementing the preferred adaptation options and to delivering the GCF Outcome. These barriers include:

1. Absence of climate resilient irrigation networks in Central Serbia:

(i) *No coherent, climate risk-informed strategy or approach to developing water resources for irrigation in Central Serbia.* There is currently no agreed strategic approach to inform planners, investors, policy makers and local government on climate change drought risks to the agriculture sector and the availability of water resources for drought irrigation, although a national Irrigation Strategy is currently in development. As a result, it is not clear which water resources to develop and where, which type of irrigation system to develop and where, the timing and the sequencing of these investments, nor how to address the climate change risk reduction planning and resilience to ensure optimum economic benefits and generate social equity;

(ii) *Insufficient capacity to design and construct resilient, climate-proof irrigation infrastructure.* Consultations have revealed that there are several suitable sources of investment funds available - potential financiers often state that irrigation infrastructure in Central Serbia is one of the priority areas. This includes funds sourced from international investors and from the Serbian government. However, as there are no detailed climate resilient designs and the underlying planning for the required infrastructure, thus the funds cannot be released, and there is limited capacity to develop the detailed designs that are climate resilient; and,

(iii) *Inadequate legal mechanisms to construct and manage irrigation networks.* The primary legislation whilst allowing for locally operated and managed multi-user irrigation schemes has not yet codified in secondary legislation how local irrigation systems can/should be managed. This affects local governments, who may not be able legally to own and manage water and water infrastructure. This also affects farmers, who may not be able to construct, own, manage, or maintain the tertiary network. This prevents local governments and farmers from being active stakeholders in irrigation.

2. Small (<5 hectare) and medium (5-20 hectare) fruit and vegetable farmers in Central Serbia cannot sufficiently invest into resilient adaptation technologies:

(i) *Information on climate risks:* Farmers lack information on climate risks (i.e. on drought status and on medium term drought forecasts) and are therefore unable to make informed decisions for climate adaptation. There is no effective early warning system for droughts – the existing warnings only use meteorological variables with no soil moisture monitoring, do not provide a future forecast and are not related to specific crop impacts;

(ii) *Information on climate change adaptation technologies and practices:* Farmers lack information on management techniques and practices to manage climate risk, and on climate change adaptation agricultural technologies and practices, such as smart irrigation techniques and efficient water use technologies;

(iii) *Financial barriers:* Small-scale farmers are unable to access existing credit and so cannot invest in climate change adaptation technologies, such as smart irrigation systems, on-farm storage and 'last mile' connection to irrigation networks. Most financial products on the market currently are not appropriate for small-scale farmers' investment in adaptation technologies, due to high credit rates, terms of collateral and/or application procedures; and,

(iv) *Governance barriers*: Due to legal and capacity restrictions, farmers are unable to create cooperatives or other inter-farmer mechanisms - in some cases these would be necessary to construct and/or maintain irrigation infrastructure and manage irrigation waters.

Proposed Project Outputs and Activities to remove the barriers

The Project has activities at two levels: (i) all of Central Serbia - capacity building and strengthening of the climate adaptation enabling knowledge, data, legal and financial environment will facilitate a paradigm shift in climate adaptation investment and lead to benefits for all farmers in the Central Serbia region and; (ii) 15 targeted drought resilience irrigation schemes in Central Serbia - this will deliver site specific investments in irrigation and other climate change adaptation solutions such as water loss and evaporation reduction farming techniques (mulching, shading, reduced tilling) to reduce water scarcity for targeted groups of farmers. The sites each cover between 400 – 4000 hectares (average of 2010 ha) of fruit and vegetable farmland. The maps (in Annex 1) show the approximate location of each site. The Pre-Feasibility Study describes the process to select the sites and provides a short description of each selected site.

Three Outputs remove the barriers outlined above (see diagrams of Theory of Change in Annex 2).

Output 1: Improved access to drought period irrigation water for small and medium fruit and vegetable farmers in Central Serbia.

This Output will help farmers to overcome climate-induced rainfall variability and droughts. Some components are designed to reach all farmers in Central Serbia, while others are designed to focus on farmers at the 15 targeted intervention sites:

