



ADAPTATION FUND

CONCEPT NOTE PROPOSAL FOR SINGLE COUNTRY

PART I: PROJECT/PROGRAMME INFORMATION

- Title of Project:** Climate Change Resilience and Ecosystem Connectivity (CC-REC).
- Country:** Lebanon
- Thematic Focal Area:** Ecosystem resilience, agriculture resilience, multiple focal areas
- Type of Implementing Entity:** Multilateral Implementing Entity
- Implementing Entity:** International Fund for Agriculture Development
- Executing Entities:** Ministry of Environment
- Amount of Financing Requested:** 4,300,000 (in U.S Dollars Equivalent)
- Project Formulation Grant Request (available to NIEs only):** Yes No
- Amount of Requested financing for PFG:** (in U.S Dollars Equivalent)
- Letter of Endorsement (LOE) signed:** Yes No
- Stage of Submission:**
- This concept has been submitted before
- This is the first submission ever of the concept proposal

In case of a resubmission, please indicate the last submission date: [Click or tap to enter a date.](#)

Project Background and Context

1. Economic and social context

1. The economic, political, and social crisis affecting Lebanon since October 2019 further intensified after June 2021, has caused significant deterioration in the welfare of its population. The gross domestic product decreased from USD 55 billion in 2018 to USD 20.5 billion in 2021¹ and the World Bank downgraded Lebanon to a lower middle-income country for the first time in 27 years. The lifting of state subsidies on medicine, fuel and input costs, the depreciation of the Lebanese lira, prolonged inflation and soaring international prices continue to threaten the ability of Lebanese households to meet their basic needs². By December 2021, 53% of the Lebanese resident population, corresponding to 2.06 million people, needed social assistance. Since then, 400,000 more people have fallen into poverty because of rising food insecurity (57% of Lebanese families by December 2021), high unemployment, decimated salaries due to the Lebanese Pound depreciation, stagnating household incomes, and poor access to public services.
2. In absolute terms, with over 625,000 people estimated as moderately or severely vulnerable, Mount Lebanon was the governorate with the highest number of deprived Lebanese despite the lowest incidence of moderate and severe household deprivation score (HDS), which is a combination of 13 indicators on education, health, food, housing, and income³. By the end of 2021, the population with moderate to severe HDS in the districts where the project area is located (Shouf-West Beqaa-Mount Hermon corridor) was as follows: 44% of the population (91,500 people) in the Shouf district, 60% (41,000 people) in the West Beqaa, and 49% (15,500 people) in Rashaya⁴. By the end of the year food insecure households were 49% in the Beqaa region and 34% in Mount Lebanon. Between January and December 2021, the share of households employing livelihood strategies that hinder their capacity to generate income, making them more vulnerable to future shocks (emergency or crisis type mechanisms), increased from 67% to 76%.
3. In 2021 households' main income source was wage employment, followed by temporary employment and daily labour. Remittances from abroad were the main income source for 3% of the Lebanese⁵. Households primarily engaged in agriculture were 3% in Mount Lebanon and exceeded 5% in the Beqaa region. Nearly 17% of the population reported to have received social assistance, a number that reached 24% in the case of households headed by women. The unemployment rate was 18% among men, and 43% among women (70% for women aged 18 to 24).
4. Lebanon hosts the highest number of displaced persons per capita and per square kilometre in the world, with an estimated 1.5 million Syrians who have fled the conflict in Syria, along with 180,000 Palestine Refugees in Lebanon (PRL)⁶. Lebanon constitutes a unique case as a host country, further facing the devastating impact of the unprecedented economic, financial, social and health crises of the last few years. Since 2015, Lebanon has received over USD 9.3 billion in support for displaced Syrians, vulnerable Lebanese, Palestinian refugees and public institutions under the Lebanon Crisis Response Plan⁷. Relationships between hosting communities and refugees are deteriorating at all levels due to the enormous impact of the sustained economic deterioration on the vulnerable Lebanese population who perceive how aid to refugees unfairly exceeds their income, as well as the worsening of physical safety and insecurity.

2. Biodiversity and ecocultural landscapes

5. Across Lebanon, biodiversity is in decline. It is estimated that up to 5% of fauna in Lebanon is threatened, while 7% of fauna species have recently become extinct. Lebanon is also one of the most important flyways for migratory birds in the world. Around 407 species of birds have been recorded, however illegal hunting and unsustainable forestry and agricultural practices are responsible for the disappearance of several of these species⁸.
6. The Shouf-West Beqaa-Mount Hermon corridor, that defines the targeted landscapes by the proposed project, has outstanding biodiversity values, that have moved the Lebanese government to protect its

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¹ World Bank, 2022. World Development Indicators.

² WFP. 2022. Food Security and Vulnerability Analysis of Lebanese Residents. WFP Lebanon Research, Assessment & Monitoring Unit.

³ Ibid.

⁴ Ibid.

⁵ WFP Lebanon Research, Assessment & Monitoring Unit. 2022. Food Security and Vulnerability Analysis of Lebanese Residents. WFP.

⁶ *The UN Relief and Works Agency (UNRWA) estimates a higher number of Palestine Refugees in Lebanon in their 2023 Emergency Appeal. The LCRP planning figure is based on the census conducted by the Government's Lebanese-Palestinian Dialogue Committee (LPDC), as agreed with the Government of Lebanon.*

⁷ Lebanon Crisis Response Plan 2023.

⁸ <https://osme.org/2022/02/a-future-for-birds-in-lebanon/>

high ecocultural value landscapes: (i) the Shouf Biosphere Reserve, which also includes the Lake Ammiq Ramsar Site, and (ii) the Mount Hermon Nature Reserve:

- **The Shouf Biosphere Reserve (SBR)**⁹ extends over 50,000 ha in the Shouf and West Beqaa sides of Mount Lebanon. The reserve is home to more than 120,000 inhabitants, spread over 28 municipalities. For management purposes, the SBR is divided into: (i) core zone, covering an area of about 115.5 km² with the objective to protect and rehabilitate the SBR's natural and cultural values; (ii) buffer zone, covering an area of about 64.5 km² surrounding the core zone and where activities compatible with the conservation objectives can take place (such as ecotourism or agriculture); and (iii) development zone, covering an area of about 320 km² that includes 28 villages surrounding the SBR where sustainable resource management practices are promoted. The SBR hosts a large set of habitat types, including the lower elevations that are dominated by the evergreen oak *Quercus calliprinos*, the deciduous oak *Quercus infectoria*, the Stone pine *Pinus pinea* and the Calabrian pine *Pinus brutia*. The upper elevations host Lebanese cedar (*Cedrus libani*) and *Quercus brantii* forests, as well as very rich high mountain pastures and thorny cushion shrub communities. The rivers in the western side of the landscape are characterized by Oriental alder (*Alnus orientalis*), Oriental plane tree (*Platanus orientalis*), the White poplar (*Populus alba*), and several willow species (*Salix libani*, *Salix alba*). So far, more than 1,200 vascular plant species are known in the SBR landscape. The landscape is rich in medicinal, edible and aromatic plants that are harvested by local inhabitants. It is also home to 32 mammal species, 275 bird species, and 36 species of herpetofauna. Traditional cultural practices linked to agricultural, pastoral and forestry systems helped shape the landscape, because of the efforts made by rural communities. Agriculture is the main land use, covering 30% of the territory, of which 19.4% is currently abandoned. Forests cover 16.1% of the landscape, and pastureland occupies 14%, from which 61.5% are high mountain grasslands located in the core zone, and 38.5% are low mountain pastures where livestock grazing is allowed¹⁰.
- **Mt Hermon nature reserve (MHNR)**, with an extension of 1,260 hectares, is a hotspot of plant diversity and endemism, with significant number of crop wild relatives¹¹. The traditional crop products of the region - grape molasses, bulgur, wine and vinegar, traditional dairy products, and medicinal/aromatic plants - have a reputation for high quality and health throughout Lebanon. The middle elevations between 1300 m and 1900 m host highly diverse oak forest stands with *Quercus calliprinos*, *Q. brantii*, *Q. cedrorum*, and *Q. infectoria*, as well as crop wild relatives such as *Prunus ursina*, *Pyrus syriaca* and *Prunus dulcis*. The upper areas above 1900 m are characterized by endemic thorny cushion shrubs. Uncontrolled goat grazing stands as one of the important life-support systems of the area, causing serious overgrazing and land degradation problems.

7. According to the preliminary results¹² of the biodiversity assessment undertaken by several experts on flora and fauna taxonomic groups, the rich mosaic of natural and seminatural habitats in the Shouf-West Beqaa-Mount Hermon corridor, contributes to a high diversity of habitats and species. The buffer zone of Mount Hermon, the eastern slopes of the SBR and the areas between them are highly rich in wild crop relatives. This corridor is a center of diversity for cereals (*Aegilops*, *Avena*, *Hordeum*, *Triticum*, etc), legumes (*Coronilla*, *Lens*, *Lathyrus*, *Medicago*, *Pisum*, *Vicia*, etc.), and fruit trees (*Amygdalus*, *Crataegus*, *Malus*, *Pistacia*, *Prunus*, *Pyrus*) among others. These species are particularly important because they are already coping with aridity and high or cold temperatures. Other species of interest belonging to the *Apiaceae*, *Brassicaceae* and *Lamiaceae*, families, that are widely used in culinary recipes by the locals and contribute substantially to food security. All these species play a major role in the production of climate-adapted fruit tree seedlings and selected herbal crop species and varieties. Several initiatives in this sense already exist, involving ICARDA and LARI¹³.
8. Biodiversity threats in the Shouf-West Beqaa-Mount Hermon corridor are mostly related to (i) forest fires causing major damages mainly in the development zone of the Shouf region, where a high fire spread interface with a high fire ignition risk; (ii) forest degradation and fragmentation due to intense illegal logging, wood and fodder collection, (iii) overgrazing with significant decline and degradation of traditional pastoral systems, (iv) uncontrolled hunting; (v) uncontrolled harvesting of non-wood forest

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⁹ Regato P., M. Pagliani & N. Hani. 2020. Woody Energy Value Chains: Briquette production within the adaptive Forest Landscape Restoration plan in the Shouf Biosphere Reserve, Lebanon. In: Global Bioenergy Partnership. Working Together for Sustainable Development.

¹⁰ Regato, P. 2020. Forest and Landscape Restoration Guidelines: Regaining Landscape Resilience, Ecological Functionality and Human Well-being. The Shouf Biosphere Reserve. Hani, N., M. Pagliani & P. Regato Editors. Lebanon.

¹¹ Arnold, N., Raus, T., Chalak, L. and Baydoun S. (2015). Vascular plants of Mount Hermon, Lebanon and their ethnobotanical traits. 1. Flora Mediterranea.

¹² Personal communication in the framework of workshop with biodiversity experts during the field mission in October 2023.

¹³ Crop Trust's [Crop Wild Relatives](#) (CWR) Project, in partnership with the Millennium Seed Bank (MSB), The Norwegian Development Cooperation (NORAD), and the [Svalbard Global Seed Vault](#).

and pasture products, (vi) water and soil pollution caused by the excessive use of agrochemicals and improper solid waste disposals, and (vii) quarries and urban sprawl¹⁴.

3. Agriculture

9. According to World Bank estimates¹⁵, the contribution of the agriculture, forestry, and fishing sectors to the country's economy has been declining since 1990. In 2021, the agriculture sector generated 2.76% of Lebanon's gross domestic product, while in 2018 it was 3.2%¹⁶. Lebanon imports 55% of its domestic food supply, being almost entirely dependent on imports of cereals (83% of consumption needs in 2018), and entirely dependent on imports for pulses¹⁷. In the case of dairy products, tubers, fresh vegetables, fruits, oils, meat, fish, and eggs, imports represent less than 50%. The economic crisis and subsequent currency depreciation of the Lebanese Pound have put a strain on the country's capacity to secure hard currency to pay for its food imports, which in 2021 decreased 38% compared to 2019.
10. Despite the fact that agricultural areas cover around 65% of the Lebanese land (6,800 km²), the cultivated agricultural area amounts to approximately 27.5% (2,750 km²), out of which half is irrigated¹⁸. Large areas on the Shouf district consist of abandoned agriculture terraces that, in many cases were colonized by secondary pine and oak forests. Main crops in the Shouf-West Beqaa-Rashaya corridor are olives and other fruit tree crops in dry stone wall terrace systems, with a high percentage of large properties of vineyards, cereal, fodder and vegetable crops in the flatland areas of the Beqaa valley. Fruit trees, such as apples and peaches, and herbaceous crops are intensively irrigated with broad use of agrochemicals causing soil and water pollution, one of the main causes of the intense pollution of the Litani River and the Qaraoun water reservoir, whose waters cannot be used for irrigation and human consumption. Further, in Central Bekaa, farmers are forced to use contaminated water to recompense water shortage during the peak crop demands, to the detriment of soil and groundwater quality¹⁹.
11. Part of the farmers in the targeted municipalities are organized in producer organizations. However many of their members do not generally perceive their added value, due to the current operational and self-financing problems, as well as the absence of hired personnel. In recent years, several cooperatives have been formed, especially by women, involved in the processing and marketing of a large number of by-products derived from non-timber forest products (e.g. honey, oregano, pine nuts, sumac, rose water) and from local crop species and varieties.
12. Producers and processors follow various marketing mechanisms, including direct sales in local markets and the markets of Saida and Beirut, sales to intermediaries, sales agreements with the SBR and with Souk El Tayeb enterprise, agreements with restaurants and tourist establishments, and online sales (including through WhatsApp), among others. However, marketing remains a key challenge for most producers, because of the lack of inter-producer organization, means of transportation, and marketing support, as stated by the producers consulted during the design of the project. Studies on the different value chain actors in the target area, production systems, and business opportunities are available within the framework of several FAO countrywide and ACS initiatives in the SBR. These initiatives were aimed to support the vulnerable populations (young unemployed, adult men and women and pensioners with economic and food insecurity) through the restoration of abandoned agricultural terraces with a diversity of non-timber forest crops (aromatic plants, stone pine), local varieties of fruit trees, and cereal/legume cover crops²⁰.
13. Livestock, mainly goats in the rugged reliefs and sheep in the valleys, has suffered a significant increase in the northern part of the West Beqaa due to Syrian refugees. Livestock management follows a poorly organized short-distance transhumance system, depending fundamentally on the woody fodder of forests, shrubland and wooded pastures in the case of goats, and on the overgrazed pastureland and agriculture stubble of the Beqaa valley in the case of sheep and goat. There are also dairy cows, but they are scarcer and are stabled. The improper solid waste disposal from livestock also causes major pollution problems in the Litani river basin of the West Beqaa region.
14. A major obstacle for sustainable agricultural practices across Lebanon remains linked to land tenure. The majority of farmers work on very small parcels - 75% of them operate on less than 1 ha of useful agricultural surface and 95% on less than 4 ha - making it difficult to implement comprehensive and

1. https://www.iucn.org/sites/default/files/2023-05/methodology_c.spnl_final.pdf

¹⁵ <https://www.worldbank.org/en/country/lebanon/overview>

¹⁶ Lebanon country profile - laws, policy, and regulations affecting the water-energy-food nexus. 2023. Water & Energy for Food, German Coop, EU, Gov. Netherlands, Norad, USAID.

¹⁷ WFP Lebanon Research, Assessment & Monitoring Unit. 2022. Food Security and Vulnerability Analysis of Lebanese Residents. WFP.

¹⁸ Farajalla N. et al. 2022. Climate change, agriculture, & livelihoods in Lebanon: consolidated livelihoods exercise for analyzing resilience. WFP & AUB.

¹⁹ <https://www.researchgate.net/publication/228433166>

²⁰ (i) Hamade, K. 2016. Non-wood forest product value chains in Lebanon. FAO; (ii) Sleem, K., Redwan, Z. and Assi, M.B. (2020). Value chains in Lebanon's Shouf Biosphere Reserve. Cultural landscapes and biodiversity in the Mediterranean Basin. Washington, DC: IUCN.

unified soil management plans for a given geographic zone²¹. Women constitute around 35% of the total agricultural labour force, mainly an informal role as part of the family-related labour²². Women are most highly involved in the production and processing levels of the value chains, with limited access to technology and very marginal roles in marketing. There are around 1,245 agri-food companies constituting the largest share of total industrial firms in Lebanon, with 48% located in Mount Lebanon Governorate. Enterprises led by women have developed less favourably than those led by men, tend to be very small, experience tougher competition than men's businesses, and achieve profitability only two-thirds that of men. Women make very little use of business support services and have more difficulty with taxes and tax administration, and with customs duties.

15. The economic crisis and depreciation of the Lebanese pound means that farmers have less purchasing power and access to inputs and equipment. This is especially exacerbated by the fact that most of the farmers production costs are in US dollars, while their revenues are in Lebanese pounds²³. A 2021 report by the Lebanese Centre for Research and Agriculture Studies found that the value of vegetable and fruits agriculture crop production suffered a 33% decrease and the value of animal production a 14% decrease compared to the 2019 value of USD 1.1 billion²⁴.
16. Microcredit institutions in Lebanon provide micro and small loans for start-ups, employees and micro-entrepreneurs. These institutions aim at improving the social, cultural, economic, health and livelihoods of rural Lebanese by providing, in addition to financing, various types of assistance. In the Shouf Biosphere Reserve, the Al-Shouf Cedar Society (ACS) has established in 2013 the Cedar Loan funding program that until today served 198 beneficiaries, adapting to the current financial crisis, and targeting actions related to rural development such as land restoration and post-harvest activities.

4. Energy

17. Rural households depend on diesel and firewood for cooking and heating. Diesel is a very common heating system adapted to the most widespread type of stove and is very polluting and causing important health problems when used in closed rooms. The economic crisis has made diesel inaccessible and very expensive, which has increased pressure on woodlands country wide. Recent large-scale illegal logging has caused the degradation of a vast oak forest area in the northern part of the West Beqaa section of the SBR, which together with the overgrazing caused by a significant increase in goat flocks in the area, generates a process of land degradation with limited capacity to be recovered. Rationally managed, forest biomass is a good that fulfils fundamental ecosystem services, but cut illegally and without control, leads to irreversible land degradation.
18. Lebanon is promoting the use of renewable energy sources to diversify its energy mix and reduce dependence on fossil fuels. The 2020 Nationally Determined Contribution (NDC) report for Lebanon includes the “*unconditional target*” to generate 15% of the power and heat demand in 2030 by renewable energy sources. The report also includes as a key activity of the Adaptation Priority 3 (Structure and develop sustainable water services, including irrigation, in order to improve people's living conditions) to encourage and support the use of renewable energy in agricultural irrigation and in drinking water supply. Despite a growing interest and decrease in the cost of the technology, the adoption of solar PV systems remains limited²⁵.