- *Activity 1.1: Develop a climate-informed drought Irrigation Water Resource Management Plan for Central Serbia (IWMP) and municipal-level irrigation water master plans for priority municipalities (MIWMP)*. The IWMP will provide a water resources map and water budget for the entire Central Serbia region and guidelines on where and how to develop drought irrigation systems, following IWRM principles, recognizing potentially competing and prioritized water users. The IWMP will link explicitly to the National Water Management Strategy and the draft National Irrigation Strategy. An MIWMP will be prepared for each of the 47 identified priority municipalities (see PFS). The MIWMPs will identify the sources of water in the municipality, the potential for drought irrigation, the priority drought irrigation areas and the proposed approach to providing drought irrigation, including preferred technologies and a first order economic analysis. The MIWMPs will also follow IWRM principles using sub-basin management units. Each MIWMP will be clearly linked to the IWRMP. Activity 68% GCF funded, 32% GoS¹³;
- *Activity 1.2: Construct primary and secondary drought irrigation networks at 15 climate vulnerable priority sites*. This applies to sites¹⁴ with potential for 'medium-scale drought irrigation systems using water stored in existing reservoirs'. This Activity will enable the local water resources agency to design, build and operate and maintain climate resilient and adaptable irrigation systems connected to existing and currently unused water impoundments. It will also cover the procurement, the construction and the start-up of the irrigation networks at 15 sites. As a direct result of this Activity, a total of approximately 30,000 hectares of fruit and vegetable farming will become climate resilient. The full costs of the network construction are considered incremental costs of adaptation. The Activity will be co-financed through IFI loans (ADDF and EBRD see section C.1 for the project financing framework), with 6.25% GCF funding;
- *Activity 1.3: Procure and put in place drought micro-water capture, storage and distribution infrastructure*. This applies to those areas where centralized drought irrigation is not possible for geographical or topographical reasons. This applies to upland, remote sites that have the potential and the need for 'micro-scale irrigation systems. These infrastructure options include capture of excess rainfall and run-off water during wet periods, local on-site storage e.g. in ponds, cisterns and/or groundwater recharge, and re-use when needed in the growing season. The drought resilience options will also include introduction of efficient irrigation techniques and water conservation farming practices. The project will also fund capacity building and strengthening of national and municipal government agencies on appropriate technology design and guidelines. Activity 9% GCF funded, 91% IFI loans (ADDF/EBRD).
- *Activity 1.4: Enhancing legislation and regulations covering local aspects of drought irrigation water use*. The current law¹⁵ does not include details on how local water user associations can be formed, own and operate irrigation networks, raise capital and secure permits. This activity will finalize the WUA regulations and will ensure that local governments and farmers have the opportunity to be fully empowered stakeholders in the financing, constructing,

¹³ Proposed co-funding distribution between GCF and co-financiers for all activities is indicative and could be adjusted at the Full Proposal stage based on detailed costing and financial planning.

¹⁴ For selection criteria, procedure and stakeholder engagement see Section 4.3.2 of the PFS and Annex 10

¹⁵ See Section 4.2.1 of the Pre-Feasibility Study for more detailed legal analysis

managing and O&M of drought resilience irrigation infrastructure. The new legal instruments will encourage establishing incentives and capacity for sustainable WUA O&M. Guidance and advocacy will be provided to help farmers and farmers groups to implement the legislation. Activity 60% GCF funded,40% GoS.

Output 2: Enhanced access to climate information, knowledge on risk, and awareness about climate change adaptation technologies and practices among farmers in Central Serbia

This Output is designed to reach all farmers in Central Serbia by ensuring that they have access to the information they need in order to manage climate change risks and to take appropriate, informed adaptation decisions. Activities will be:

- *Activity 2.1: Upgrade national hydro-meteorological services* so that they are enabled to provide specific user friendly, useful, accurate, timely information related to drought (rainfall, water availability, groundwater) and other climatic factors of relevance to agriculture (such as storms, frost and hail, etc.). This will complement and build on existing information services which have tended to focus to date on flood risks and meteorological drought only. Hydromet will be providing drought forecasts based on meteorological monitoring and modelling and will operate a network of soil moisture probes across the country. Activity 50% funded by GCF;
- *Activity 2.2: Develop and roll-out a specific agriculture sector drought monitoring and agro-drought warning system and a drought impact and vulnerability assessment methodology.* This will include coverage of the technical aspects of monitoring agricultural (soil) drought, provide a warning system relevant to specific crop types, farming and irrigation practices, and provide guidance on how to assess individual farm and group (including WUA) command area risk to forecast drought impacts. Extension/Advisory Service (EAS) will both provide interpreted data to the farmers and collect on-farm data from the farmers. EAS will support farmers to monitor their own soil moisture and monitor crop condition (and stress levels) and feed this information back to Hydromet to improve their forecasting. Activity 50% funded by GCF;
- *Activity 2.3: Train and equip extension services and facilities* (public and private) to provide useful and usable advice and support on climate risk management, including drought management planning and adaptation technologies, for fruit and vegetable farmers, groups, cooperatives and WUAs in Central Serbia. The knowledge encompassed will include drought management and adaptation technologies, specifically tailored to fruit and vegetable farmers, groups, cooperatives and WUAs in Central Serbia. The project will upskill the technical expertise of extension officers on climate change monitoring and resilience planning (specifically drought resilience/management) and enable Extension/Advisory Service to use its well-developed network of offices/personnel in Central Serbia for knowledge transfer to the farmers on climate vulnerability assessment, adaptation planning and implementation of drought forecast responses. The project will support the EAS to develop innovative ICT tools and platforms. Web-based, low-cost and openly accessible extension advice platforms will be developed and made available for the farmers by the EAS. Activity 50% funded by GCF.

Output 3: Farmers access credit and use it to invest in climate change adaptation technologies and equipment, in order to manage water and reduce climate related crop losses.

This Output will help individual and groups of farmers (including WUAs) to access credit in order to be able to invest in on-farm climate resilient technologies, such as water efficient irrigation systems, farm level water storage, water pipes, soil monitors and smart soil moisture management systems. This Output is designed to reach all farmers in Central Serbia, using a variety of pathways including producer associations, cooperatives and the extension service and local authorities. The project will promote gender equity and will ensure that women-led farming enterprises have an equal access to the project's advice and technical assistance under this Output. Activities will be:

- *Activity 3.1: New and accessible credit products.* There are existing credit products that do target small farmers and farmer groups (including subsidized government loans for vulnerable farmers and from the EU IPARD programme, commercial bank loans and micro-financing loans from social investors). However, small farmers face difficulties accessing these instruments to finance climate resilience technologies due to lack of financial knowledge and inadequate terms of credit. The project will work with a range of credit organizations – local banks, national subsidy schemes and international development banks – in order to redesign and establish credit products that are tailored to respond to the adaptation needs and to respect the capacities of small and medium scale fruit and vegetable farmers in central Serbia. Activity 67% funded by GCF, 33% funded by GoS and local banks;
- *Activity 3.2: Farmer-level climate change adaptation business plans.* In line with the WRMP and MWMPs, local farmers and/or farmer groups (including WUAs) will be trained and supported to prepare business plans with full considerations of the likely climate change impact on their commodities (CCABPs). Support to women-led farming enterprises and groups will be prioritized. The CCABP will provide the business and financial basis for farmers to continue to be productive, viable farmers despite climate change. Activity 43% funded by GCF;

- **Activity 3.3: Support to Farmers to implement the CCABP.** The details of this activity will be determined by the CCABP (which are in turn influenced by the WRMP and MWMPs). Activity 9% funded by GCF, 91% funded by IFI loans (EIB). This will include:
 - farmers, working independently or in groups (including WUAs), will be supported to obtain credit;
 - Model contracts
 - Financial farm management training for climate resilience e.g. insurance, crop changes, return on investment on climate resilient upgrades
 - Adaptation business plan monitoring, review and update training.

Rationale for UNDP as lead AE

UNDP has been requested by the GoS to support the development and implementation of this proposal. UNDP's role as the Accredited Entity is justified by:

- Its strong, well-established presence both in Serbia and in the Eastern Europe region. UNDP is therefore uniquely well placed to contribute to the climate change adaptation action. It has a network of highly skilled professionals to support project development, implementation and monitoring. It is equally well-placed to sustain the needed policy dialogue and relationships with governments, national and local level institutions, industry and companies, utilities and banks;
- UNDP has an excellent network of partners and partnerships in Serbia. This includes the government, its agencies and the project's main financial partners (EBRD, EIB, ADDF, KfW and others – see Section C below);
- UNDP has been successfully implementing a range of projects in Serbia since 1992. Further, since 2014, UNDP has implemented a range of projects related to flood control and disaster management;
- UNDP has a long and successful track record and proven global capacity (including with GCF) in developing and implementing climate change adaptation projects on climate information, catalyzing behavioral change and increased resilience of small holder farmers, as well as the integrated resilient management of water resources.

Describe how activities in the proposal are consistent with national regulatory and legal framework, if applicable.

Please refer to:

- Country ownership section in B.3. which describes relevant laws and policies;
- The Pre-Feasibility Study which provides a description and analysis of key laws in the agriculture and water resources sector, including notably the pipeline legal amendment to introduce water user groups.

An overview of the key financial and operational risks and mitigation measures identified at this stage:

RISK	IMPACT	PROBABILITY	MITIGATION
National agencies don't engage with project	High	Low	Project development fully involves NDA and relevant sector and technical agencies (Serbia Waters and others)
Farmers don't engage with project	High	Low	Extensive local consultation completed to date and on-going surveys to fully assess farmers needs
Co-financing loans not secured	High	Low	Extensive and continuing dialogues with NDA and international donors
Farmers continue to use illegal private water wells	Medium	Medium	Extensive engagement with farmers on unreliability of unmanaged groundwater, support on climate change adaptation planning and options, support on WUA set-up
Land ownership prevents irrigation network construction	Medium	Low	No large-scale irrigation schemes proposed. Small schemes only require easements. Land owners to be included as irrigation network beneficiaries.
WUA legislation not approved	Medium	Low	Project team working closely with NDA on legislation reform and importance of timely resolution
Banks won't engage with project	Medium	Low	Liaison with Banks on product use, low penetration and feedback on farmer surveys
Local capacity limitations restrict project delivery	Medium	Low	Project focus includes extensive capacity building tasks to address existing capacity shortfalls

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

The Project lies within the overall GCF desired paradigm shift of *increased climate-resilient sustainable development*.