5. Water

19. The agriculture sector in Lebanon uses almost 60% of water withdrawals, municipalities use 29% meanwhile industry use 11%. Lebanon is ranked as having extremely high baseline water stress²⁶, and projected climate change expects an increase in water shortages. This problem is only expected to get worse, with mountain snow cover projected to decrease by 40–70% by 2050, which will impact vital water sources and lead to further water scarcity²⁷. Water deficits are especially acute in the Beqaa Valley, where potential evapotranspiration exceeds 70% of precipitation. Key additional challenges include outdated and insufficient infrastructure, poorly managed water utilities, limited water storage, poor irrigation efficiency and mounting pressures on ground and surface water supplies²⁸.

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²¹ [chapter viii assessment of the status of soil resources in Lebanon \(researchgate.net\)](#)

²² ILO and FAO. 2020. Skills Development for Inclusive Growth in the Lebanese Agriculture Sector - Policy Brief. Beirut. <https://doi.org/10.4060/cb2457en>

²³ WFP Lebanon Research, Assessment & Monitoring Unit. 2022. Food Security and Vulnerability Analysis of Lebanese Residents. WFP.

²⁴ 2021 Lebanese Centre for Research and Agricultural Studies (CREAL) study “Diagnosing the situation of Lebanese agriculture, in light of the current financial and economic crisis, immediate solutions and a future vision”.

²⁵ https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Jun/IRENA_Outlook_Lebanon_2020.pdf

²⁶ <https://www.wri.org/insights/17-countries-home-one-quarter-worlds-population-face-extremely-high-water-stress>

²⁷ UNDP (2021). Climate-Proofing Lebanon's Development Plans. Beirut, Lebanon.

²⁸ https://pdf.usaid.gov/pdf_docs/pbaah788.pdf

20. Governmental wells supply water establishments throughout the target landscapes with drinking water. On top of that, private wells (mostly illegal) that serve only a portion of the population are used for potable water and agriculture. Strict policies for groundwater abstractions have been initiated since 2015 and private groundwater extractions are meant to be reduced by 6% per year until 2024, with increasing reliance on public wells²⁹. The project area also contains a lot of springs and some of those are tapped either by water utilities or by residents with the general perception that spring water is better than network water. Furthermore, there are several water reservoirs mainly located in the Shouf and West Beqaa landscapes that supply water for wildfire fighting, reforestation and agriculture.
21. The Litani River Basin is the most significant freshwater system in Lebanon, but its role in water supply is compromised by poor water management and high pollution levels³⁰. While the main sources of pollution are largely common - domestic wastewater and solid waste; point sources from industrial, healthcare, touristic establishments, quarries; and non-point agricultural runoff -, their relative contribution is river-specific and tightly associated with the dominant land uses within the watershed.

6. Land degradation

22. According to the latest Lebanese report to the UNCCD, 39% of the country's territory can be classified as having very high exposure to land degradation³¹. By 2050, with a projected global warming of up to 1.7 °C, the combined effect of human-induced land degradation and climate change could reduce crop yields by 10% globally and by up to 50% in certain regions, and significantly increase the likelihood of wildfires, pest and disease outbreaks in scenarios where droughts and heat waves are projected to be more frequent³².

7. Climate change

23. Lebanon encompasses four climate-geographical zones: (i) a flat, narrow coastal plain that runs parallel to the Mediterranean Sea; (ii) the Lebanon Mountains; (iii) the Beqaa Valley; and (iv) the Anti-Lebanon mountain range. The climate is characterized by hot, dry summers with low precipitation levels (June–Sept.) and cool, rainy winters (December – mid-March). All rivers in Lebanon including the Litani river are replenished annually by local precipitation events, which tend to be restricted to around 90 to 100 days between October and April, and to snowmelt.
24. Climate change has substantially increased the occurrence of climate and weather extremes, including heat waves, heavy precipitation, floods and droughts, in Lebanon³³ (World Bank, 2018a). According to the 4th National Communication (4NC) to the UNFCCC³⁴, the following climate change impacts are recognized in Lebanon: (i) increase of 1.6°C of the annual mean temperature for the period 1950-2020 (steeper between 1991-2020); (ii) increase in annual mean temperatures from 14.22°C in 1901 to 15.83°C in 2020; (iii) decrease trend in precipitation of 0.53 mm per decade for the period 1950-2020, with strong fluctuations from year to year, less than 500 mm for years 1960-61, 2001, 2010 and 2019 and around 900 mm for years 1968-1970, 1994 and 2004; (iv) increase in the extreme weather events' frequency since 2010, with three times the number of flood incidents in 2015 and increase in heatwave intensity in 2020.
25. The 4NC Projected Changes for 2050-2100 are:
 - Temperature: Intensive increase in temperature over a shorter timeframe with the Beqaa valley and coastal areas suffering the most: An increase in the average temperature of 1.6°C to 2.2°C when compared to the reference period 1986-2005, depending on the RCP scenario (4.5 or 8.5), is expected by mid-century according to most recent projections (2022), and an increase of 2.2°C to 4.9°C for the end-century. The increase is seasonally dependent, being more pronounced in summer and autumn.
 - Precipitation: Precipitation is expected to decrease by 6.5% to 9% by mid-century and by 9% to 22% by end-century based on RCP scenarios' most recent projections (4.5 and 8.5 respectively).
 - Consecutive Dry Days: drought risk is expected to increase towards 2050 under all scenarios (RCP4.5 and RCP8.5 as well as for SSP5-8.5).
 - Heat waves: Increase in duration and intensity is expected. In terms of the days with temperature above 35 °C and 40°C, they are expected to almost double for the period 2041- 2060 compared to

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²⁹ Antea Group. 2016. Groundwater resources assessment chouf area – lebanon. *Nestlé Waters Lebanon and Shouf Biosphere Reserve*.

³⁰ FAO and IHE Delft. 2019. Water Accounting in the Litani River Basin – Remote sensing for water productivity. Water accounting series. Rome.

³¹ Final National Report on Land Degradation Neutrality Target Setting Programme LEBANON - February 2018.

³² Ibid.

³³ Verner D. et al. 2018. droughts and agriculture in Lebanon: causes, consequences, and risk management. The WB.

³⁴ MoE/UNDP/GEF (2022). Lebanon's Fourth National Communication to the UNFCCC. Beirut, Lebanon.

the reference period 1995-2014 with the increase being more pronounced in the case of summer, at both the coastal and inland regions of Lebanon.

- Extreme events: Compound events of heatwaves and droughts are expected to increase almost fivefold for the period 2041-2060 as compared to the reference period 1986-2005.

26. Reduced precipitation (both snow and rain) is likely to increase the incidence of drought, while higher temperatures will amplify the effects of drought³⁵. A reduction in water supply and crop yields as a result of climate change will significantly impact the gross domestic product of the country, with an estimated reduction of 1.9 % by 2050.
27. Based on the data reported by WFP in 2020³⁶, in zones with an agricultural land density below 15 % (Shouf region), and between 16-49% (West Beqaa and Rashaya regions), changes in chilling hours, temperature, and precipitation by 2050 will have a high impact on agriculture production. The Beqaa region where more than 53 % of the labour force works in agriculture, would be able to mitigate the impact of precipitation decreases, mainly because the zone is fed by irrigation schemes, but the excessive levels of pollution in the water reserves of the Litani River prevent its use for agriculture and the groundwater resources, on which farmers depend, will be reduced by lower precipitation recharge.
28. Forest fires ravage areas and burn over 4,000 hectares of land throughout the fire season in Lebanon, with the Shouf district being one of the most affected ones³⁷ (Fig. 2). The year 2019 witnessed one of the highest numbers of fires in Lebanon, burning 3,155 ha of forestland in one year³⁸. The high accumulation of dry biomass in unmanaged secondary dense forests, together with the higher frequency and intensity of severe heat waves and drought events, significantly increases the risk of large-scale wildfires during the warm and dry part of the year, which is prolonging to the autumn months. The Shouf area, with a high forest density, will be severely impacted, as highlighted in Figure 1.

Fig. 1. Impact of changes in chilling hours, temperature, and precipitation on agricultural activities by 2050

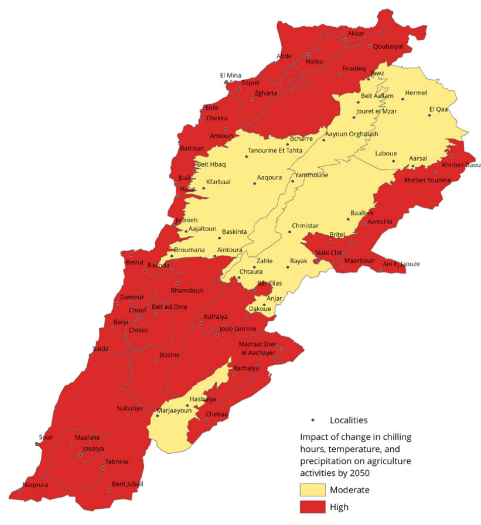
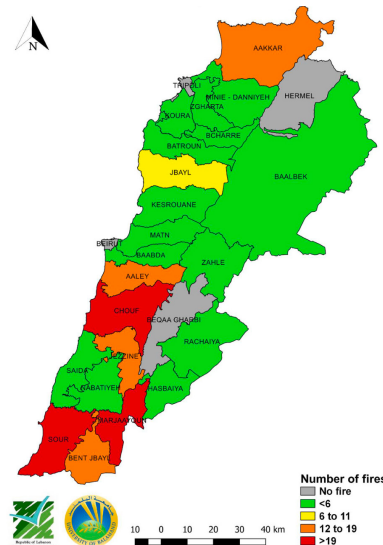


Figure 2. Fire occurrence per Caza in 2019



29. During the project concept note preparation stage, local stakeholders informed the design team about their perceptions, coping strategies, and needs to combat the negative effects of climate change on their cropping systems. The following table summarizes the data collected:

Table 1. Perceptions, coping strategies and needs of consulted local stakeholders

Consulted actor	Climate change perception	Effect on production system	Adopted coping strategy	Needs
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³⁵ https://www.climatelinks.org/sites/default/files/asset/document/2016_USAID_Climate%20Risk%20Profile_Lebanon_2.pdf

³⁶ [20220426/lebanon_clear_study_climate_change_and_livelihoods.pdf \(aub.edu.lb\)](https://www.aub.edu.lb/20220426/lebanon_clear_study_climate_change_and_livelihoods.pdf)

³⁷ Final National Report on Land Degradation Neutrality Target Setting Programme LEBANON - February 2018.

³⁸ Mitri et al. (2019). State of Lebanon's Forests 2018 (Mitri, G., Ed). Association for Forests, Development and Conservation/Ministry of Agriculture/Ministry of Environment/Lebanon Reforestation Initiative/United Nations Development Programmed/Global Environment Facility, Beirut. Pp.166. Mitri, G., Boufakhreddine, S., Amidi, J., Azzam, C., Chnais, E., Bouazza, K., Mansour, S., and Asmar, F. (2019a).

Women processing cooperative members (Bater municipality)	Higher temperatures	Too much heat and humidity during processing	None at the moment.	Improved machinery and air conditioning with lower costs. Training.
Producer cooperative (Bater municipality)	Lower water availability due to the drying of upwellings. Higher temperature and air humidity in the valley	Decreased production of grapes. Higher pest & diseases with new ones affecting mulberry and apple. Higher opportunities for new crops (oranges).	None at the moment.	Better regulation of irrigation water for equitable and fair distribution.
Member of Qaraoun municipality	Lower precipitation (snowfall reduction). Short heavy rain preventing soil water infiltration. Higher winter temperature followed by extreme weather events (e.g. late frost).	Loss of crops (e.g. olives due to late 2013 frost), especially the introduced new varieties showing lower adaptation capacity. Increase in pest and diseases. Excessive and ineffective use of agrochemical negatively affecting soil water, crops, beekeeping. Chicken manure negatively affecting soil & water. Higher need of inputs (e.g. irrigation and pumping equipment).	Adopted irrigation in rainfed systems (olives, wheat) Adoption of no till and cover crops to keep soil humidity. Banning herbicides along nature trails has supported beekeeping too. Healthy basket organic agriculture project but stopped after project end.	Better regulation of irrigation water for equitable and fair distribution, and illegal extraction prevention. Planting hedges to enhance soil water regulation. Use of chicken manure together with olive residues for briquettes. Training and capacity development.
Rashaya municipality members	Changes in temperature and seasonal rainfall distribution affects ripening of grapes and figs. Higher frequency of extreme weather events (hail and frost).	New crops in the region (e.g. olives and apples) are not adapted to climate extremes (e.g. hail and frost destroyed olive crops in 2016). Irrational management of livestock exacerbates climate change impacts on natural vegetation and large number of wild useful plants. Abandonment of traditional fruit tree crops better adapted to climate change impacts. High number of young unemployed feel forced to work on low adapted crops facing many problems.	Burning truck wheel covers to make smoke and increase temperature during frost (highly polluting activity). Adoption of multi-cropping system mixing several woody and herbal crops. Support organic production of traditional crop species and varieties, building on the healthy soil and soil water conditions of the area, as well as on the country-wide high reputation of the traditional food products of Rashaya region.	Need of regional committee to plan adaptation needs and opportunities. Training staff of technical school on climate change adaptation issues. Rehabilitate farmers' cooperatives. Promote agroforestry (hedges). Enhance the focus on locally adapted crop varieties. Higher/better support from the administration, including marketing opportunities.
Family farming and food processing business (Rashaya municipality)	Seasonal changes of temperature & precipitation. Lower precipitation. Higher frequency of frost and hail.	Limited losses due to adaptive capacity.	Crop calendar optimization based on weather forecast monitoring. Crop diversification with animal factor, based on biodynamic agriculture production. Diversified marketing strategy (shop at farmers market, online, WhatsApp, on-farm/tourism)	Support to climate-smart farmers' associationism to improve the agro-environmental conditions of the territory and the access to new markets This lead farmer shares knowhow on climate-adaptive farming practices and weather data to help shifting cropping calendar according to changes in climate.
Women lead family farm (Mrusti municipality)	Lower precipitation (reduction of snowfall) causing the drying of upwellings. Higher frequency of frost and hail.	Loss of apple production due to hail (lower problems with cherries). Problems in irrigation water distribution at critical moments. Problems with governmental instructions about type of agrochemicals and quantities	Crop diversification with different species and varieties from the same species, beekeeping and livestock, enlarging production season and coping with climate shocks differently affecting each crop type.	Organization of water users participating in efficient irrigation schemes, and viable solutions to cover the cost of fees. Marketing support.

	More frequent strong winds and high temperatures helping pests to disseminate over crops.	to fight pests and diseases with negative results.	Pilot experience on automatized efficient irrigation with solar pumping helped reduced 45 % of irrigation water per hectare.	
Farmers (Sagbine municipality)	Extreme summer temperature (> 42 °C). Lower precipitation (reduction of snowfall) causing the drying of upwellings.	Crop losses due to the burning of apple leaves and fruit skin. Hail affecting the late-producing apple varieties. Increase of air humidity (proximity of Qaraoun lake) impacting pest & diseases occurrence. Higher impact of agrochemical on lower water resources.	Use of shadow nets to protect apple crops from high temperature. Efficient irrigation with solar pumping. Organic production with cover crops, animal factor, and integrated pest management. Burning truck wheel covers to make smoke and increase temperature during frost (highly polluting activity). Livelihood security strategy with barter of products between farmers. Renting of farmland upwards in mountain slopes more favorable for vineyards.	Support the creation of cooperatives. Support for marketing strategies, linking producers with consumers. Better farmer-needs oriented support from government and aid agencies. Better control and organization of the water extraction and use. Higher awareness about renewable energy sources, such as briquettes. Support to restore abandoned farmland plots to help overcome the impact of economic crisis.

8. Gender issues

30. Lebanon has one of the highest overall gender gaps in the world, ranking 119th out of 149 countries in the 2022 World Economic Forum Global Gender Gap report³⁹. Most policies and strategies related to climate change and included in Lebanon's NDC do not thoroughly address gender dimensions. Gender integration seems more advanced in the agriculture and forestry sectors, while the biodiversity, energy and water sectors' policies do not have gender considerations at all. Men and women, households, and communities face differentiated impacts from climate change based on their level of vulnerability, preparation, and resilience to climate hazards⁴⁰. In agriculture systems, women undertake a significant proportion of agricultural work, heavily involved in harvesting, weeding and post-harvesting tasks and decisions, whereas men are responsible for pest control and fertilization⁴¹.
31. According to the Gender Analysis on Climate Change included in the NDC Support Program, the main challenges in mainstreaming gender into climate change policies and actions are: (i) cultural barriers to gender equality and women's participation in decision-making; (ii) difficulties in understanding the linkages between gender and climate change; (iii) lack of capacity-building on climate change in institutions; (iv) no dedicated budget for gender-related activities; and (v) lack of adequate data to perform informed policy-making on gender integration.

9. Institutional context

32. Lebanon is a highly centralised country, where the municipalities have only limited power and funds in real terms. The country has four administrative levels⁴²:
- The central government controls most aspects of the planning and monitoring of local authorities, exercising both administrative and financial control over the municipalities through various ministries and bodies.
 - The 6 governorates (Beirut, Mount Lebanon, North Lebanon, Beqaa, South Lebanon and Nabatieh), the 26 kaza or districts into which the governorates are divided. The governorates and districts act as administrative subdivisions of the State and have no independent authority.
 - The 945 municipalities into which the districts are divided. About 660 municipalities have together set up 48 federations or unions, bringing together different municipalities with the aim of pooling their resources and fund inter-municipal development projects in their respective regions.

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³⁹ <http://reports.weforum.org/globalgender-gap-report-2022>

⁴⁰ UNDP. 2021. Lebanon gender analysis. executive summary.