The Project contributes to GCF Impact 1.0 (*Increased resilience and enhanced livelihoods of the most vulnerable people, communities, and regions*) and GCF Impact 2.0 (*Increased resilience of health and well-being, and food and water security*). Approximately 20,000 farmers will benefit directly, and an additional 450,000 farmers in Central Serbia will benefit indirectly from the Project's activities. The Project will increase their resilience, enhance their livelihoods and contribute to their well-being and food security. The project focusses on one of the more impoverished areas of Eastern Europe. The GCF project will unlock over US\$100 million of investment finance for adaptation to climate change, including international and government investments in resilient irrigation systems and private farmers' investments in on-farm adaptation technologies.

Impact potential: The Project will assist up to 450,000 farmers on up to 1 million hectares of farmland, and support with irrigation investment 20,000 of these farmers on approximately 30,000 hectares to become more resilient to climate change impacts on crop productivity. These impacts will be realised by increasing direct access to irrigation during drought periods for 20,000 farmers, developing national agriculture sector drought warnings and adaptation response planning capacity, and increasing funding credit access to enable farmers to implement their tailored farm specific adaptation measures. The farmers will be guided to identify and secure an agricultural pathway that is resilient to projected climate change. Providing farmers with a solution for adapting to the risk of drought during the growing season will ensure that productivity and yield of fruit and vegetables and consequently the livelihoods of farming communities are not negatively affected by climate change.

Paradigm shift: The Project includes several strategies or approaches that are innovative for Serbia and will contribute to a paradigm shift. First, the project will directly motivate farmers to become proactive and adaptive, as opposed to being 'responsive' and waiting for solutions. This project will help forge this proactive, adaptive management mindset amongst targeted farmers. This will notably be under Output 2 with use of enhanced climate risk information to inform agricultural adaptation advice, and Output 3 to support farm business planning and accessing finance credit. By unlocking the financial market available to farmers, this will result in a paradigm shift in the uptake of climate resilience measures.

Second, the project facilitates a shift in the approach to governing the water sector. In Serbia, for historical reasons, water sector stakeholders have previously seen themselves as simply being responsible for constructing water delivery infrastructure. In line with the EU Accession process and the overall modernization of Serbia, it is expected that stakeholders in the water sector will shift their mindset to one of being a 'service provider'. That is: they are to provide a smart, flexible and resilient irrigation service and provide knowledge that directly and efficiently meets the water users' needs in the face of climate change and other challenges. This project will help forge this shift, notably under Output 1 through the process to prepare the climate-informed strategic plan, the municipal plans and to modify legislation. The formal inclusion of agriculture sector climate resilience into national and municipal irrigation plans, revised water user legislation and increasing national and local climate adaptation design capacity, will together enable access to international lending agencies keen to support the sector, enabling the entire sector to receive development funding assistance.

Third, the project will help build working, sustainable connections between the national scientific knowledge community (RMHS) and agricultural practitioners. Serbia has a strong, well-established scientific capacity; however, the scientific service institutes has often worked in separation from the productive economy, in particular from small-scale farmers. This project will strengthen the ability of the national scientific agencies to understand and build linkages to farmers. This will notably be Output 2, which should greatly improve the links between meteorologist and hydrologists and farmers with regards to drought monitoring and knowledge of agricultural technologies. The Project will also emphasize digitalized, open technologies that provide easy access, user-friendly information to farmers.

Thus, the GCF project promotes an integrated approach to resilience catalysing sustainable change in both supply and demand sides of irrigation water management in Serbia. This integrated approach is summarized in the Theory of Change Diagram (Annex 2).

Sustainable development: This project will contribute to increased climate-resilient sustainable development in Central Serbia by strengthening the adaptive capacity and reducing the climate exposure of small-scale farmers - most of whom lie amongst the poorer sections of society in Serbia. The project's overall intervention area takes in one of the more impoverished parts of eastern Europe. Further, the full project design will include targeting to ensure marginalized or excluded populations and communities benefit appropriately.

With regards to gender, a preliminary gender assessment was undertaken¹⁶ and the overall finding was "*job opportunities for women living in rural areas whose livelihoods are dependent on agriculture are constrained by number of structural barriers, such as limited ownership of land, assets and inadequate social security and infrastructure. Further data are needed on a number of critical issues, such as financial decision-making of households, but already current research*

¹⁶ Overview: Serbian Women In Agriculture - Labour Market Participation, Veronika Stepkova (project formulation consultant).

points to the urgency of interventions which would increase women's access to education, assets and social networks". The project will be designed to mainstream these gender concerns and to facilitate gender equality. The Full Gender Assessment and Gender Action Plan will be prepared and presented along with the full GCF Funding Proposal.