⁴¹ FAO. 2012. *Country Study on Status of Land Tenure, Planning and Management in Oriental Near East Countries: Case Study Lebanon*. FAO/SNO, Cairo, Egypt

⁴² <https://portal.cor.europa.eu/divisionpowers/Pages/Lebanon-Introduction.aspx>

33. The following Lebanese entities hold a mandate relevant to land, natural resource and environmental management:
34. The **Ministry of Environment (MoE)** is the main entity in charge of environmental planning, the laws and their application. The MoE is the UNFCCC focal point for Lebanon; it oversees all climate change-related activities, coordinating, compiling, and submitting National Communications, Biennial Update Reports, and related greenhouse gas inventories. The National Council for Environment, (NCE) chaired by the MoE leads the implementation of the NBSAP⁴³, being responsible for providing environmental policy and planning, and developing criteria and guidelines for the management of protected areas and the implementation of environmental projects.
35. The **Ministry of Agriculture (MoA)** has the mandate to improve the performance of the agricultural sector and contribute to economic, social, environmental and sustainable rural development. The Department of Forest and Natural Resources at the MoA is responsible for forestry legislation and enforcement. It also manages rangelands and agricultural activities, designates protected forests, and regulates grazing permits and agreements on municipal lands. The MoA is also the UNCCD focal point for Lebanon. The **Lebanese Agricultural Research Institute (LARI)**, with 12 research centers, undertakes research on agriculture and provides extension services to farmers. The MoA is present in the target landscapes through the following institutions:
- Agriculture advisory departments in Zahle, Sahgbine and Machghara (Beqaa landscape); El Bireh (Rashaya landscape), and Deir el Qamar (Shouf landscape).
 - Agriculture schools in Baakleen (Shouf) and Rashaya.
 - Forest centres in Saghbine and Chtaura (Beqaa) and Rashaya.
 - LARI center in Tal Amara (Beqaa) responsible for all agricultural consultation (seeds, weather forecast, soil tests and advisory services) and in Baakleen (Chouf), playing the same role in this district.
36. The **Ministry of Energy and Water (MoEW)** is responsible for energy, water, mines and quarries. MoEW developed a national plan to protect water resources from pollution, regulate water bodies, provide water use permits, and increase water stocks across the country. MoEW supports the development of renewable energy and energy efficiency in Lebanon. It also provides advice on the licensing of mines and quarries that could have an impact on water resources.
37. The MoEW **Regional Water Establishments** are responsible for: (i) the implementation, operation, maintenance and renovation of potable water supply, irrigation and wastewater; setting water tariffs for potable water supply and irrigation, taking into account socio-economic conditions; and quality control of potable water and water for irrigation. The communities in the Shouf landscape are administratively linked to the Beirut and Mount Lebanon Water Establishment with smaller water offices in Barouk and Beiteddine. The communities in the West Beqaa and Rashaya landscapes are administratively linked to the Litani River Establishment with smaller water offices in Zahleh and Rashaya.
38. The **Ministry of Industry (Mol)** provides (i) support to small and medium enterprises by improving business environments; (ii) businesses with access to finance, development services and incubation. (iii) accurate industrial statistics; (iv) promotes exports; (iv) develop measures to promote innovation.
39. The **Ministry of Economy and Trade (MoET)** controls food quality and prices at the retail market through the consumer protection service. It elaborates geographical indexing, copyright and patent laws, traceability of products and their regulations. The **Investment Development Authority of Lebanon (IDAL)** is the national agency entrusted with promoting investments to Lebanon in growth promising sectors (Agriculture and Agro Industry) by providing a set of incentives and services. IDAL is also entrusted with export promotion services.
40. The **Ministry of Public Works and Transport (MoPWT)**: The Directorate General of Urban Planning (DGUP), under the authority of the MoPWT, issues building permits, prepares and reviews urban master plans, and implements the National Physical Master Plan prepared by the **Council for Development and Reconstruction (CDR)**, an independent and autonomous government entity. CDR developed the National Physical Master Plan of the Lebanese Territories (NPMLPT) in collaboration with the DGUP in 2005.
41. The **Ministry of Interior and Municipalities (MIM)** is responsible for planning and drawing up the municipalities' budgets, as well as for providing technical and financial assistance to municipalities where necessary. Development projects are usually carried out by the Council for Development and Reconstruction and employment-related decisions in the municipalities are controlled by the Civil Service Council.

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⁴³ National Biodiversity Strategy and Action Plan.

42. The **Ministry of Education and Higher Education (MEHE)** is responsible for determining the policies and direction of the education system in Lebanon. It works closely with schools, universities and other educational institutions to ensure that they are providing students with the knowledge and skills they need to succeed in their future careers.
43. The **Office of the Minister of State for Women's Affairs (OMSWA)**, established in 2016, has the mission to empower, enhance and build the capabilities of women. Amongst other things, this will be achieved through mainstreaming women's rights in the sustainable national development process.
44. **Municipalities:** The Municipal Council, with members elected for a six-year term by universal direct suffrage, is the authority with decision-making power at municipal level. Under the tutelage of the Ministry of the Interior and Municipalities (MIM), municipalities are responsible for preparing annual plans based on available finance. They are in charge of operations and maintenance of water, sanitation, municipal solid waste, in addition to other matters concerning protection of the environment (e.g. reforestation projects) and pollution control through cooperation with various entities including NGOs. Construction permits in Lebanon are only issued by the President of the relevant municipality. Although the MoA is responsible for the enforcement of forestry regulations, this is usually orchestrated through the Municipal Police. The real power exercised in practice by municipalities is much less than the one conferred by law. In areas such as health, education, public works, social affairs, energy, water, agriculture and the environment, the ministries generally coordinate the specific projects together with the municipality, however the ministries remain responsible for their implementation. In the current situation of political and economic crisis, the central government is very absent at the local level, and the municipalities have acquired a primary role in the implementation of all types of territorial management priorities. In some cases, such as in Shouf, Qaraoun and Rahsya, municipal unions have been established to be more effective in utilizing available resources and implementing priorities.
45. **Protected Areas' Management Bodies:** The Shouf Biosphere Reserve and Mount Hermon Reserve are under the authority of the Lebanese Ministry of Environment (MoE), which manages them through **Appointed Protected Area Committees (APAC)**. The committees include among its members the Al-Shouf Cedar Society, representatives of the municipalities and municipal unions, representatives of local users and organizations, representatives of local forest and agriculture institutions, NGOs, academia and independent experts. APAC liaises with the Reserve' Management Team, which deals with the day-to-day management and planning.
46. **Non-governmental Organizations:** The Lebanese NGOs played a prominent role in the past 30 years on key environmental and development issues and projects with support from local and international donors. **Al-Shouf Cedar Society (ACS)** plays a major role in the management of the Shouf/West Beqaa Biosphere Reserve (SBR), through the development of multi-year plans for the conservation of biodiversity, the management and restoration of natural resources, and sustainable local development. ACS has raised substantial funding from aid agencies, international foundations, and the private sector, and led numerous projects on forest landscape restoration (FLR); spatial planning and land tenure issues; sustainable agricultural development; sustainable management of forests and pastures; sustainable management of water, energy and urban/agriculture/forest waste; restoration of abandoned quarries; conservation of habitats, flora and fauna; rural employment and business development; poverty alleviation. ACS works in cooperation with local municipalities and municipal unions, MoA extension and research centres, education centres, NGOs, and enterprises. National level partners are the MoE, MoA, MoEW, MoPWT, universities national NGOs, and enterprises linked to tourism, water, agriculture, food, transport and the banking sector. Among international partners are the IUCN; the Kew Gardens; the European Topic Centre on Spatial Analysis and Synthesis (ETC-UMA); and several Italian, Spanish, and French NGOs. In the framework of the EU funded BioConnect project, ACS has established a branch organization for the management of the Mount Hermon nature reserve, with the aim of acquiring management autonomy once the project is completed. Other NGOs playing a role on natural resources management in the target landscapes are the Lebanon Reforestation Initiative (LRI), the Association for the Development of Rural Capacities (ADR), Arcenciel, Association for Community and Environment (ACE), the Association for Forest, Development and Conservation (AFDC), Life for Environment (LFE), and the Society for the Protection of Nature in Lebanon (SPNL), Green Orient (GO), and BE West.
47. **Private organizations:** Fair Trade Lebanon; the social enterprise Souk El Tayeb; MORES consultancy firm; local producer organizations, cooperatives and enterprises engaged in the production of goods and services linked to tourism, water, energy, non-timber forest products, meet and dairy, and farmland crops; Khaled Sleem Tree Nursery; Samaha Tree Nursery; wineries in the Beqaa landscape; Nestle Waters; etc.

48. **Development Agencies:** The most active agencies supporting environmental, cultural and sustainable development issues in the target area are the Italian Cooperation, the French Agency for Development, the GIZ, the European Union, and USAID, among others.
49. **United Nations:** The most active UN organizations supporting environmental, cultural and sustainable development issues in the target area are FAO, UNDP, WFP, the WB, IFAD and UNESCO.

10. The problem the proposed project is aiming to solve

50. The project strategy is to address the below list of barriers and achieve its goal while generating knowledge and partnerships for sustainability:
51. Barrier 1 - Absence of the necessary skills and know-how: policymakers and landscape stakeholders have weak technical capacities for the prioritization and implementation of cross-sectoral climate-smart nature-based solutions. They remain unprepared to mainstream collaborative climate-risk reduction objectives and prevention measures into the day-to-day work.
52. Barrier 2 - Lack of integrated landscape planning: In view of the increasing impact of climate change, and especially the forecast of greater frequency and intensity of extreme events, experts believe that the most effective risk control mechanism consists of the landscape prioritization of high climate-risk areas and spatial organization of resilient land uses and practices.
53. Barrier 3 – Lack of mainstreaming of climate change adaptation priorities into cross-sectoral, and harmonized policies: Limited policy support and weak institutions with sufficient qualified personnel undermine the creation of effective incentives and regulations that support and guide landowners and users in the adoption of climate-smart land uses and practices.
54. Barrier 4: Absence of adequate collaborative governance mechanisms: Partnerships between public administrations and civil society, and between agricultural, forestry and livestock users/owners whose actions must complement each other to be climate-smart, aim at lowering the climate risks at landscape level, but also at increasing the self-preservation of rural communities and their livelihoods, fostering co-responsibility⁴⁴:
55. Barrier 5: insufficient financing mechanisms for nature-based solutions: There are very limited investment opportunities for smallholders to support sustainable transitions, including accessing new climate-smart technologies, materials and infrastructure. There is a lack of comprehensive cost-benefit analyses on the diverse set of benefits generated by climate resilient land uses and practices, and the interest to invest in innovative business models.
56. Barrier 6: Incomplete monitoring framework to evaluate the effectiveness of cross-sector climate-resilient practices at the landscape level, and insufficient capitalization and knowledge sharing on successful models for climate adapted nature-based solutions to guide landscape practitioners.

Despite the significant number of baseline initiatives supporting restoration, sustainable management and nature protection in the target landscapes, many efforts have a pilot-type approach in which good practices have been tested and small economic initiatives have been successfully developed, without providing an effective response to climate risks that may jeopardize the long-term sustainability and replicability of the experiences.

Project objective

57. **Project objective:** “Promote the adoption of nature-based solutions to restore climate-smart landscapes and livelihoods in the Shouf-West Beqaa-Mount Hermon corridor”.
58. The project objective is aligned with the AF Strategic Results Framework, by supporting the Lebanese government to implement climate-resilient measures at the landscape level, through actions on (i) climate-smart landscape planning and implementation of innovative adaptive nature-based solutions; (ii) awareness raising and capacity development of all concerned stakeholders; (iii) restoration of ecosystem resilience; (iv) diversification of livelihoods and sources of income for vulnerable households; (v) and policy improvement to promote and enforce the planned climate-smart measures.
59. **Outcomes:** the project will achieve the stated goal and objective through the following outcomes:
- **Outcome 1.1:** Enabling conditions to prioritize and apply climate-smart interventions in high-value ecocultural landscapes.
 - **Outcome 1.2:** Climate-smart policies and regulations in place at various levels.

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⁴⁴ Varela, E. & Górriz, E. 2014. Enhancing Forest Fire Prevention: Governance. EFI news, Nº 1, Vol. 22.

- **Outcome 2.1:** Nature-based solutions adopted through capacity development, climate-smart field interventions and green businesses.
 - **Outcome 2.2.** Increased value for high-quality, climate smart commodities through innovative marketing strategies and value chain improvement.
 - **Outcome 3.1.** M&E system and self-assessment tools for project management and practitioners.
 - **Outcome 3.2.** Project practices and lessons learned disseminated through awareness raising and knowledge exchange at the national and international levels.
60. **Project Components:** the project is structured around three components:
- **C1.** Enabling environment to mainstream climate resilience into integrated land use management and policies.
 - **C2.** Impact investments in nature-based solutions to mitigate climate risks in high value ecocultural landscapes.
 - **C3.** Monitoring, knowledge management and awareness raising.
61. **Target groups:** The project targets rural landowners and users, with a priority on smallholder households – farmers, shepherds and forest users and small/medium local enterprises involved in production, processing and marketing of goods and services linked to food, bioenergy, compost, plant nursery production and ecotourism, in the three target landscapes.
62. The development and implementation of climate-smart land uses and practices in high climate-risk areas of the Shouf-West Beqaa-Mount Hermon corridor would ensure an integrated resilience framework that allows identifying the “what” (complementary adaptation measures between the different LU/LC types), the “where” (e.g. priority landscape areas with high climate risks where the activation of risks, such as the burning of agriculture/urban waste can trigger a negative catalytic effect on other areas of the landscape), the “who” (collaborative frameworks and partnerships among different land users, managers, local administration and value chain actors) and the “how” (governance mechanism to ensure that climate-smart investments matched with continuous training and coaching support land users in the effective transition towards resilient landscapes and livelihoods).
63. The project will contribute to the design and implementation of nature-based solutions, that help restore ecosystem services on which climate-adaptive agriculture, forestry and pastoral production systems of the landscape depend. The high ecocultural values of the target landscapes are a major asset that attracts a high number of visitors and consumers of food and other high-quality traditional products. The project will prioritize organic and biodynamic production systems that contribute to maintaining and improving a healthy state of soil, water, farmland habitats, natural ecosystems and biodiversity, which are behind the marketable identity of landscapes. Examples of Nature-based solutions supported by the project are:
- agroforestry tree-crop-livestock integrated farming systems under diversified biodynamic and conservation agriculture production;
 - efficient crop irrigation systems under equitable and fair water governance systems;
 - sustainable and integrated management of the forest and agriculture biomass supporting the multipurpose production of bioenergy, compost, non-timber forest products (NTFPs), and livestock while reducing fire-risk and enhancing the maturity, carbon stocks and biodiversity of the forests and grasslands;
 - restoration of natural populations of crop wild relatives and useful wild plants and use for the nursery production of climate-adapted seedlings to be used by farmers to help diversify their crops;
 - restoration of abandoned dry-stone wall terraces as fuel-breaks in high fire risk areas regaining the mosaic-like forestland structure, to be put into production with diversified crops that combine wild fruit trees and aromatic plants;
 - restoration of farmland habitats (e.g. scattered trees, hedges, windbreaks, hygrophilous plants along freshwater lines and points) to enhance the microclimate and hydrological regulation of agriculture areas.
64. By applying an integrated landscape approach, which coherently tackles wildfires, overgrazing, land degradation, hydrological alterations, pollution, biodiversity loss and poverty and unemployment, the proposed project attempts to simultaneously achieve social, economic and environmental benefits while ensuring that the adaptive capacity of local actors is strengthened, and the needs and interests of all stakeholders are fully captured.
65. The project aims to address knowledge gaps, by building the capacities of land practitioners, managers, extension providers, value chain actors, and policy makers on climate-adaptive landscape restoration and sustainable production systems. Training-of-trainers (ToT) programs and on-the-field learning events for farmers, shepherds and forest users on climate-resilient production systems and business

development skills, will support the transfer of know-how through “learning by doing”. Continuous learning and coaching support by experts, with special focus of lead local/international practitioners will be provided to the project beneficiaries – vulnerable population with a major focus on women and young unemployed - all along the project life.

66. The project will integrate climate-adaptive agriculture, forestry and livestock production into specific value chains (*native* and wild fruits, vegetables, NTFPs, etc.) with a matching grant funding scheme, building on the ACS Cedar Loan Programme, which has proved extremely successful supporting local community members and organizations in the SBR. The project will provide matching grants to individual small-scale farmers and forest, agriculture and livestock producer groups for the implementation of income-generating projects focusing on locally produced agriculture, livestock and forest commodities, in pursuit of climate-smart outcomes. This will attract new entrants and generate jobs through increased supply and demand for on-farm inputs and services, farm/forest/livestock/bioenergy managers, processors, traders, among others.
67. The project will add value, where appropriate and possible, to existing initiatives by government, private sector or NGOs in the selected landscapes. Additionally, the project will help upscale at the landscape level existing pilot actions that have demonstrated to be effective in increasing the resilience of natural/productive systems and rural households. Among the existing actions to which the project will provide complementarity and add adaptive value, are:
 - The GEF-UNDP Land Degradation in Mountain Landscape in Lebanon is investing in strengthening legal frameworks and capacities at institutional and individual levels for land use planning and management in areas covered by the project⁴⁵.
 - WB Project – Lebanon: Green Agri-food transformation for economic recovery.
 - The BioConnect EU-funded project led by ACS and supporting biodiversity conservation in the SBR and Mount Hermon Nature Reserve, among other protected areas.
 - The Resiland project, funded by the Italian Cooperation, through which ACS and its partner NGO Istituto Oikos are supporting sustainable forest and grassland management interventions in the SBR and Mount Hermon.
 - The Saving Water Growing Crops Project, funded by the EU, through which ACS and its partner NGO Istituto Oikos are piloting a remote-controlled efficient irrigation system ‘Blue Tentacles’, as an innovative technology to address the climate change-induced growing water scarcity for agriculture production.
 - The BASATINE - Bolstering Agriculture Systems’ Ability to Invest, Nourish and Employ project⁴⁶, led by the French government, which is currently investing \$17 million in supporting local farms in Akkar and the Bekaa by funding inputs, enhancing resilience to the climate and economic crises while regulating land tenure.

Theory of change

68. The Theory of Change (ToC) of the project assumes that by: (i) creating enabling conditions for the implementation of climate-smart solutions and businesses in an integrative cross-sectoral way and conciliating the different actors’ needs and interests; and (ii) promoting coordinated adaptive monitoring efforts that help integrate lessons learned into landscape-level plans and local to global learning processes, it will be possible to bring the target landscapes to the “situation sought” of resilient landscapes and livelihoods, in which climate-risks are effectively addressed, through multi-stakeholder planning and implementation of nature-based solutions (NbS) contributing to climate change adaptation and mitigation, land degradation neutrality, sustainable livelihoods, and improved conservation outcomes for biodiversity.
69. Locally adapted climate-smart solutions are based on a good understanding of the combined anthropogenic and climate change drivers of climate-risks (e.g. exacerbation of wildfire and hydrologic alterations; challenges for biodiversity and production systems due to higher frequency and intensity of temperature and precipitation extremes) in the target landscapes, and the ability to establish cross-sectoral integration and cooperation mechanisms. Key assumptions for the target landscapes to regain ecological, social and economic resilience are that:
 - Institutions from the national to local level support the fight against climate change, recognize the need to plan and apply intersectoral adaptation measures, and participate (lead) by providing the necessary guidance and resources in an equitable way.

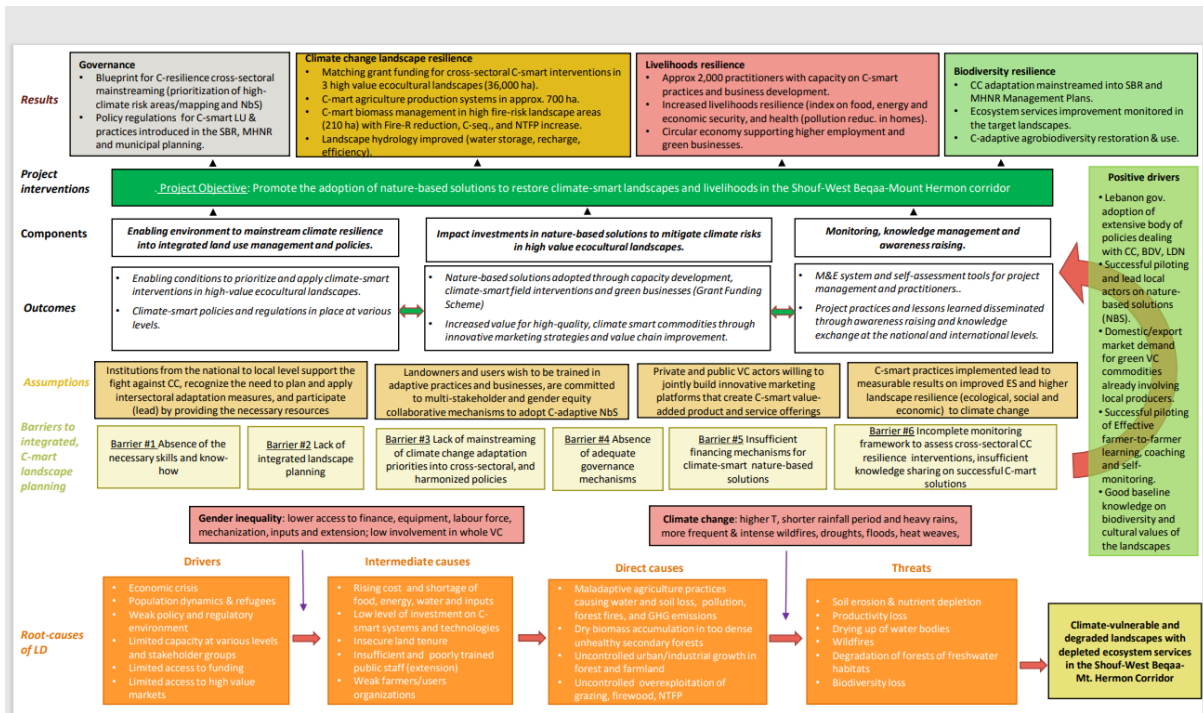
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⁴⁵https://info.undp.org/docs/pdc/Documents/LBN/UNDP%205837%20GEF%209388%20Lebanon%20LDN_ProDoc%20signed%20by%20All.pdf

⁴⁶ <https://www.afd.fr/en/carte-des-projets/bolstering-agriculture-systems-ability-invest-nourish-employ-basatine>

- Landowners and users, including vulnerable groups, wish to be trained in climate-risk assessment, adaptive management practices and climate-proof businesses, and are committed to be part of multi-stakeholder and gender equality collaborative mechanisms for the adoption of climate-adaptive NbS.
 - Private and public actors of the targeted agriculture and forest commodity chains are willing to jointly build innovative marketing platforms that create C-smart value-added product and service offerings.
 - The climate-smart practices implemented lead to measurable results on improved ecosystem services and higher landscape resilience (ecological, social and economic) to climate change.
70. The three components of the project are interdependent in terms of removing barriers and creating conditions for a step-by-step process of climate-risk prioritization, analysis and planning of climate adaptive solutions, collaborative learning, implementation, monitoring and knowledge management to scale up best practices. Each project component focus on removing the identified barriers:
71. Component 1 will address Barrier 2, Barrier 3, and Barrier 4 by creating a conducive policy environment, in terms of:
- Participatory identification and prioritization of high-climate risk areas and concerned actors in the landscapes.
 - Cross-sectoral planning of climate-adaptive solutions for green agriculture and forest production systems and commodity chains.
 - Development of enabling policy regulations and capacities to replace maladaptive land uses and practices with climate-smart ones.
72. Component 2 will address Barrier 1, Barrier 4 and Barrier 5, through:
- Social learning and collaborative skills in climate smart land uses/management practices and climate-proof businesses for trainers, extension agents and practitioners.
 - Effective use of financing, assets and human resources to facilitate investments and technical assistance to vulnerable populations in areas with high climate risk.
 - Establishment of innovative collaboration mechanisms between public and private actors in commodity chains to diversify market opportunities for C-smart value-added products.
73. Component 3 will address Barrier 6 by creating a conducive environment for adaptive monitoring of the landscape and livelihoods' resilience to adjust climate-smart interventions to the socio-economic and climatic changes of the target landscapes and share and exchange know-how from the local to the global level based on the lessons learned.
74. The result of the interaction between these three components will be the achievement of the project objective, which is *"Promote the adoption of nature-based solutions to restore climate-smart landscapes and livelihoods in the Shouf-West Beqaa-Mount Hermon corridor"*.

Figure 3. Theory of Change



Project Components and Financing

Project Objective: Promote the adoption of nature-based solutions to restore climate-smart landscapes and livelihoods in the Shouf-West Beqaa-Mount Hermon corridor				
Project Component	Component Type	Expected Outcomes	Expected Outputs	Amount (US\$)
Component 1: Enabling environment to mainstream climate resilience into integrated land use planning and policies.	Technical Assistance	Outcome 1.1: Enabling conditions to prioritize and apply climate-smart interventions in high-value ecocultural landscapes Indicators/targets: (i) # of ha of high climate-risk areas prioritized for C-smart interventions.	Output 1.1.1: High climate-risk areas identified and prioritized in the 3 high-value ecocultural landscapes	160,000
			Output 1.1.2: Guidelines for designing and implementing climate-adaptive nature-based solutions produced and disseminated	60,000
	Technical assistance	Outcome 1.2: Climate-smart policies and regulations in place at various levels.	Output 1.2.1: Policy recommendations for mainstreaming the climate-smart planned priorities into landscape-level plans developed and adopted.	40,000

		<p>Indicators/targets:</p> <p>(ii) # of policy recommendations supporting CC adaptation mainstreaming in public planning.</p> <p>(iii) # of civil servants empowered to implement climate-smart policy recommendations.</p> <p>iv) # of NGO staff empowered to promote the implementation of climate-smart practices</p>	<p>Output 1.2.2: The capacity of public agencies and civil society organizations is developed to provide guidance to land users on climate-smart policy regulations.</p>	61,000
<p>Component 2: Impact investments in nature-based solutions to mitigate climate risks in high value ecocultural landscapes.</p>	Investment	<p>Outcome 2.1: Nature-based solutions adopted through capacity development, climate-smart field interventions and green businesses.</p> <p>Indicators/targets:</p> <p>iv) # of ha under climate-smart practices.</p> <p>(v) # of vulnerable people trained on climate-smart jobs.</p> <p>(vi) # of climate-smart local business developed.</p>	<p>Output 2.1.1: Local producers empowered to plan, adopt and monitor climate-smart solutions.</p>	78,000
			<p>Output 2.1.2: Funding scheme for investments on climate-smart production systems and green business established in each target landscape.</p>	2,939,000
		<p>Outcome 2.2. Increased value for high-quality, climate smart commodities through innovative marketing strategies and value chain improvement.</p> <p>Indicators/targets:</p> <p>(vii) % increased income by vulnerable households coming from climate-smart commodities.</p> <p>(viii) # of products branded with climate-smart label.</p>	<p>Output 2.2.1: Climate-smart producer organizations and entrepreneurs are empowered to access niche markets and expand their businesses.</p>	53,000
			<p>Output 2.2.2: Brand marketing strategy for climate-smart commodities developed and implemented.</p>	67,000
<p>Component 3: Monitoring, knowledge management</p>	Technical assistance	<p>Outcome 3.1. M&E system and self-assesment tools for</p>	<p>Output 3.1.1: Gender responsive M&E system with quantitative and qualitative analyses and impact</p>	35,000

and awareness raising.		project management and practitioners	assessments designed and implemented.	
		Indicators/targets: (viii) # of climate-smart indicators incorporated in the municipal plans and monitored. (ix) # of project staff trained on climate-smart M&E.	Output 3.1.2: Partners and practitioners empowered to assess landscape resilience during and beyond project lifetime.	32,000
		Outcome 3.2 Project practices and lessons learned disseminated through awareness raising and knowledge exchange at the national and international levels.	Output 3.2.1. Awareness raising programme designed and implemented at the landscape and the national levels, using media tools and social opportunities.	28,000
		Indicators/targets: (x) # of people reached by the project's communication work. (xi) # of knowledge products disseminated and accessible through relevant knowledge platforms. (xii) # of project partners involved in international learning visits.	Output 3.2.2. Lessons learned and best practices disseminated.	34,000
Subtotal			3,587,000	
Project Execution Cost (9.5%)			376,000	
Total Project Cost			3,963,000	
Project Cycle Management Fee charged by the Implementing Entity (8.5%)			337,000	
Amount of Financing Requested			4,300,000	

Projected Calendar

75. The following table indicates the dates of the following milestones for the proposed project:

Milestone	Expected data
Start of Project Implementation (inception workshop)	End 2024
Mid-term Review (if planned)	Mid 2026
Project/Programme Closing	End 2028
Terminal Evaluation	End 2028

B. PART II: PROJECT / PROGRAMME JUSTIFICATION

76. The project will contribute to putting into practice the *Adaptation Priorities* defined by the Government of Lebanon in its NDC, by helping the landscape stakeholders to: (i) better understand the climate risks they are and will be confronted with in the future; (ii) develop their pathways to cope with the changing climate; (iii) test and deploy innovative nature-based solutions needed to build resilience.
77. **Target population:** female and male landowners and users in the prioritized high climate-risk areas, who are highly affected by the economic crisis. These include heads or members of households struggling with food, energy and economic insecurity. The project will pay special attention to unemployed young women and men, and to strengthening women's entrepreneurial contribution to family income.

Project Location

78. The project will target three landscapes, corresponding to the development zones of the Shouf Biosphere Reserve and Mount Hermon Nature Reserve:
- The Shouf Landscape covers an area of approx. 15,000 ha, overlapping with 14 municipalities⁴⁷, and with a total population of 50,000 people. The Upper Chouf Union includes the landscape municipalities of Bater, Niha, Jbaa, Mrusti, Baadarane, Khreibeh, Maasser el Chouf and Botmeh.
 - The West Begaa landscape: covers an area of approx. 15,000 ha, overlapping with 21 municipalities⁴⁸, and with a total population of 70,000 people. The Qaraoun Municipal Union includes the landscape municipalities of Jebb Jannin, Lala, Baaloul, Qaraoun, Ain el Teena, Mashghara, Aitanit, Bab meree, Saghbine, Ain Zebdeh, Kherbet qanafar, Kefraya, and Tall znoub.
 - The Rashaya landscape: covers an area of 6,000 ha, overlapping with 12 municipalities⁴⁹, and with a total population of 20,000 people. The Mount Hermon Municipal Union includes, among others, the municipalities of Akabeh, Dahr al ahmar, Kawkaba, Kfarkouk, Majdl Balhis, Ayn Aata, Ayha, Rashaya
79. The specific areas of project intervention in the three landscapes will be defined in the in the process of prioritization and mapping of high climate-risk with the following criteria: (i) critical interface areas of high fire ignition and high fire spread risk; (ii) critical areas with high hydrological risk; (iii) critical areas with crop wild relative populations at risk due to changes in the climate envelope; (iv) critical areas compared to other risks identified during planning. The specific geo-references for project sites will be provided at start-up. Targeted communities in the Project Area will not overlap with the communities that would be covered under the proposed project entitled “**Restoring Ecosystem Connectivity for Biodiversity and Sustainable Livelihoods in the Litani Watershed (ECONNECT)**” that **Project's PIF**, which was submitted by IFAD to the December 2023 GEF board. The Project Area, which covers the Shouf Biosphere Reserve and Mount Hermon Nature Reserve, is quite vast and the potential funds that would be allocated by the GEF (USD 3.1 million) and the Adaptation Fund can not address the whole needs of these areas and could only cover a limited number of communities.

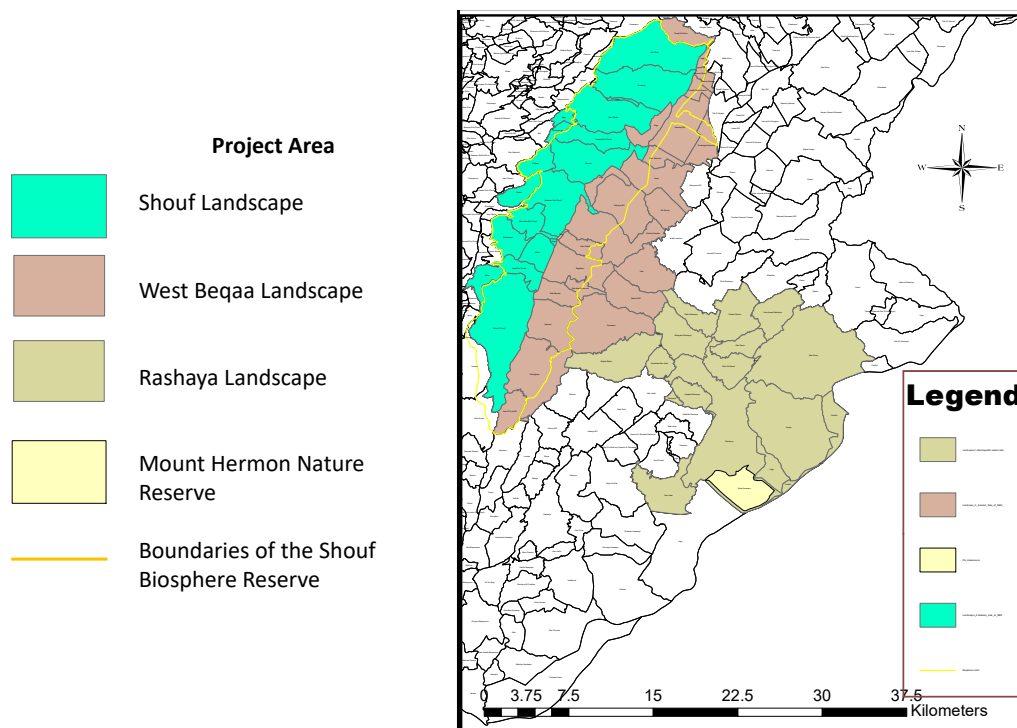
Figure 4. Project Area

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⁴⁷ Ain Dara, Bmahray, Ain Zhalta, Fraudis, Barouk, Batloun, Botme, Maaser el Shouf, Kreibe, Mrusti, Baadarane, Jbaa, Bater, and Niha.

⁴⁸ Ouadi ed-Delm, Mzaraat Zahle, Haouch Qayssar, Tcheflik Edde Haouch, Aammig, Chebrqiyet, Deir Tahniche, Aana, Kafraya, Tall Znoub, Khirbet Qanafar, Ain Zebde, Saghbine, Lala, Deir Ain el Jaouze, Bab Mareaa, Baaloul, Qaraoun, Aytanit, Machghara, and Ain el Tine.

⁴⁹ Rafid Rashaya, Khirbet Rouha, Ain Aarab rashaya, Mhaydse Rashaya, Kfar Denis, Kfar Qouq, Majdel Balhis, Kaoukaba Bou Arab, Dahr el Ahmar, Aaqabet Rashaya, Aayha, and Ain Aata.



A. Project components

Component 1. Enabling environment to mainstream climate resilience into integrated land use planning and policies

80. Increasing the resilience of vulnerable rural populations and their livelihoods to the impacts of climate change is closely linked to the effective management of anthropogenic factors that have exacerbated climate risks. Rural abandonment and poor management of natural resources have generated unbalanced territories in which: (i) the risk of *sixth-generation wildfires*⁵⁰ that cause extensive losses of assets, human lives, habitats and species, is exacerbated by the high accumulation of dry biomass in the wildland-urban interphase, and (ii) water-related risks are exacerbated by maladaptive farmland and grazing practices and lack of sufficient effective waste treatment systems.
81. The 2022 IPCC⁵¹ report demonstrated with high confidence that nature-based solutions (NbS), such as restoring healthy ecosystems and improving the management of soil and water in farmlands, are among the most effective strategies that benefit the adaptation and mitigation of climate change, in addition to contributing to other sustainable development goals. The implementation of nature-based solutions aiming to enhance the climate-resilience of landscapes and livelihoods requires defining:
- THE WHERE: mapping high climate risk areas in the target landscapes -i.e. critical areas of the landscape where a “wild-land” with high accumulation of fuel load - *high fire spread risk* - interfaces with an urban, road and agricultural “human-land” where maladaptive burning practices are carried out - *high fire ignition risk*.
 - THE WHAT: designing locally adapted climate risk-reduction interventions with an intersectoral approach. For instance, implement integrated biomass management in wildland-human interface areas with high fire-risk to alter the fuel accumulation, and promote its sustainable use.
 - THE HOW: (i) developing policy regulations to inform and guide municipal councils about the climate risk-reduction and adaptation role of the proposed interventions, (ii) training of practitioners and trainers/technical advisors to facilitate the transition from high climate-risk uses and practices towards climate-smart ones, (iii) imaginative formal and informal governance solutions that facilitate collaboration between land users and between institutions to ensure the complementarity of

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⁵⁰ Sixth-generation wildfires are those in which climate change has become the main engine in territories with a very high accumulation of biomass. The only way to combat them, experts say, is prevention, mainly through resilient land uses and management practices appropriately distributed in the landscape.