Co-Benefits. Environmental Co-Benefits: The current unmanaged exploitation of groundwater by farmers has the potential to cause significant damage to aquatic ecosystems and dependent fauna. The project focus to i) improve groundwater management and ii) reduce illegal groundwater abstraction will contribute towards aquatic habitat protection.

Social Co-Benefits: Serbia is the poorest country in Europe, with 1 in 4 people below the poverty line. Small southern towns and rural regions are the poorest parts of Serbia. The project will provide valuable security for these communities' livelihoods and wellbeing.

Economic Co-Benefits: Agriculture is one of the biggest sectors in Serbia (12% of GDP), employing 21% of the labor force. The 2012 drought reduced agricultural yields by up to 40% for some crop types. A climate resilient agricultural sector is a key foundation to future national sustainable development.

Needs of recipients: The legacy of Serbia's past – in particular the break-up of Yugoslavia in the 1990s, international isolation and delayed transition to a market economy – provides a complex context for the country's socio-economic progress affected also by the recent global economic crisis. Structural bottlenecks in respect to business environment, labour market and public enterprise sector¹⁷ and economic imbalances¹⁸ combined with global financial crisis prompted the need for fiscal consolidation and an acceleration of the unfinished transition to a market economy. Despite the recent gains at the macro-economic level, the Serbian economy and Serbian society still face many challenges to overcome poverty and to create a more inclusive society. According to the Borgen Project¹⁹ one in four people in Serbia live below the poverty line, making it the poorest country in Europe. Serbia's population and economy took a massive hit by disastrous flooding in 2014 that caused a drop in GDP growth rate from 4.4 percent to a negative 1.8 percent. Small southern towns and rural regions were hit hardest by the disaster. Unemployment remains a huge problem in Serbia, with a reported 1 in 5 people unemployed and half of the country's youth jobless. The rural agricultural livelihoods remain a critical safety net for the Serbian population.

The project recipients are the small-scale farmers in Central Serbia. Typically, each farm employs 1 – 2 person and covers 1-3 hectares. Farming is the main or only income for these farmers, it is their lifeline and their livelihood. These communities, if climate change risks are not managed, will lose their livelihood and slip into even deeper poverty. The project, by giving farmers capacity and the means to sustainably maintain increasingly productive farming systems, will meet the direct and urgent needs of the farmers.

Country ownership: The proposed project is firmly in line with Serbia's national policy and laws, each of which emphasizes the importance of supporting small-scale farmers in Central Serbia with appropriate irrigation schemes and the need to develop mechanisms to adapt to climate change (see Pre-Feasibility Study in Annex 3 for more details). These include: (i) the Law on Agriculture and Rural Development (umbrella law in the area of agricultural and rural development policy of Serbia); (ii) the Strategy for Agriculture and Rural Development, 2014 – 2020; (iii) the National Agriculture Programme (NAP), 2018 – 2020; (iv) the National Rural Development Programme (NRDP), 2018 -2020; (v) the Instrument for Pre-Accession Assistance for Rural Development (IPARD); (vi) the Law on Water (umbrella law for water resources); and (vii) the Water Management Strategy (WMS).

During concept development over 12 months, consultations have been held with a full range of stakeholders, including: ministries, state-owned enterprises responsible for water, experts, institutes, private sector representatives, local government and farmers. Site visits have been undertaken to over 20 municipalities where discussions with local governments were held. The conclusions from these consultations are: (i) this project responds to a real need and (ii) the proposed solution is feasible and in line with expectations and prevailing capacities. The Full Stakeholder Analysis will be presented along with the full GCF Funding Proposal.

Efficiency and effectiveness: Previous analyses²⁰, for example undertaken by Serbian partners such as Serbian Waters and private sector consulting firms, suggest that investing in sustainable irrigation for small-scale farmers is economically viable, with adequate internal rates of return. This will be verified by the detailed economic analysis to be undertaken and presented along with the full GCF Funding Proposal.

¹⁷ [http://www.europarl.europa.eu/RegData/etudes/ATAG/2015/565881/EPRS_ATA\(2015\)565881_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/ATAG/2015/565881/EPRS_ATA(2015)565881_EN.pdf)

¹⁸ <https://www.worldbank.org/en/country/serbia/overview>

¹⁹ <https://borgenproject.org/6-facts-poverty-in-serbia/>

²⁰ <https://ipard.co.rs/doc/IPARD%202014-2020.pdf>

To ensure efficiency in the use of GCF funds, GCF will be requested to cover well below 20% of the overall project costs. GCF will cover capacity building, planning, design, the development of knowledge and information tools, financial de-risking and contribute to some small-scale low-cost infrastructure and/or equipment. The vast majority of the investment – to cover the costs of the infrastructure for the irrigation schemes – will be covered by the project partners – notably the European Bank for Reconstruction and Development (EBRD), ADDF, Government of Serbia or others. The project is expected to unlock considerable public and private investment into adaptation action in Serbia.

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

This proposal responds to a request from the Minister for Agriculture, Forestry and Water Management (the NDA) to UNDP to develop a GCF proposal to support building climate change resilience amongst farmers received in mid-2017. Since then, the UNDP office, with the support of a multi-disciplinary team of national and international experts, the Ministry and UNDP have undertaken a series of activities to collect data and to consult a broad range of stakeholders. This included:

- a 3-day multi-stakeholder workshop (December 2017);
- a multi-sectoral expert mission to assess potential project intervention sites, to observe the challenges facing farmers in Central Serbia, and to consult with representatives of local government and extension offices (June 2018);
- several multi-sectoral expert missions to consult local governments in 15 districts and municipalities, collect planning information and exchange ideas (October 2018 – March 2019); and,
- a large number of bilateral consultations with ministries, state owned entities responsible for actions in the water resources or agriculture sectors, national institutes, universities, development partners, banks, private sector stakeholders, etc (ongoing).

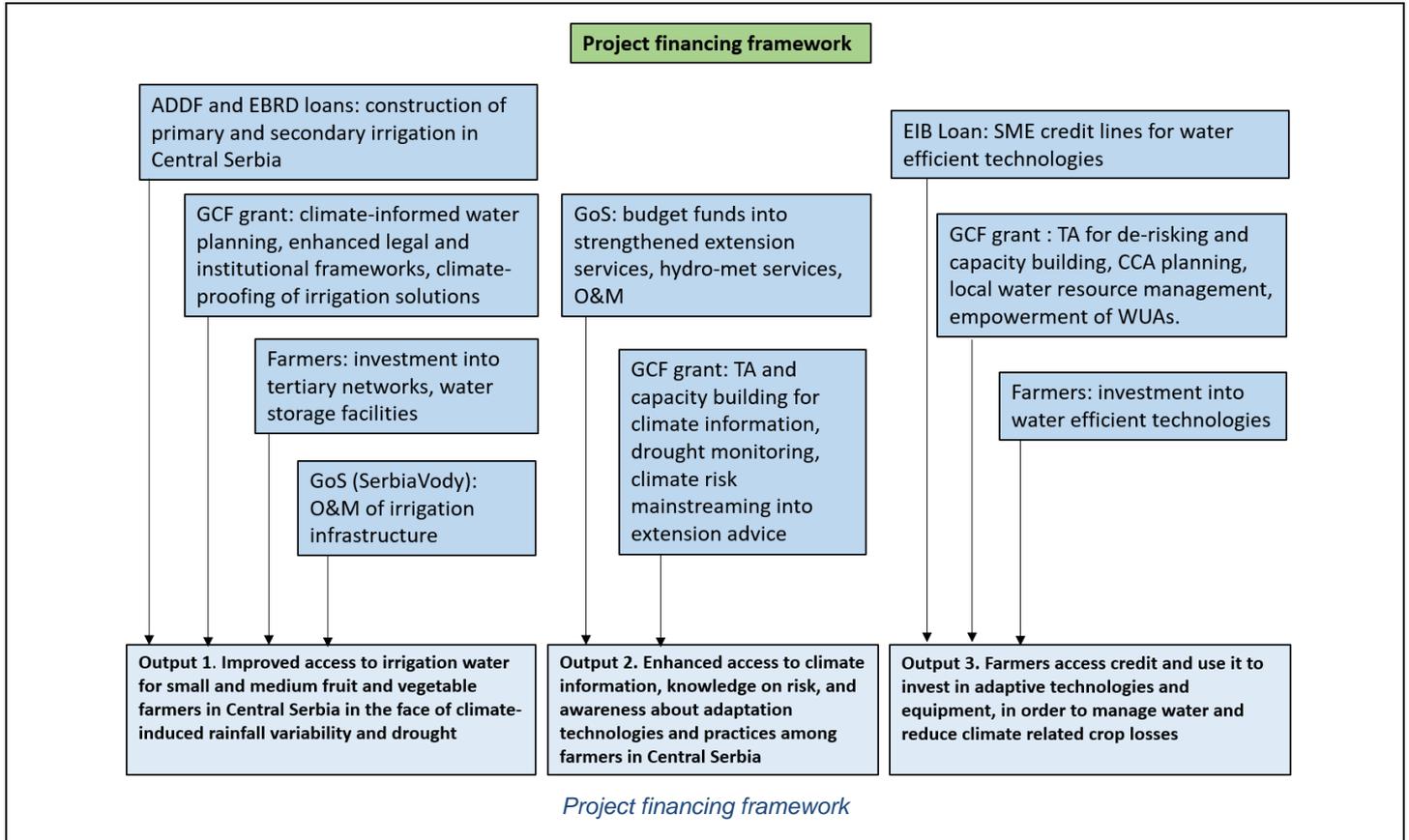
This stakeholder consultation is ongoing and will continue to and through the preparation of the full GCF Funding Proposal.