⁵¹ Pörtner, H-O et al. 2022. Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.

climate-smart measures in high climate-risk areas risks; (iv) sustainable, multiple financing strategy, including public-private partnerships and innovative business models.

82. Under Component 1, the project will support (i) the identification and prioritization of high climate-risk areas in the three target landscapes, (ii) the design of locally adapted climate risk-reduction interventions for the most critical areas; (iii) the development of policy recommendations on how to apply climate-smart measures in high climate-risk areas that help municipalities, extension agents, NGOs and protected area managers to accompany and supervise their application by land users and owners; and (iv) the provision of knowledge and capacity development (training of trainers) of public actors (e.g. members of municipalities, MoA extension and training agencies, research centers), and private actors (e.g. PA managers, NGOs, local organizations and development agencies) responsible for guiding and supervising the effective application of climate-smart policy regulations.

Outcome 1.1. Enabling conditions to prioritize and apply climate-smart interventions in high-value ecocultural landscapes

83. The project will address high climate risks in the three target landscapes of the Shouf-West Beqaa-Mount Hermon corridor, through the identification and prioritization of high climate-risk and the design of locally-adapted nature-based solutions – climate-smart land uses and management practices - that help reduce climate risks and increase social, economic and environmental resilience. Climate-smart landscape solutions will be identified, as in the following table:

Table 2. Climate-risks and climate-smart intersectoral solutions for critical risk areas in the target landscapes

High climate risks	Climate-smart intersectoral solutions	Multiple benefits	Target landscapes
High fire risk: exacerbation of large-scale wildfire risk due to the higher frequency and intensity of heat waves and droughts in landscapes with high accumulation of dry biomass.	<ul style="list-style-type: none"> • Sustainable management of excessive fuel load accumulation in critical areas of the landscape, through integrated climate-smart forestry, agriculture and controlled grazing interventions. • Conversion of too dense monospecific secondary forest/coppice into species-diverse and mature high forest stands that are resilient to fires and accumulate higher carbon stocks. 	<ul style="list-style-type: none"> • Local green businesses on bioenergy and compost. • Generation of new jobs on forest management, bioenergy and compost factories, controlled grazing. • Lower energy cost for local households. • Reduced GHG emissions from avoided agriculture fires. • Higher carbon stocks, biodiversity and NTFPs in more mature forest stands. 	<ul style="list-style-type: none"> • High priority: Shouf landscape • Medium priority: West Beqaa and Mount Hermon landscapes
High hydrologic disturbance risk: lower capacity to regulate scarcer and more polluted water, due to higher frequency and intensity of droughts and changes in the seasonal distribution of rainfall.	<ul style="list-style-type: none"> • Climate-smart farming practices integrating tree-crop-livestock management both under rainfed and efficient irrigation to increase the soil's health and capacity to infiltrate and retain water, avoid runoff erosion, and minimize polluting agrochemicals. • Restoration of fodder and water needs for short-distance livestock transhumance. 	<ul style="list-style-type: none"> • Improved yields due to higher quality and quantity of organic matter and water in the soil. • Improved regulation of water resources. • Improved pollination and pest control. • Reduced agriculture water demand. • Reduced soil and water pollution, with lower risk for human consumption. • Income diversification through more diversified tree-crop-livestock production/processing, and market segments. 	<ul style="list-style-type: none"> • High priority: West Beqaa and Shouf landscapes • Medium priority: Mount Hermon landscapes
High risk of agrobiodiversity loss: due to reduced capacity of fauna and flora species to adapt to the uphill shifting of climate envelopes and to more frequent and	<ul style="list-style-type: none"> • Recovery of climate-adapted local crop species/varieties grafted in rootstocks of wild crop relatives that are more resistant to drought, extreme temperatures, pests and diseases. • Tree-crop-livestock agroforestry under BA 	<ul style="list-style-type: none"> • Preservation of agrobiodiversity genetic resources for crop improvement and CC adaptation. • Preservation/enhancement of farmland habitats providing pollination and pest control. • Soil and water conservation under healthy conditions. • Local green business on healthy food production and processing. 	<ul style="list-style-type: none"> • High priority: the 3 target landscapes.

intense climate shocks in a context of high land use pressures.	<p>system with diversified local crops.</p> <ul style="list-style-type: none"> Restoration of fodder and water needs for short-distance livestock transhumance involving forest, pastures and agriculture land. 	<ul style="list-style-type: none"> Income diversification through more diversified tree-crop-livestock production/processing, and market segments (organic, fair trade). 	
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84. The project will build on existing successful experiences of landscape prioritization of high climate risk areas and climate-smart interventions, such as the FLR guidelines for resilient landscapes developed by ACS in the SBR⁵², best practices developed under the Global Partnership on Forest Landscape Restoration (GPFLR), the EU-funded PREVAIL Project (PREvention Action Increases Large fire response preparedness), and the various models to prioritize high fire-risk areas and fire-smart interventions in Mediterranean landscapes^{53,54,55}.

Output 1.1.1. High climate-risk areas identified and prioritized in the 3 high-value ecocultural landscapes

85. The project management unit will make use of a decision support system (DSS) for prioritizing high climate-risk areas and climate-smart interventions in the target landscapes (Figure 5). The existing SBR and MHNR Appointed Protected Area Committees (APAC) will act as the governance structures for the prioritization, implementation, and monitoring of the climate-smart interventions. APAC will facilitate (i) the effective participation in decision-making of all concerned stakeholders, with the main focus on women, young people, pensioners and the unemployed most vulnerable to climate risks; (ii) the inclusion of the target beneficiaries in the definition of priorities and access to information, social learning, technical assistance, and the investments provided by the project, with an equal representation of men and women.
86. The process involves performing the following steps:
87. **Step 1 – The NEED - multi-disciplinary assessment of climate risks in the target landscapes:** The project will appoint a team leader for the prioritization mapping exercise and convene a core team of experts with good knowledge on various relevant themes - climate change and GIS modelling, hydrology, fire management, agrobiodiversity, natural-resources management, agriculture, forestry, and pastoral management, economy, social/gender issues, land tenure and policy. The core team will design the analytical framework and tools for the mapping exercise, undertaking baseline assessments, climate risk analysis and prioritization, the cost-benefit analysis of suitable nature-based solutions, the development of management guidelines, formulation of governance mechanism and supportive policies, and the stakeholders’ mapping and capacity needs assessment with a gender disaggregated approach understanding climate change gender-based perceptions, impacts and adaptation needs. The process will adopt a participatory approach, aimed at involving key local actors from the start and empower them in identifying their adaptation needs, expressing their preferences and visions.
88. **Step 2 – The WHERE to intervene in the landscape prioritizing critical areas highly affected by climate-risks:** the production of GIS maps showing landscape areas with different climate-risk categories as the basis for the selection of strategic “high to very high climate-risk areas” where the impact of climate-smart interventions is maximized. The output will be a set of landscapes maps where the most critical areas with high climate-risk are highlighted. The high climate-risk areas that are identified and mapped will be assessed with a cost-benefit approach. The prioritization exercise will help determine “where” in the landscape, the size, shape and aggregation of the areas with high climate-risk to be restored and/or managed adaptively. The stakeholder mapping and analysis should help identify the landowners and users of the prioritized high climate-risk areas, who should be actively engaged in participatory events addressing awareness raising, knowledge-sharing, and decision-making exercise on climate risk problems and reduction needs, promoting the uptake of climate-smart nature-based solutions. The project management unit will organize participatory workshops ensuring gender balanced

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⁵² Regato, P. 2020. Forest and Landscape Restoration Guidelines: Regaining Landscape Resilience, Ecological Functionality and Human Well-being. The Shouf Biosphere Reserve. Hani, N., M. Pagliani & P. Regato Editors. Lebanon.

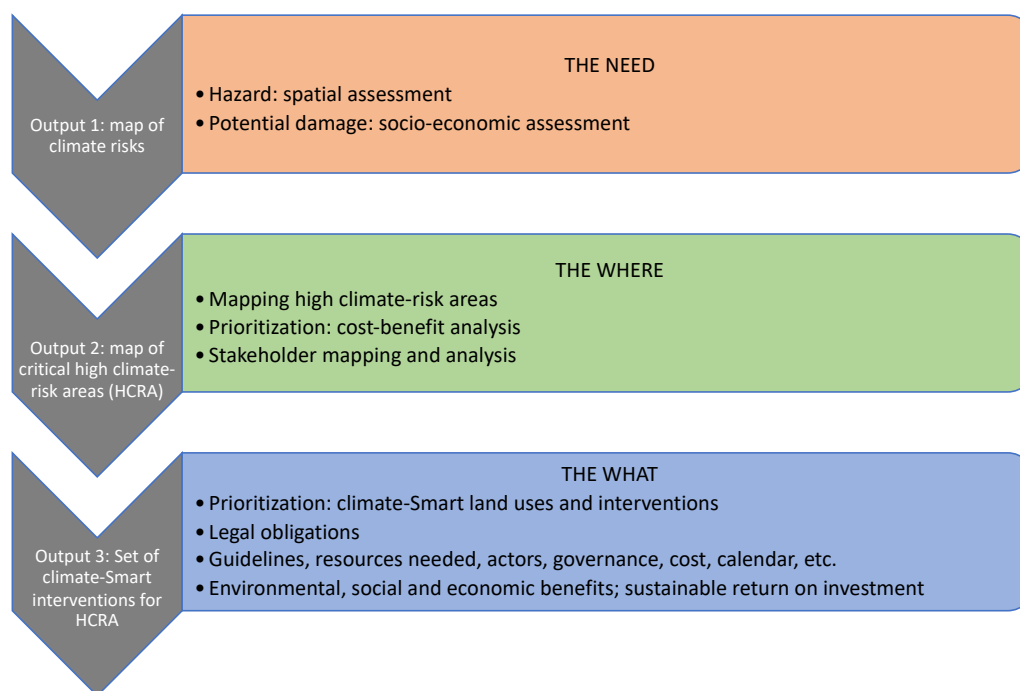
⁵³ Bertomeu, M.; Pineda, J.; Pulido, F. Managing Wildfire Risk in Mosaic Landscapes: A Case Study of the Upper Gata River Catchment in Sierra de Gata, Spain. *Land* **2022**, *11*, 465. <https://doi.org/10.3390/land11040465>.

⁵⁴ Aquilué, N.; Fortin, M.-J.; Messier, C.; Brotons, L. 2019. The Potential of Agricultural Conversion to Shape Forest Fire Regimes in Mediterranean Landscapes. *Ecosystems* <https://doi.org/10.1007/s10021-019-00385-7>

⁵⁵ Magalhães, M.R.; Cunha, N.S.; Pena, S.B.; Müller, A. FIRELAN—An Ecologically Based Planning Model towards a Fire Resilient and Sustainable Landscape. A Case Study in Center Region of Portugal. *Sustainability* **2021**, *13*, 7055. <https://doi.org/10.3390/su13137055>

representation and gender-oriented working tools, for the introduction, discussion and validation of the preliminary maps, involving public and private actors represented in the APAC landscape platform.

Figure 5. Decision Support System to prioritize high climate-risk areas and climate-smart interventions



89. **Step 3 – The WHAT - defining and agreeing on climate-smart management models targeting the high climate-risk scenarios:** once the critical areas of the landscape are known and mapped, the core team, in consultation with the local stakeholders, will propose climate-smart management models, describing the fire-smart nature-based solutions (climate adaptive LU/LC⁵⁶ types and associated practices) that characterize each model, and whose joint implementation would contribute to reduce climate risks and increase landscape resilience. The climate-smart management models may consist of:

Climate-smart model	High climate-risk	Examples of adaptive nature-based solution
Integrated fuel management models	Wildland-human interface areas with high fire spread (FSR) and fire ignition (FIR) risks.	<ul style="list-style-type: none"> Bioenergy and compost production from thinned/pruned forest biomass, and agriculture and urban waste (fuel load reduction; FIR reduction). Livestock production from controlled grazing in fuel-break areas (fuel load control; FSR reduction). Restoration of agriculture terraces in cleared forest stands acting as fuel-breaks (fuel load control) for high quality fruit tree/NTFP production under biodynamic production (organic tree-crop-livestock integration and diversification).
Integrated water conservation and management models	Critical areas with hydrologic risks.	<ul style="list-style-type: none"> Automatized efficient irrigation with solar pumping system for diversified fruit tree/herbal intercropping, under biodynamic production, permanent soil cover (dead and living mulch) and IPM to reduce water consumption and minimize soil and water pollution. Construction of small water recharge structures (e.g. stone check walls, stone/ditches micro-catchments) in key areas. Management of animal manures/livestock waste for the compost and bioenergy production to help reduce water pollution. Protection and vegetation restoration around water springs. Construction of water points for livestock in key landscape areas supporting short-distance transhumant grazing movements. Planting of freshwater vegetation along waterways and water points.

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⁵⁶ Land Use/Land Cover.

Integrated microclimate regulation models	Critical areas with temperature extreme/strong wind risks.	<ul style="list-style-type: none"> • Agroforestry planting of scattered trees, windbreaks and hedges in key farmland areas affected by strong winds and thermal extremes. • Planting of scattered woody thickets in open grasslands to provide shelter and fodder for livestock during drought season; rotation/resting grazing system with reduced size of paddocks intensively grazed during shorter periods. • Crop diversification with climate-adapted crop species and varieties under biodynamic/organic rainfed/irrigation production, including minimum soil disturbance, crop diversification, permanent soil cover, IPM and the animal factor.
Climate-adaptive agrobiodiversity management models.	Critical areas where changes in climate envelopes threaten the survival of genetic reserves of wild crop relatives and other useful plant species.	<ul style="list-style-type: none"> • Mapping and protection of wild species populations with good attributes for the collection of plant reproductive material to be used in the nursery production of high-quality seeds, seedlings and rootstock seedlings of climate-adapted wild crop relatives and local crop varieties. • Ecological restoration of native plant species populations from wild crop relatives and other useful plants in selected landscape sites with suitable bioclimate conditions according to climate change scenarios projections.

90. Throughout this exercise, special attention will be paid to the catalytic effect of the integration between resilient sectoral uses (e.g. the combined use of forest and agriculture woody residues for bioenergy and compost, together with controlled grazing for the maintenance of the cleared areas), ensuring the ecological, social, cultural, and economic return on the investments.

91. The participation and involvement of female and male landowners and land users in all the above-mentioned steps will be critical to ensure that the identification and prioritization process is truly inclusive and responds to local needs. Moreover, ACS is widely recognised as one of the most participation-oriented institutions in Lebanon, with a track record of many years of work at the grassroots level, a unique knowledge of the project area, and an impressive network of partnership. The project will tap this knowledge and experience to make sure that the process is tightly suited to the local society. The climate-smart management models will be discussed and validated with the female and male landowners and users of the prioritized areas, addressing the gender differences and constraints in land use and tenure, revising the proposals with new suggestions based on local experience, identifying opportunities, addressing potential conflicts, tradeoffs and synergies concerning different stakeholders' goals, tactics and decisions, and the existing legal obligations.

Output 1.1.2. Guidelines for designing and implementing climate-adaptive nature-based solutions produced and disseminated

92. The core team of experts, with the support of national research organizations and international experts, and in consultation with the landowners and users of the prioritized high climate-risk areas, will develop a series of portfolios for each nature-based solution. These will include the climate change adaptation objectives, the description of the proposed interventions, the expected climate risk reduction results, the expected multiple benefits, the implementation methods and techniques, the resources needed and cost, the knowledge and skills that implementers should have, a cost-benefit analysis with an evaluation of the expected return on the investment, etc. The portfolios will also include information on existing best practices and opportunities to facilitate their adoption by practitioners. Best practices will build on the positive results provided by pilot interventions on the sustainable management of natural resources and the development of local green businesses in the Shouf /West Beqaa Biosphere Reserve, led by ACS and partner organizations in the framework of several multi-country and multi-site projects.

93. The project will organize gender-specific workshops and focus group discussions with landowners and users, and field visits to successful pilot experiences in other localities in Lebanon to validate the contents of the portfolios, and discuss problems, opportunities and needs. The portfolios will also help design the criteria to access grant funds that will support beneficiaries' investments in the climate-smart interventions supported by the project.

Outcome 1.2. Climate-smart policies and regulations in place at various levels

94. A conducive policy environment for the implementation of climate-smart land uses and management practices faces a series of challenges:

- There is little coordination between sectoral institutions and policies and there is often a lack of coherence and incompatibilities between the strategies and regulations defined for the different sectors, making it very difficult to comply with cross-sectoral adaptation requirements.
- Outdated regulations prevent the implementation of priority adaptation measures. Sometimes, political adaptation measures lack accompanying implementation frameworks describing in detail the “what, when, how, and who”.
- Human resources at the district and local levels lack the knowledge and knowhow to raise awareness, inform and guide land users about the regulations they must follow, and therefore, to enforce the implementation of adaptive policies.

95. The project will help establish a coherent policy framework for the cross-sectoral integration of the prioritized climate-smart interventions, explaining how the regulations that guide the reduction of climate risks and adaptation of forests, biodiversity, agriculture, grazing, energy and water should be harmonized. The project will organize “training of trainers” (ToT) activities for public and private landscape agents on the contents and mechanisms of implementation of the proposed policy regulations. This will help them inform and assist landowners and users in the application and respect of the climate-smart political regulations.

Output 1.2.1. Policy recommendations for mainstreaming the climate-smart priorities into landscape-level plans developed and adopted

96. In the current situation of strong political and economic crisis, the weak outreach of the central government at the local level gives municipalities and municipal unions a key role in planning and supervising compliance with national policies. Landowners and users need the approval of the municipality in decisions that qualitatively and quantitatively affect land use, especially in terms of resource extraction, construction of housing and infrastructure, use of water and agricultural inputs, waste management, etc. Therefore, municipalities need new protocols to regulate climate-smart uses and practices, to be able to inform landowners and users, supervise their actions, and if necessary, penalize those who do not comply with the agreed adaptation measures.

97. The project will provide support to the decentralized public administration and the SBR and MHNR management bodies to: (i) improve the design and implementation of evidence-based climate-smart policies and strategies, based on results from successful interventions; (ii) support the development of capacities needed to raise awareness, inform and guide landowners and (iii) foster collaboration opportunities between stakeholder groups to ensure a consistent interpretation and integrated application of sectoral climate-smart policies.

98. With the support of a policy expert and in consultation with the local administration and stakeholders, the core team of experts will:

- Define the legal obligations for performing the climate-smart management priorities in the high climate-risk areas.
- Develop a set of protocols to guide the application of the climate-smart land uses and measures.