Detailed discussions have been held with potential co-financers. In addition to Government of Serbia, this includes EBRD, ADDF, the European Investment Bank (EIB) and KfW Development Bank (KfW). All have shown strong interest in co-financing, particularly the technology and infrastructure needed under Output 1 and Output 3.

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

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

Component/Output	Indicative cost (USD)	GCF financing		Co-financing		
		Amount (USD)	Financial Instrument	Amount (USD)	Financial Instrument	Name of Institutions
1: Improved access to drought irrigation water for small and medium fruit and vegetable farmers in Central Serbia	87.9 million	7 million	grant	80.9 million	Concessional loan, grants	EBRD, ADDF, Government
2: Enhanced knowledge on risk, enhanced access to climate information and awareness about adaptation technologies and practices among farmers in Central Serbia	6 million	3 million	grant	3 million	Concessional loan, grants	Government
3. Farmers are accessing increased credit and using it to invest in adaptation technologies and equipment, in order to manage water and reduce climate related crop losses	10.75 million	3 million	grant	7.75 million	Concessional loan, grants	EIB, Government
Indicative total cost (USD)	104.65 million	13 million		91.65 million		



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

GCF is requested to support activities that address capacity building, enabling environment and de-risking. This support will notably facilitate the channelling of large-scale non-GCF loans to investments that increase farmers climate resilience. The key issue to note is that several international and domestic sources of finance are available to finance drought irrigation infrastructure, and that this drought irrigation infrastructure is the largest part of the budget for the overall Project. Development partners and banks have stated they have funds available to loan for drought irrigation systems in Central Serbia, either to local governments, local communities, or other stakeholders. However, they have been unable to release those funds due to the absence of appropriate plans and due to the limited absorption capacity (absorption capacity here refers to the technical ability to manage water infrastructure and water resources, and the required governance and/or legal basis). The most important evidence for this is that for several years no funding has been channelled to these critical and strategic activities in this region of Serbia – even though it is common knowledge that the funds are available.

Under Output 1, GCF funds will be used to prepare the plans and build capacities for climate-informed designs, and to develop the required management and absorption capacity. Output 1 will remove the barriers and thereby create the conditions under which the finance can flow to economically viable projects.

GCF support to Outputs 2 and 3 further develops capacity, in this case directly of farmers and farmer groups, to unlock private farmers' investment into climate change adaptation technologies and practices. Under Output 2, GCF funds will ensure that information on drought is broadly available to farmers, and that extension services are providing response to climate change. Under Output 3, GCF will enable farmers to access credit in order to purchase climate resilient technology to be used at the farm level. Co-financing from Output 3 will actually deliver credit to farmers, in the form of affordable, manageable loans.

Concessionality: Most GCF funds will be used as technical assistance to build capacity of the Government of Serbia to overcome information and knowledge barriers and to de-risk and scale up investment into irrigation and other adaptation technologies and practices. These are not revenue generating. Hence GCF will be requested to provide grant support to these activities.

In some cases, the GCF funds may be used to finance equipment and infrastructure, notably for irrigation. GCF funds will not be given to individual farmers. The planned detailed financial analysis will determine the appropriate concessionality of GCF this support. Co-financing will cover the main costs of the infrastructure. This will be through concessional loans.

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

Sustainability/exit strategy. As described in previous sections, there is much finance available for investments in irrigation systems in Serbia. The barriers preventing this investment are: the absence of sectoral climate adaptation plans, climate resilience planning capacity, detailed climate proofing construction designs capacity and climate risk reduction management capacity. These barriers are to be removed by this Project. Further, the project will demonstrate the success of these investments, thereby helping to remove any risk associated with uncertainty.

Accordingly, once the barriers are removed, the available finance will be accessible further investments in this region, in this sector.

One key issue regarding sustainability is the need for sustainable O&M after the project. Firstly, the Serbian government is committed and has adequate capacity to undertake O&M. Secondly, the project will provide capacity building related to any new technologies, filling any technology gaps. Thirdly, the project works directly with farmers and it empowers farmers – through capacity building, planning, and strengthened access to credit and information. The empowered farmers, sometimes in farmer groups, will have clear motivation to undertake O&M on their land after the project. Farmers, with enhanced capacity, will have strong role in ensuring local government also undertake necessary O&M, as their livelihoods will depend on it. This will be the cumulative achievement of several activities, notably 1.1, 1.4 and all of Output 3.