99. Protocols will have a landscape integration focus to ensure coherence and complementarity among development sectors. They will be produced following a participatory approach, involving key stakeholders, such as the local administration within the target area and ACAPS. The protocols will take the form of detailed technical documents, as well as simpler and more visual user-friendly brochures and short videos, to ensure wider outreach.

100. The protocols will be used by the Appointed Protected Area Committees (APAC) of the two reserves to review their management plans and incorporate the cross-sector climate change adaptation priorities. Likewise, they will be used in the review processes of municipal and municipal unions’ plans and strategies, based on the calendars established by each territorial administration.

101. The protocols will also support local administrations in the production of municipal ordinances on the uses permitted, promoted and/or subsidized by municipal policies, and on how to incorporate climate-smart management practices in natural resources management. These ordinances will include information on: (i) the environmental and climate-smart benefits provided by the promoted uses and practices; (ii) the purpose of the ordinance (minimal acceptable requirements for the design of climate-resilient interventions; (iii) definitions of the climate-smart concepts referred in the ordinance; (iv) when, where and through which instruments the ordinance should be applied; (v) designed standards for the climate-smart intervention; (vi) management and maintenance protocols; (vii) enforcement procedures; (viii) conflict resolution.

Output 1.2.2. The capacity of public agencies and civil society organizations is developed to provide guidance to land users in the adoption of climate-smart policy regulations

102. This output focuses on overcoming the low capacity of public extension agents and civil society organizations on climate change risk reduction and adaptation policy regulations. The project will design and implement a training of trainers' (ToT) program and develop reference learning materials.
103. The project team will map and assess the capacities and needs of the landscape actors who have a major role in providing training and advisory services to landowners and users, including:
- Personnel from public institutions, such as the agriculture advisory departments, agriculture schools, forest centres, LARI research stations, education centres and municipalities located in the target landscapes.
 - Staff from NGOs, lead farmers, producer organizations, cooperatives, local enterprises dealing with tourism, forest, agriculture, waste management and water, among others.
104. The project will design a series of training modules on:
- Analysis of climate change risks and prioritization of climate-smart priorities at the landscape level.
 - Prioritization of high-climate risk areas and development of climate-smart models.
 - Climate-smart land uses, management systems and technologies.
 - Climate-smart food and energy commodity chains.
 - Climate-smart governance arrangements, social and gender issues.
 - Policy formulation supporting the implementation of climate-smart land uses and practices.
105. In the first half of Year 2, the project will organize several thematic ToT training modules addressing each of the prioritized climate-smart land uses and management practices, with a two-tiered approach: (i) provide participants with a good theoretical basis, and (ii) enable participants to apply this knowledge through practical exercises and group work. Each module will be led by hired national and international experts, and will be supported with background documents. Practical exercises will take place in the field and/or production/processing premises of lead farmers/entrepreneurs. The results of the training program will be self-evaluated by the trainees to improve the design of the modules in following years. The training materials will be published on-line. Participants will be selected with a gender focus to ensure an equitable representation of women and men of 50% to the extent possible depending on the existing quotas in the institutions involved. An approximate number of 200 trainers will be trained.

Component 2: Impact investments in nature-based solutions to mitigate climate risks in high value ecocultural landscapes

106. This component will support the implementation of the climate-smart priorities defined under Outcome 1.1, with double goal of (1) contributing to the climate-resilience of the landscapes and livelihoods through a network of climate-adapted, low-impact, and biodiversity-friendly productive systems in high-climate risk areas; and (2) establishing a network of skilled, knowledgeable and committed land users, producer groups and business operators, especially business women and unemployed youth, engaged in climate-proof green value chains.

Outcome 2.1.: Nature-based solutions adopted through capacity development, climate-smart field interventions and green businesses

107. This Outcome will create the enabling conditions for the effective implementation of the climate-smart priorities, in terms of:
- Capacity development, with a gender equity approach, of vulnerable beneficiaries to manage the natural resources of the landscape in a climate-smart way and create climate-proof green businesses.
 - Financing opportunities for fire-smart interventions and businesses. Vulnerable beneficiaries will be enabled to make investments in climate-smart activities, acquiring the necessary equipment and inputs, developing management and business plans, and organizing themselves into production groups and local companies to better access markets. The project will place special emphasis on the existing network of entrepreneurial women, supporting the climate adaptability of existing and new women's cooperatives.

Output 2.1.1.: Local practitioners empowered to plan, adopt and monitor climate-smart solutions

108. This output will address the community of practitioners, user groups and local entrepreneurs of the target landscapes identified under Component 1. The capacity development interventions will follow a "social learning" approach, which is understood on a three-dimensions way: (i) the depth of learning, that is, changes in understanding, attitudes and behaviour; (ii) the collective character of learning,

facilitated by processes of social interaction, and (iii) the internalization of this learning by broad segments of society⁵⁷.

109. In-depth research will be carried out during the full project design phase and in collaboration with the local municipalities, to better profile the primary sector and pre-identify those vulnerable women and men, local organizations and entrepreneurs active or interested in the climate-smart employment opportunities, productive systems and commodity chains targeted by the project, who will be the beneficiaries of this project component. The project team will work in coordination with the training program managers of other projects active in the target landscapes with the aim of avoiding duplication and providing complementary knowledge on measures and techniques adaptive to climate change.
110. A final selection of the target beneficiaries will take place at the early stages of the project. The selected beneficiaries will be invited to join the project's training programme covering approx. 2,000 trainees with gender parity criteria, including:
- Peer-to-Peer Field Learning on the design, implementation and monitoring of climate-smart agroecology, pastoral and forestry practices, following learning methodologies and tools from successful capacity building programs implemented by ACS in the SBR (e.g. projects supported by WFP, GIZ, the EU and the MAVA Foundation), as well as shaped along FAO⁵⁸ and CARE⁵⁹ guidelines for field and business schools. Peer-to-peer field learning will be held along the farming/grazing/forest management seasons in farmland, grassland and forestland plots, equipped with learning facilities and demonstrative equipment where trainees can learn-by-doing from experienced lead farmers, land managers and trainers. Participants will learn about both the management techniques for fire-smart practices, and the collaborative aspects that allow for effective and harmonized management of resources. Specifically, aspects related to (i) the creation of user groups for efficient, socially responsible and equitable management of irrigation water will be addressed; (ii) the creation of groups of users/owners of forest and agricultural lands and pastoralists to promote collaborative action for resilient biomass management and fire-risk reduction.
 - Business schools for farmer and forest users to build farmers' and forest managers' entrepreneurship, business managerial and marketing capacity while shifting the traditional focus on low-value raw products to a more business-oriented diversified production of high-value agriculture, forest and livestock goods and services. The training methodologies and tools will build on the Forest and Farm Facility Initiative for Climate-Resilient Landscapes and Improved Livelihoods, and the FAO and CARE business school guidelines. The business training will be implemented through "action-learning" approach focusing on entrepreneurship skills and business incubation, addressing issues such as the business vision, the governance and managerial aspects of business companies, including the legal aspects, inclusive membership and gender issues, the development of business plans, the operational aspects of production/processing and packaging addressing quality and safety issues, environmental and social corporate responsibility, the branding and marketing strategies, included certification schemes, etc. This activity will be managed by international experts and the extension staff trained by the ToT program under Output 1.2.2.
111. The training program will begin in year 2 and will be carried out annually throughout the life of the project. National and international experts will apply training during their periodic visits to the field areas where the beneficiaries carry out their productive, resource management and business activities.
112. All the training and coaching activities will put strong emphasis on youth inclusion and women empowerment. Training will also put emphasis on the role that the trained land use practitioners, cooperatives and business managers should play in landscape-level adaptation and climate-risk mitigation. Trainers will produce a self-evaluation methodology for practitioners, which will include indicators of ecological, productive, social and economic sustainability, which practitioners must score periodically to understand at what stage of the process of adoption of the fire-smart practice they are.

Output 2.1.2. Funding scheme for investments on climate-smart production systems and green businesses established in each landscape.

113. The project will provide the financial support needed to couple the capacity development effort under Output 2.1.1. and create a network of climate-smart and innovative management practices, production systems and small-scale businesses. The initiatives to be sustained will stem from the climate-smart priorities defined under Component 1, as well as form the requests/proposals of the beneficiaries during the capacity development actions under Output 2.1.1.

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⁵⁷ Rodríguez-Carreras, R.; Úbeda, X.; Francos, M.; Marco C. 2020. After the Wildfires: The Processes of Social Learning of Forest Owners' Associations in Central Catalonia, Spain. *Sustainability* 2020, 12, 6042.

⁵⁸ <https://www.fao.org/farmer-field-schools/ffs-overview/business/en/>

⁵⁹ <https://www.care.org/our-work/food-and-nutrition/agriculture/ffbs/>

114. Funding support will consist of grants that each beneficiary will be required to match with a 50% contribution in kind and/or cash. A Grants Selection Committee will be set up including representatives of local municipalities, farmers, and project partners, to screen and select applications. The documents to support the grant-awarding process will consist of (i) operational manual, (ii) investing support agreement template, and (iii) template for grant application including financial part. Applicants' eligibility will be based on categorical targeting focusing on social vulnerability criteria and relevance criteria with the climate-smart priorities defined in Outcome 1.1. In the selection of applications, gender equity will be ensured depending on the type of grant request (e.g. 40% women in Window 1, whose actions are carried out mainly by men; 60% women in Window 3, favoring the greater territorial initiative of women to create cooperatives). The projects grantees will receive continued technical support throughout all the years of the project to ensure the transition and consolidation of climate-adaptive practices and businesses. It is estimated that approx. 1,400 people will benefit from the grant program. The first call for applications will be advertised towards the beginning of Year 2, so that the first batch of grants can become operational in the second half of the year. A second round of applications will happen in early Year 3, to capture new proposals and ideas that pop up as the capacity development program unfolds.
115. The grant scheme will have a total amount of USD 2,939,000 for the whole project, that will cover the cost of machinery, equipment, inputs, workers and technical support related to the climate-smart production/management systems and businesses prioritized in Outcome 1.1. The grants will be allocated through several funding windows in the three landscapes, presented below.
116. Window 1 – Grants for the acquisition of equipment and inputs supporting the implementation of climate-smart agriculture practices. Grants will have a maximum of USD 2235/ha, with a total amount of USD 1,687,000. It is expected that approximately 800 ha of degraded/poorly managed farmland will regain healthy environmental and productive conditions for diversified tree-crop-livestock organic production systems by the project end.
117. Window 2 – Grants for the climate-smart management of forests, pastureland and water points. The maximum amount of each grant will be USD 1,600/ha, with a total amount of USD 740,000 to reach the restoration of around 470 hectares. The grant contract will include the requirement to hire as workers professionals trained under Output 2.1.1 or previously within the framework of ACS "food for work" or "cash for work" interventions under WFP or GIZ programs in the region. ACS staff will provide supervision and technical support for the planning, implementation and monitoring of the field interventions. National experts from the University of Balamand will be hired to provide technical support on the technical aspects of the biomass management interventions.
118. Window 3 – Grants for climate-smart green business. The maximum amount of each grant will be up to USD 20,000/producer organization/enterprise, with an expected USD 512,000 for the whole project to support about 25 to 30 small local businesses. Grantees will receive continuous coaching support of international experts and extension providers trained under Output 1.2.2. and will become an active member of the collaborative platforms for the targeted commodity that will be supported under Output 2.2.1.
119. Further details on the funding scheme will be provided in the full proposal, highlighting linkages with Outcome 2.2 and its sustainability beyond the project's lifetime.

Outcome 2.2. Increased value for high-quality, climate smart commodities through innovative marketing strategies and value chain improvement.

120. Farmers in the target landscapes generally do not have the capacity, knowledge and means to value their products, which, for the most part, are sold to middlemen at a low price that often does not compensate for the cost of production. Furthermore, a significant number of farmers have opted to grow apples, without realizing that it is a very volatile export market, and that, in the target landscapes, most varieties of cultivated apples show a low adaptability to climate change risks.
121. Direct marketing by producers in the main existing regional markets is difficult, due to the high cost of transportation, especially in this period of economic crisis. In Rashaya, an annual market is organized in the month of October which is attended by thousands of people from all over Lebanon due to the high reputation of agricultural products from this region. At the time of writing the Concept Note, a fruit and vegetable market is being built in the city of Baqaata, in the Shouf landscape, which will increase marketing opportunities for farmers in this landscape. A few leading farmers are already adapting to climate shocks by diversifying production and marketing strategy. In addition, a few farmers are active on the social media, where they post information and images telling stories about their day-to-day production and processing activities.

In the framework of a broader strategy to promote the natural, social and economic values of the Shouf/West Beqaa Biosphere Reserve as a preferential destination for national and international tourists, ACS has developed a marketing strategy for high-quality products processed by local women cooperatives and for high quality food and traditional dishes. ACS has further supported the creation of the private company “Shouf Destination Management Organization (DMO)”, with the aim of improving linkages/info sharing between goods and service providers and customers, while at the same time improving the efficiency and effectiveness of the communication system of the goods and service provider.

122. Similarly, the organization Souk El Tayeb has established a network of sites and marketing platform mechanisms encouraging cross-community engagement, connecting consumers who value traditional, high quality, organic food products and meals to the growers, producers and local cooks. Souk El Tayeb has also established an organic farmers’ marketplace in Beirut with a daily showcase of producers and farmers, and two “Tawlet restaurants” where cooks from all over Lebanon tell their stories and traditions through their cuisine and selling points promoting local products.
123. The project will build on the experience and lessons learned of the above-mentioned initiatives and support the targeted local producers and businesses to become members of a marketing platform and to develop a diversified branding and marketing strategy to strengthen long-term relationships with their buyers and supply chain customers, increase consumers’ awareness on the added environmental, social and economic value of climate-smart products and services, while gaining the reputation of providing added value to customers.

Output 2.2.1. Climate-smart producer organizations and entrepreneurs are empowered to access niche markets and expand their businesses.

124. The project will build on existing marketing platforms and facilities, strengthening them and broadening their scope. The producer groups and enterprises supported by Outcome 2.1 will be empowered to acquire the skills and the means needed to plug into these structures and become active parts of them. The marketing vehicle identified at project design is the Shouf Destination Management Organisation, an independent company set up in early 2023 and registered at the Ministry of Justice. This company is rapidly becoming a reference for the farmers and value chain operators on the western side of the SBR, supporting quality production and control, facilitating on-line sales, and connecting the producers to the customers and buyers through a network of selling points and local markets. At project inception, a participative consultation process will help to extend the existing Destination Management Organization to the landscapes of Western Beqaa and Rashaya, with the help of local municipalities, which will make physical space available, and local NGOs/groups such as B-West, which will be involved in the management aspects. Besides this, the project will also capitalise on, and build partnerships with other successful actors, such as the Beirut-based Souk El Tayeb. This output will guarantee the economic viability of climate-smart businesses, providing access to niche markets that recognize fair prices to farmers and value the protection of ecocultural landscapes. This is critical to ensure the sustainability of climate-adapted interventions within the agricultural domain.
125. At project inception, the actors of the key commodity chains already identified - members of local producers’ organizations and cooperatives, local entrepreneurs, middlemen, retailers, tourism agents, etc involved in bioenergy, food crops, dairy, and NTFP products – will be invited to attend information events where the strategy will be explained and gaps will be identified by the beneficiaries themselves, in terms of knowledge, skills, means, and equipment. Meanwhile, the organisational setting will be finetuned and put in place. It is foreseen that at the beginning of the project the West Beqaa and Rashaya DMOs will be established as branches of the Shouf one, while by the end of the project these will be set as independent organisations.
126. It is anticipated that the support conveyed to the value chain beneficiaries will include physical assets and equipment, human resources, digital tools, and marketing. Part of the support will go to the single actors/beneficiaries, while another part will create or strengthen horizontal and vertical links throughout the value chain. For instance, the producers of a given landscape will analyse options to share transportation costs and the rental cost of points of sale in farmer markets.
127. The project will help reinforce the customer relationship management software used by the Destination Management Organization in terms of services for the producer organizations and local companies such as online and mobile phone data to improve production (e.g. agroclimatic data for crop calendar optimization and irrigation optimization; pests and climate risk alerts), linkages with customers and support the development of a common branding strategy and e-commerce services. This will allow organizations and companies to store and follow up on customer leads to help find new customers, track customer behaviour, interactions and purchases of products and services, develop personalized

and targeted marketing activities that have a better chance of creating a relationship with the buyers and the supply chain.

128. A road map will be agreed upon, to formulate the strategy and action plan of the West Beqaa and Rashaya branches of the Shouf Destination Management Organization, defining roles and responsibilities, membership conditions, expected results over the project lifetime, and the plan for its sustainability beyond the project life. Initially, the organization will be hosted in a space offered at no cost by a municipality actively involved in the project in each landscape, while the project will cover the necessary running and renovation costs of the premises. During its lifetime, the project will provide grant funding to the DMOs to support their running costs, cover the cost of expertise needed to develop e-commerce instruments, and the cost of a coordinator to facilitate communication with the Shouf parent company and among members, monitor market evolution and identify new marketing opportunities. However, since the very early stages of the process, a sustainability plan will be designed and agreed with all the concerned parties, to ensure the viability of the DMOs and the continuity of the work beyond project duration. Upon completion of the project, for instance, each branch DMO will be able to cover the rental costs of the premises with their income.

As part of the marketing effort, ACS will establish a corner at Beirut's mall to promote the ecocultural values, goods and services offered by the landscapes, with a focus on the SBR and MHNR. The project will also cover the cost of an expert to design the exhibition space promoting the climate-smart added value of the goods and services resulting from Outcome 2.1.

Output 2.2.2. Brand marketing strategy for climate-smart commodities developed and implemented.