Replication. The project will lead to replication in two ways. First, the project will directly target approximately 20,000 farmers, however, many of the project activities and the project successes are relevant to almost all of the reported 450,000 farmers in Central Serbia. In addition to the project activities, the government will help disseminate successes across this broad community of farmers, for example using the extension services, the incentive schemes, and directing IPARD and other financial programs to replicate project successes. This will notably be based on the SWMP and MWMP that the project will develop and help unlock new investments into irrigation. Further, the enhanced knowledge and capacities to design resulting from the Project should result in enhanced resilience of all future investments. Second, much of the innovation will be relevant to other Southeast European countries, notably in the former Yugoslavia. UNDP will take the lead in disseminating lessons and best practices to other countries. Finally, the upgraded hydro-met service capacity developed under the project for support to agriculture production support will be available to the whole territory of Serbia.

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

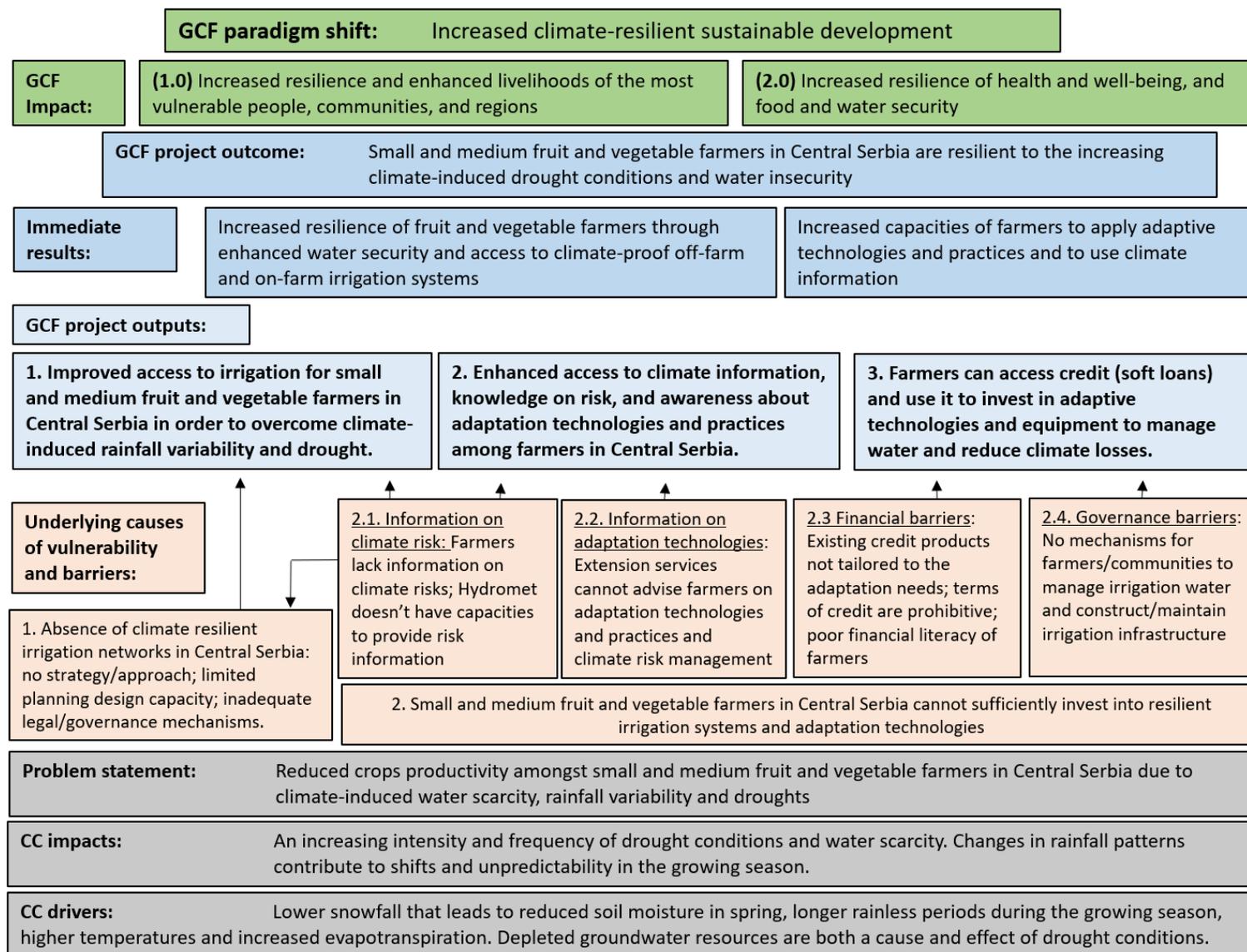
- Feasibility Study
- Environmental and social impact assessment or environmental and social management framework
- Stakeholder consultations at national and project level implementation including with indigenous people if relevant
- Gender assessment and action plan
- Operations and maintenance plan 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. Map of the Project Area



Annex 2. Theory of Change Diagram





Annex 3. Pre-feasibility study (provided in a separate file)