129. A critical success factor for the project will be the design and development of a strategy for the branding and marketing of the high-quality goods and services developed by the local beneficiaries, in line with the climate-smart priorities. The project will build on successful experiences on **brand marketing strategy for climate-smart commodities** developed and implemented in other areas of the Mediterranean region, such as the "fire flocks" brand marketing strategy in the province of Girona (Spain) for the high-quality meat and dairy products of herds used to abate fire risk through controlled grazing in the region⁶⁰.
130. The project will hire the services of a communication & marketing expert to analyse branding opportunities for the products with additional climate-smart value produced by green business supported by the project. The strategy will be oriented to create and communicate a positive brand image focusing on the circular and human-centred approach "beyond" the climate risk reduction benefit. The expert will help create stories that stir the conscience of consumers on the climate-risk reduction value of each product - e.g. bioenergy, compost, dairy, meat and food products derived from fire-smart management practices that reduce the risk of wildfires.
131. The project will approach retailers in the landscapes (e.g. shops, restaurants, petrol stations) to explain the additional value the products and their potential to attract new segments of consumers and diversify and increase income. The retailers will be encouraged to join the branding campaign and contribute to its shaping, based on their needs and views. A graphic design expert will be hired to design: (i) a label that certifies the climate-risk reduction role of the climate-smart production systems, that will be used in the packaging of the products; (ii) the information materials to be displayed at the points of sale, and (iii) the web landscape mapping with the location, pictures and info/stories about the network of producers and retailers that are part of the campaign.
132. The expert will also identify the audience segments that are likely to agree on spending more for climate-risk reduction high value products and he/she will create the brand image and messages for the various target audiences. The expert will also propose a variety of marketing channels, including the web, social media and local advertising channels, and he/she will conceive 2/3 marketing campaigns, crafting the messages, images, etc., according to the specifications of the various platforms.

Component 3. Monitoring, knowledge management and awareness raising

133. Component 3 will ensure that awareness of project themes and activities is spread through national and local channels and that the knowledge generated, and lessons learned are analysed, understood, and used to develop materials catering to appropriate audiences, including researchers, decision- and policymakers, territorial managers, land users with different levels of literacy, education centres and the general public. Stakeholders mobilized under Components 1 and 2 will also be focal targets of

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⁶⁰ The products labelled as "fire flocks" give visibility vis-à-vis consumer and highlight the fundamental value that shepherds, and their herds of local breeds, play to prevent large scale wildfires that may cause the loss of natural forest, human lives and their homes, through the marketing of their fire-smart products: local meats and dairy products of the highest quality.

Component 3, as best practices and lessons learned from project recipients will be captured and disseminated widely.

Outcome 3.1. M&E system and self-assessment tools for project management and practitioners

134. This outcome includes the development of a monitoring and evaluation framework- a crucial tool for the adaptive management of the project objectives and the sustainability of the results during and beyond the project lifetime. A Project Implementation Manual (PIM) will be developed, outlining the step-by-step process that should be followed for a sound implementation of the project, and aligned to the adaptation priorities of the Lebanese government on agriculture, forests, biodiversity, energy and water in the target landscapes. Sustainability of project practices and achievements beyond the project timeline will be pursued through capacity development, partnerships and network building, and the development of a supportive policy framework.

Output 3.1.1. Gender responsive M&E system with quantitative and qualitative analyses and impact assessments designed and implemented

135. A gender responsive M&E system will be designed and implemented, including both quantitative and qualitative analyses and impact assessments. The M&E system will inform implementation throughout the work plan and will be the basis to perform mid-term and final evaluations. During inception, the project will engage with international and national independent experts and experts from experienced research, universities, and other organizations involved in previous projects in the SBR, to identify landscape resilience indicators, that is, a set of interrelated ecological, social and economic indicators to evaluate the sustainability of each type of intervention, with specific methods of data collection and analysis. The project will build on the BioConnect project identification of key biodiversity values linked to the effect of different land use management models (e.g. abandonment, traditional management with and without irrigation, intensive production with agrochemicals; organic production, restored farmland, etc.) on the conservation status of habitats and species, and the ecosystem services. This will help select the indicators that must be monitored to assess whether the environmental, social and economic standards of the different climate-smart management practices are met.
136. Project M&E data will feed the GIS Land Degradation Neutrality (LDN) monitoring system, set up by the MoE in the framework of the GEF-UNDP project "Land Degradation Neutrality of Mountain Landscapes in Lebanon".

Output 3.1.2. Partners and practitioners empowered to assess landscape resilience during and beyond project lifetime

137. Capitalising on previous projects implemented in the SBR on topics such ecosystem restoration, biodynamic agriculture, integrated biomass management, the M&E team will develop a set of guidelines with simple indicators and self-assessment methodologies that land practitioners can use to understand the level of progress in the conversion towards climate-smart agriculture, pastoral and forestry practices. The guidelines will help the beneficiaries to measure and monitor the sustainability of their interventions with simple indicators such as soil moisture level, increase in soil organic matter, presence of wild plants that attract pollinator species and pest-predator species, degree of crop diversification, etc. The guidelines and indicators, and the methodology to be followed for data gathering will be the subject of training modules that will cater not only to beneficiaries such as farmers, landowners, and local extension agents, but also to civil society organisations and local academia that are present and active in the project area. By doing so, a generation of agroforestry and land use practitioners will gain the knowledge and skills needed to monitor and improve the resilience of the landscape beyond the duration of the project.

Outcome 3.2. Project practices and lessons learned disseminated through awareness raising and knowledge exchange at the national and international levels

138. The component will also promote the dissemination of best practices to support climate-smart interventions across the landscape and at a regional/global level through networks and forums in the Mediterranean region and elsewhere, leveraging formal and informal networks of which ACS and the SBR are active members, including MedForVal⁶¹, the Alliance for Mediterranean Nature and Culture, the Collaborative Partnership on Mediterranean Forests, etc. At the global level, IFAD will also draw on its participation to restoration networks such as the United Nations Decade on Ecosystem Restoration, UNFCCC COPs, and the annual World Conference on Climate Change and Sustainability.

Output 3.2.1. Awareness raising programme designed and implemented at the landscape and the national levels, using media tools and social opportunities

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⁶¹ Mediterranean Network of High Ecological Value Forests

139. ACS, in collaboration with the main partners, will design an awareness programme tailored to the social fabric of the project area, to position the high value ecocultural landscapes as a place where positive change and better living conditions can materialize, in a climate-resilient way and with a positive, constructive, and peaceful approach. The subcomponent will build on the extensive experience of ACS on communication, awareness raising and education at the grassroots level, but it will also draw from the experience and the specific cultural features of the area, which will be collected through interaction with the local society. The activities are likely to include: the organisation of events in municipalities, social media and podcasts, the participation to local festivals and special food & ecotourism market events, the organisation of extracurricular activities for children, and the collaboration with local artists and art or cultural groups (drama, music, sport, food etc). Another awareness tool of the project will be a web page featuring a visual platform for sharing data/knowledge in the form of an interactive map showing the managed sites, stories from local champions involved on nature-based solutions, project progress, etc. The page will be hosted at the website of the project, the ACS website, and other collaborating agencies/institutions.

Output 3.2.2. Lessons learned and best practices disseminated

140. The good practices and lessons learned by the project will also be conveyed through a set of community-level lesson learning workshops, where small-scale farmers, shepherds, forest managers, and entrepreneurs, as well as local communities will present progress, challenges faced, and lessons learned. The workshops will prioritize the concept of “women talking to women”, identifying women entrepreneurs or farmers with valuable experiences to share with other women. The best “stories of change” will be selected, and they will be featured at national and regional fora and broadcasted with the help of the media.

141. Knowledge exchange activities will be executed through regional partnerships and South-South and Triangular Cooperation (SSTC). This includes learning visits to regional nodes of excellence on climate-smart nature-based solutions, and dissemination through existing cross-Mediterranean networks, including MedForVal and the Collaborative Partnership on Mediterranean Forests⁶², of which the SBR is an active member. IFAD’s engagement with the UN Decade on Ecosystem Restoration will create opportunities to scale up and replicate results and lessons learned emerging from the project activities, while also learning from similar initiatives. Building on experiences of IFAD funded investments in climate-smart agriculture, livestock production and adaptive management both globally and regionally, South-South and Triangular Cooperation study tours and exchanges will be supported.

B. Project Benefits

142. The **overall benefits** of the project include:

- **Strengthened landscape resilience to climate risks.** The project will identify and map high climate-risk areas in the three target landscapes covering a total area of 36,000 hectares and prioritize climate-smart interventions in terms of management practices, land uses, and land use distribution patterns. The intervention priorities will be mainstreamed into the management plans of the SBR and Mount Hermon Reserve, as well as into the strategic planning of the municipalities and municipal unions in the target landscapes.
- **Greater adaptive capacity.** 140,000 inhabitants from the rural communities in the target area, including vulnerable groups, and the many visitors of the nature reserves, will gain a greater awareness on climate resilience. The adoption of climate-adaptive, integrated agriculture, forestry and pastoral land uses and management practices, together with new local businesses and marketing strategies for the produced commodities will reduce the climate vulnerability of approx. 1,400 smallholders. The diversification of production systems, based on climate-adapted crop species and varieties and efficient and equitable use of water, will increase food and economic security. Climate-adaptive bioenergy production helps reduce economic cost and health problems caused by conventional cooking and heating diesel used by the vulnerable population, increasing their coping strategy in a context of climate and economic crisis.
- **Landscape fire-risk reduction.** The management of dry biomass in the high fire-risk areas of the landscape will prevent the loss of properties, human lives and productive land caused by wildfires. All this has multiple benefits for society, economy and the environment, as described in the following paragraphs.

143. **Social benefits:**

- **New employment opportunities** for approx. 2,500 women and vulnerable young unemployed people who have acquired vocational training in new jobs with high social demand.

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⁶² <https://www.fao.org/forestry/43926-0da0daf97010af0c98cce660f15273b8.pdf>

- **Enhanced food security** thanks to on-farm production of a diversified set of products from climate adapted local crop species and varieties and livestock, as well as the harvesting of more abundant and diverse NTFPs and beekeeping products resulting from ecosystem restoration and biomass management interventions.
- **Increased equitable access for women and men to water, energy, production tools, inputs and funding.** The project will give special support to women through training and coaching that support the acquisition of skills to facilitate access to water, production equipment and inputs, and to create local businesses, access financing, and improve product marketing.
- **Strengthened social cohesion.** The project will support producers' organizations, especially women cooperatives, as well groups of forest, farm and shepherd users, to carry out collaborative and consensual management of natural resources.
- **Increased awareness and knowledge.** Training and on-farm learning sites will increase land users' knowledge on adaptive management in the context of climate change. Users will be more aware of the impacts of maladaptive agriculture, forestry and pastoral practices and be in a better position to respond to climate change.

144. Economic benefits:

- The project will help develop **climate-proofing business** on diversified raw and processed food products, mainly targeting small local factories on bioenergy products, compost, and waste treatment, tree nurseries, and tourism-related food shops. All businesses will develop business plans with sustainable economic return on investments.
- **Diversified production and processing systems** will help increase the economic security of vulnerable rural households, who will be able to split a percentage of production for income generation and the rest to cover food security needs.
- The development of **brand marketing strategies** will add economic value to high-quality products and help diversify market segments.
- **Organized producer groups and collaboration agreements** with value chain actors, will help reduce production costs, open access to new marketplaces and segments, and increase net profit margins.
- **Reduction of the smallholder households' energy-related expenditure** by more than two thirds in comparison with fuel – the main energy source in the local households – with a positive effect on the consumption and savings of the local population, as well as in the reduction of pollution and health problems related to the use of diesel.

145. Environmental benefits:

- 800 hectares of climate-smart crop production systems will help **increase farmland habitats and species diversity** in/around farmland plots, increasing ecosystem services, such as pollination, pest control, heath soil conditions, hydrologic regulation, microclimate, among others.
- 470 hectares of climate-smart, integrated forest and agriculture biomass management will help **reduce the occurrence and spread of wildfires**, in addition to **restoring healthy forests** and grassland systems.
- Avoidance of synthetic agrochemicals in C-smart farming systems, agriculture and livestock waste management for bioenergy and compost, and the use of green filters (phytoremediation through the planting buffers with hygrophilous plants, such as reeds, willows, poplars, etc.) in key areas will help **reduce soil and water pollution**.
- **Hydrologic improvement** such as runoff water harvesting, rainfall water infiltration, soil water storage and regulation, and avoidance of soil water evaporation, through climate-smart farming practices, such as no/reduce till, cover crops, the use of living and dead mulches, agroforestry planting of hedges and wind breaks.
- **Restoration and sustainable use of the wide range of native habitats and plant species** in the SBR and Mt. Hermon Nature Reserve, including wild crop relatives (e.g. cereals, pulses, *Prunus spp.*, *Pyrus syriaca*, *Pistacia palaestina*, *Rhus coriaria*), local crop varieties, wild useful plants (e.g. *Pinus pinea*, *Quercus calliprinos*, *Cedrus libani*, *Origanum syriacum*, *Thimbra spicata*, *Gundelia tournefortii*, *Asparagus acutifolius*, etc.), farmland habitats/species supporting pollination and pest control, etc.
- **Restoration of dry-stone wall terraces in critical areas** of the landscape (e.g. high fire risk areas) to help **regain a more resilient mosaic-like structure**, increase flora and fauna diversity linked to stony habitats, and provide key services in terms of fuel-break areas, hydrologic regulation, and soil conservation.

Table 3. Project indicators and targets

AF Core Indicator Group	Project Indicator/Target
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Number of beneficiaries	2,000 direct beneficiaries
	138,000 indirect beneficiaries
Early warning	Mapping of high climate risk areas in 36,000 ha (3 target landscapes)
Assets produced, developed, improved	200 extension providers with increased capacity
	Qualitative reporting at CN stage
	Level 4 from scale 1-5: fire-smart infrastructures (e.g. roads and houses with strip/perimeter of reduced fuel load) mostly improved
	Qualitative reporting at CN stage
Level 4 from scale 1-5: water management infrastructures mostly improved	
Increase income sources	1,400 households with diversified revenues from C-smart interventions
Natural Assets Protected or Rehabilitated	800 ha of farmland under climate-smart vegetation, soil and water management
	470 ha of forest and pastureland restored

C. Cost Effectiveness

146. All proposed actions aim to meet the objective to restore resilient landscapes and livelihoods to climate risks in the most cost-effective way. The full project design will undertake an analysis of the prioritized climate-smart management measures, production systems and business to ensure an efficient use of resources and demonstrate the sustainable return on investments.
147. Previous interventions undertaken by ACS and other partners in the SBR have demonstrated sustainable return on investments linked to nature-based solutions that contribute to climate change adaptation and mitigation. For instance, agriculture and forest biomass management in pilot sites with the objective to reduce agriculture waste burning, while creating new income generating opportunities (briquettes and compost factory and new jobs) have demonstrated to be cost-effective compared with business as usual or no action. The project will estimate the costs of the proposed alternatives compared with a business-as-usual scenario, from an environmental, economic and social perspective, as a way to maximize the output level. So far, the following preliminary cost-effectiveness estimate in qualitative terms of alternatives proposed in the Concept Note can be summarized:

Table 4. Cost-effectiveness estimation

C-risk 1	Climate change exacerbation of wildfires		
	Benefit	Cost	B/C Ratio
Business as usual scenario: lack of management	<ul style="list-style-type: none"> % reduction of income opportunities due to low fodder content and low NTFP yields in unmanaged abandoned secondary forests. % reduction of income opportunities due to uncontrolled and illegal biomass collection. 	<ul style="list-style-type: none"> Economic losses (natural capital and physical assets) due to inaction. GHG emissions Large-scale restoration costs of burned land. 	Higher the cost
Proposed project alternative: fuel load reduction in critical high-fire risk interface areas	<ul style="list-style-type: none"> % Reduction of wildfires Ecosystem services improvement (NTFPs, biodiversity, carbon, pest control, etc.) N° of new jobs Benefits from sales of high-quality products (bioenergy and compost, dairy/meat) with added value % SBR management financing Two-thirds savings in energy costs Pollution reduction in homes 	<ul style="list-style-type: none"> Forest thinning and pruning cost Controlled grazing cost Bioenergy/compost factory investment cost 	Higher the benefit
C-risk 2	Climate change exacerbation of hydrologic disturbance, thermal shocks and strong winds		
Business as usual scenario: Intensive monoculture production	<ul style="list-style-type: none"> % income reduction due to high yield interannual yield variability of climate vulnerable crops 	<ul style="list-style-type: none"> Economic losses due to maladaptive practices (soil erosion, replacement of dead trees) Lower cost of commercial seeds and seedlings Higher cost due to high need of water, inputs, machinery and energy Higher marketing costs for unorganized producers 	Higher the cost

Proposed project alternative: diversified biodynamic/organic farming with tree-crop-livestock integration	<ul style="list-style-type: none"> Improved ecosystem services (soil carbon and water; pollination and pest control; groundwater recharge; soil fertility; micro-climate) Inter-annual stable yields of a diversified set of climate-adapted crop species and varieties, livestock and NTFPs. Higher revenue from sales of a wider range of high-quality products with more market options Benefits from nursery production sales of high quality, climate-adapted seeds and seedlings N° of new jobs 	<ul style="list-style-type: none"> Higher nursery production costs for climate-adapted seeds and seedlings Lower costs for less needed production water, inputs, machinery and energy Lower production and marketing costs for organized producer organizations and cooperatives Innovative processing and marketing costs Training costs for climate-adaptive practices 	Higher the benefit
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D. Strategic Alignment

148. The proposed project is aligned with and contributes towards international environmental conventions to which Lebanon is signatory, the country's national strategies, and the Adaptation Fund's Strategic Results Framework.

149. **The Lebanon's 2020 National Determined Contribution (NDC) Update**, came at a time when Lebanon is facing economic, financial, monetary, and banking crises which significantly impact economic output, livelihoods, and development. Fighting the climate crisis in Lebanon entails policy and fiscal reforms to increase the energy efficiency of the sector, the sustainable use of land and water resources, the reduction of polluting practices in agriculture, waste, and industry, and enhancing the resilience of communities and infrastructure. The project is consistent with the **Adaptation Priorities 1, 2, 3, 4 and 7 included in the Lebanon's 2020 National Determined Contribution Update**, and contributes to the following key activities:

Table 5. Project contribution to the NDC Adaptation Priorities

Adaptation priority (AP)	Mitigation co-benefits	Most relevant SDGs	Key activities	Project contribution
AP 1: Strengthen the agricultural sector's resilience to enhance Lebanon's agricultural output in a climate-smart manner	Climate-smart agriculture includes GHG reducing measures such as managing quantities and types of fertilizers.	1, 2, 3, 5, 8, 12, 15	Restore livelihoods and productive capacity of farmers and producers. Encourage private investment along value chains including innovative technical solutions. Increase resilience of households with reference to food and nutrition security.	Plan and implement climate-smart agriculture production systems and efficient water management in high climate-risk areas of the target landscapes.
AP 2: Promote sustainable use of natural resources, and restore forest landscapes, while meeting the ecological, social and economic needs of sustainable forest management.	Forest restoration and adaptive management activities enhance carbon sinks.	1, 8, 12, 15	Adapt forest systems, improving soil and water conservation. Establish sites with improved production capacity linked with wood & NTFP processing industry and peoples' needs in terms of goods and services and employment. Promote sustainable rangeland management. Reduce the risk of fire through prevention measures. Manage pest and diseases outbreaks.	Identify and map high fire risk areas and implement integrated, sustainable biomass management practices involving forest, agriculture and controlled grazing, and local businesses, Enhance multiple benefits in terms of mosaic-like structure with restored agriculture & pastures ad fuel-break areas, higher forest maturity/C stocks and biodiversity, increased NTFP, and higher soil fertility.
AP 3: Structure and develop sustainable water services, including	Irrigation using clean energy sources reduces	1, 3, 8, 9, 11, 12, 15	Enhance the efficient use of irrigation water, with renewable energy supply.	The project will upscale pilot automatized efficient irrigation with solar pumping energy to improve water management

irrigation, to improve people's living conditions	GHG emissions			through water user groups and reduce water needs.
AP 4: Value and sustainably manage Lebanon's biodiversity to ensure equal access to ecosystem goods and services.	Biodiversity management contributes to carbon sinks	2, 4, 11, 12, 14, 15	Sustainably manage 50% of all natural ecosystems and properly consider them in spatial planning. Identify vulnerable ecosystems to CC and develop/implement adaptation plans. Implement rehabilitation plans in at least 20% degraded sites for the sustained delivery of ES.	The project will pursue the production and use of crop wild relative species based on existing CC modelling for forest species and will support their use in climate-smart agriculture. The project will increase the maturity and biodiversity of forest and grassland through adaptive management and ecological restoration interventions.

150. **National Restoration Work Plans and Programmes initiatives.** In 2014, the MoA began the process of developing the “40 million trees” National Afforestation/Reforestation Program (NARP), which aims at the country's forest cover from 13% to 20% by 2030. In 2015, the MoA launched the first National Forest Program as an instrument for implementing the national forestry policy. Lebanon participates actively in the Global Forest & Landscape Restoration Initiative through different projects including the GEF Salma project⁶³ and the FLR program led in the SBR⁶⁴ by ACS with multi-donor support (MAVA Foundation, EU ENPI, the Italian Gov, private donors, etc.).
151. **NBSAPs⁶⁵.** Lebanon is currently updating its NBSAPs in line with the Kunming-Montreal Biodiversity Framework. In the 2016 NBSAP, climate change resilience, sustainable management and use of natural ecosystems and resources as well as ecosystem restoration are all featured as priority areas. The project is aligned with the following 2016 NBSAP targets for 20230: (i) Rehabilitation plans should be implemented in at least 20% of degraded sites (Target 7); (ii) 50% of all-natural ecosystems to be sustainably managed and properly considered in spatial planning implementation (Target 6); (iii) Government entities mainstream biodiversity priorities (conservation benefits sharing, pressure alleviation, sustainable management, sustainable use of natural resources) into their policy making processes and their implementation (Target 13); (iv) Vulnerable ecosystems to climate change are identified and adaptation plans are developed and implemented (Target 14); (v) Mobilize the private sector to implement plans for sustainable consumption and production to mitigate or prevent negative impacts on ecosystems' carrying capacity through the use of natural resources (Target 16).
152. **Lebanon National Agriculture Strategy (NAS) 2020 – 2025.** The Strategy flags several challenges in developing the agri-food sector, so to make it a main contributor to the achievement of food security, while ensuring sustainable management of natural resources. The NAS is structured around five pillars. The project is especially aligned with Pillar 4: Improving climate change adaptation and sustainable management of agri-food systems and natural resources. Interventions under this pillar include promoting sustainable use of natural resources and increasing CC adaptation through climate smart agriculture techniques such as conservation agriculture, smart planting, afforestation and reforestation.
153. **National Land Degradation Neutrality Targets.** Land degradation has been flagged as a serious environmental problem in Lebanon, resulting in yearly losses estimated at USD 132 million. The Government of Lebanon is committed to combat desertification and land degradation, and has adopted the official 2030 voluntary LDN Targets: (i) Improve land productivity and soil organic carbon stock, in forests, croplands and grasslands; (ii) Improve the mosaic of the landscape, including forests, grasslands and croplands and limit their conversion to other land covers; (iii) Enhance the role of forests and trees in urban and rural areas in providing sustainable products and services. Achieving these targets will require the implementation of the following measures with which the project is aligned:

Table 6. Project alignment with LDN priority measures

National LDN priority measures	Project alignment
<ul style="list-style-type: none"> Restore forest landscapes through reforestation and afforestation on at least 10,000 hectares. Implement sustainable forest management practices on all public forests, and promote the sustainable management of 	<ul style="list-style-type: none"> High climate-risk areas will be identified and mapped, where to prioritize cross-sectoral ecological restoration and adaptive

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⁶³ <https://www.thegef.org/projects-operations/projects/5125>

⁶⁴ Regato, P. 2020. Forest and Landscape Restoration Guidelines: Regaining Landscape Resilience, Ecological Functionality and Human Well-being. The Shouf Biosphere Reserve. Hani, N., M. Pagliani & P. Regato Editors. Lebanon.

⁶⁵ MoE/UNEP/GEF. (2016). National Biodiversity Strategy and Action Plan – NBSAP.

<p>private forests, thus reducing the occurrence of forest fires and the conversion of forests into other land-uses.</p> <ul style="list-style-type: none"> • Restore and manage grasslands in high mountain areas on at least 1,000 hectares. • Promote sustainable agricultural practices on at least 80,000 hectares. • Leverage Land Degradation Neutrality into land-use planning and sectorial policies and strategies. • Develop financial incentives for the implementation of sustainable land management practices, in line with mitigation and adaptation strategies on climate change and conservation of biological diversity. • Promote research on sustainable land management. • Develop partnerships with local, national and international organizations for the promotion of sustainable land management practices. 	<p>management interventions on forest, agriculture and grasslands.</p> <ul style="list-style-type: none"> • Climate adaptive nature-based solutions on forest, agriculture, livestock management, bioenergy and compost production, water management, and agrobiodiversity conservation and sustainable use will be supported by the project. • Financial incentives for sustainable forest, agriculture and livestock management and production will consist mainly of support for green businesses and employment. • Prioritization and implementation of climate-smart interventions will follow a participatory approach, involving all concerned actors, with a major focus on vulnerable population groups.
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154. The project is aligned with the **Adaptation Fund's Strategic Results Framework** and directly contributes to the Fund's overall objective and outcomes. Part III, section A provides details on the project alignment with the Results Framework of the Adaptation Fund.

E. Standards

155. The project activities will be carried out in full compliance with national regulations and standards on key sectors (e.g. environment, land use, natural resources management, waste management, energy, construction and infrastructure development, labour and occupational safety, etc.), and are not expected to have adverse impacts.

156. Relevant national technical standards required by the Government of Lebanon will be applied, including, among others:

- Law 444/2002 on Protection of the Environment.
- The Environmental Impact Assessment (EIA) Decree N° 8633/212 that identifies all projects requiring EIA and indicating mitigation measures to be taken during both construction and operation phases.
- Decree 2366 (2009) on The National Physical Master Plan of the Lebanese Territory, with the prescription of environmental management standards of delineated areas of ecological and cultural importance.
- Decree N° 8018/2002 on licencing procedures for establishment and operation of industrial enterprises.
- Ministerial Decisions of Environmental Guidelines of various food industries (e.g. dairy products, farms, olive oil industries, etc.).
- Guide on food safety standards developed by the food safety committee established through the Cabine Decree dated 27/11/2014).
- The Lebanon National Agriculture Strategy 2020-2025 pillars and programs supporting (i) high-end market demand growth for organic, corporate social responsibility (CSR) and ethnic products that meet higher sustainability and/or social standards; (ii) a system of denomination of origin of Lebanese products (including Geographic Indications), labelling/branding and better certification in accordance with international health and phytosanitary standards; (iii) export mechanisms (including subsidies, participation in international expo) to access new markets according to international food standards; etc.
- The technical regulations and quality standards for agriculture inputs and outputs as well as for food and feed, which is a responsibility of the Lebanese Standards Institution (LIBNOR).
- Decree No. 59/1 of 2005 regulating the importation, registration and use of agricultural pesticides.
- Organic production regulation law N° 158 (2020).
- The national adaptation of the IFOAM-Organics International standards, EU standards and the Codex Alimentarius Commission guidelines.
- Law 221 (2000) developing standards, regulations and guidelines related to the protection and monitoring of water quality and management of wastewater.
- Law 78/2018 on Protection of Air Quality.

- Ministerial Decisions N° 52/1 of 1996 and 8/1 of 2001 (National Environmental Standards and Environmental Limit Values for air emissions, wastewater emissions, soil environmental quality, etc⁶⁶.)
- National standards, criteria and rules governing the traceability of forest reproductive material, forest management and restoration, NTFP value chains, and wildfire management interventions (Lebanon's National Forest Fire Management Strategy 2008; Lebanon National Forest Program 2015-2025).
- Decree 8803 and its amendments on the activity of quarries and crushers, licensing procedures, as well as the operation, management and rehabilitation of quarries.
- The National Energy Efficiency Action Plan (NEEAP 2021-2025) complying with international standards in the areas of consumption guidance, environment, and public safety, and the the set of standards and adopt a national certification scheme for the design and installation of renewable energies.
- The ILO core labour standards adopted by the Lebanese government on rights to organize and collective bargaining, equal remuneration, minimum age, and abolition of force labour.
- Decree 11802 (2004) on occupational prevention, safety, and health in all enterprises subject to the Code of Labour.

157. Moreover, IFAD supported projects undergo a formal quality assessment by IFAD's Quality Evaluation Committee. The committee members are independent and have not participated in the formulation of the project. Appraisal is based on a detailed quality programming checklist which ensures, amongst other issues, that necessary safeguards have been addressed and incorporated into the project design.

F. Duplication

158. There is no duplication of the project with other funding sources. On the contrary, this project is needed to upscale the efforts piloted by ACS led projects, and other related donor-funded projects described in the table below.

Table 7. Complimentarity with other projects

Project name	Summary and geographic area	Complimentary potential
2019-2025 GEF-UNDP Land Degradation Neutrality of Mountain Landscapes in Lebanon	<ul style="list-style-type: none"> • Strengthening legal frameworks and institutional capacities for LDN mainstreaming into policies and land use planning. • Restoration and management of natural resources mountain tourism. • GIS Platform for LDN monitoring. Geographic area: Akkar and Jbeil Districts; national policy level.	Synergies: the project will closely coordinate with GEF-UNDP to ensure that proper legal framework and enforcement mechanisms incorporate the climate change adaptation priorities. The project will coordinate capacity development actions on policy formulation with UNDP, to help mainstream CC adaptation and mitigation into policies and regulations. The project will benefit from the GEF-UNDP LDN monitoring platform to report on project findings on linkages between CC adaptation and LDN.
WB Project – Lebanon: Green Agri-food transformation for economic recovery	<ul style="list-style-type: none"> • Improve the resilience of farmers and Micro, Small and Medium Enterprises (MSMEs) in the Lebanese agri-food sector, through: • access to finance to strengthen resilience and competitiveness of farmers and MSMEs involved in agri-food VC. • Improve and protect infrastructure for agriculture and restore access to services. • Improve access to C-smart practices, food safety, and agri-food export and marketing. 	Synergies: The project will benefit from interventions at the national level to improve policies, infrastructure and market and export strategies for agri-food products under C-smart production and marketing systems. The project team will coordinate actions with the WB to ensure cross-fertilization and exchange of experiences and field visits, given that the WB project will not intervene in the project area.

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⁶⁶ there are no national irrigation water quality standards or guidelines.

	Geographic area: Country-wide.	
2021-2023 BASATINE - <i>Bolstering Agriculture Systems' Ability to Invest, Nourish and Employ</i> project ⁶⁷	<p>AFD funded consortium led by CARE France, contributing to the livelihoods of 3,400 smallholder farmers affected by the economic crisis, through:</p> <ul style="list-style-type: none"> • Emergency funding support for inputs, seeds and technical support. • Training on agro-ecological farming and financial skills. • Improved access to markets. <p>Geographic area: Akkar and Beqaa districts.</p>	<p>Synergies: BASATINE will be completed at the time the AF project may start. During full project formulation, the design team will meet BASATINE to learn about ongoing actions and will assess whether part of the BASATINE beneficiaries come from municipalities included in the West Beqaa landscape. Moreover, the project will build on the lessons learned of BASATINE on the development of the skills of vulnerable farmers on agro-ecological farming and financial issues.</p>
2022-2025 EU-funded Bioconnect project, jointly coordinated by the Lebanese NGOs ACS, SPNL, ACE and ADR.	<p>Enhancing management and governance of high-value ecological sites and creation of new Protected Areas and OECMs⁶⁸ for broader landscape conservation. Main actions:</p> <ul style="list-style-type: none"> • Monitoring schemes for flora and fauna conservation in protected areas in a climate change scenario. • Traditional pastoral and farming practices promoted. • Education & capacity development for local communities. • Policy making and advocacy on biodiversity and sustainable NRM. <p>Geographic Area: Several protected areas and high-value sites, including the SBR and Mount Hermon.</p>	<p>Synergies:</p> <p>The AF project will focus on the development zones of the SBR and Mount Hermon, complementing the Bioconnect work on the core zones. Bioconnect findings on biodiversity will be used to develop the environmental indicators for the climate-smart management practices prioritized by the project. The identification and mapping of high climate-risk areas by the AF project will provide an umbrella for the three target landscapes to better identify adaptation needs for the conservation and management of crop wild relatives and local agrobiodiversity values.</p>
2023-2025 Resiland project, funded by the Italian Cooperation, and jointly implemented by ACS and its Italian partner Istituto Oikos.	<p>Ensure the conservation and sustainable management and resilience of mountain ecosystems in three protected areas to support biodiversity and the ecosystem services on which rural uses depend. The project includes the following actions:</p> <ul style="list-style-type: none"> • Support to improve the PA management plans. • Ecological restoration of degraded habitats in the PAs. • Enhance public-private partnerships on biodiversity-based development opportunities, such as ecotourism and “green consumption”. <p>Geographic area: SBR, Jebel Moussa Biosphere Reserve, and Mount Hermon Nature Reserve.</p>	<p>Synergies:</p> <p>The AF project will build on the improved SBR and Mount Hermon management plans, especially on the valuation and quantification of ecosystem services, such as wood and NTFPs. AF project will use this information to define sustainable levels of biomass and NTFPs exploitation, and of maintenance of natural habitats in/around farmland plots, according to the thresholds defined in the Resiland pilot studies.</p> <p>Resiland experts will be part of the multi-stakeholder teams for the climate risk mapping and prioritization of climate-smart interventions under the AF project Component 1.</p> <p>Avoiding duplication of efforts:</p> <p>The project will collect detailed information about the pilot zones in which the wood/NTFPs have been evaluated and quantified, to avoid overlapping and ensure</p>

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⁶⁷ <https://www.afd.fr/en/carte-des-projets/bolstering-agriculture-systems-ability-invest-nourish-employ-basatine>

⁶⁸ Effective Area-based Conservation Measures.

		that the priority climate-risk areas in the landscapes are complementary to the Resiland supported pilot sites.
Restoring Ecosystem Connectivity for Biodiversity and Sustainable Livelihoods in the Litani Watershed (ECONNECT) Project. The GEF-8 Project Identification Form (PIF) was submitted to the GEF December 2023 Board.	ECONNECT’s objective is to implement sustainable landscape management approaches in the Upper Litani Basin, with a focus on biodiversity-friendly agriculture, aquaculture and the transformation of the heavily polluting crop and aquaculture sectors, while promoting innovation, learning, replication and upscaling.	Targeted communities in the Project Area will not overlap with the communities that would be covered under ECONNECT. The Project Area, which covers the Shouf Biosphere Reserve and Mount Hermon Nature Reserve, is quite vast and the potential funds that would be allocated by the GEF (USD 3.1 million) and the Adaptation Fund can not address the whole needs of these areas and could only cover a limited number of communities.
2019-2023 EU-funded Saving Water Growing Crops-Lebanon project, led by ACS and its Italian partner Istituto Oikos.	Piloting automatized efficient drip irrigation with solar pumping and higher water runoff harvesting in existing water lakes. Geographic area: Mrusti municipality, Shouf district.	Synergies: The project will help upscale successful results on reduction of irrigation water needs per hectare, from the piloting of efficient drip irrigation using automatized and solar pumping systems. Vulnerable farmers from other municipalities will benefit from grant investment support for upscaling results.

G. Learning and Knowledge Management

159. The proposed project places a strong emphasis on learning and knowledge management as a key approach to achieve behavioural change of landowners and users. It aims to improve data availability on climate-smart landscape planning and management practices, generate new knowledge on the relationship between nature-based solutions, climate risk reduction and landscape and livelihoods resilience, and disseminate data and knowledge. Several project outputs contribute towards this:
- Output 1.1.1 will identify and map critical high climate-risk areas as decision-making tools for the multistakeholder landscape platform members to select intervention types that better respond to the climate risk reduction priorities, guide the process of selecting applications for grant funding that best respond to the priorities, and monitor climate resilience improvements.
 - Output 1.1.2 will help develop Climate-adaptive guidelines for the design and implementation of nature-based solutions. Handbooks with guidelines will be used by land practitioners, PA managers, forest and agriculture extension providers, and the local organizations involved the implementation of the climate-smart measures.
 - Output 1.2.1 will yield written protocols and municipality ordinances with the accompanying implementation frameworks describing in detail the “what, when, how, and who”, to guide both the public administration staff and landowners and users in the effective application of policies.
 - Output 1.2.2 and Output 2.1.1 will develop training materials and tools for the training trainers, land users and business actors on the various climate-smart land uses and local businesses.
 - Output 3.2.2 will collect good practices and lessons learned, develop knowledge materials adapted to different audiences, and disseminate them through different communication systems. Knowledge exchange activities will be executed through regional partnerships and South-South and Triangular Cooperation (SSTC). This includes learning visits to regional nodes of excellence on climate-smart nature-based solutions, and participation in regional fora of existing cross-Mediterranean networks.
160. The project will establish learning sites, in some cases located on the farmland properties of lead farmers, to show field interventions and display information on good agriculture and forest management practices and successful ecological restoration measures. The sites will be locations for training and raising awareness, for land users to visualize and debate about climate-smart practices, and for visitors to learn about the cultural and ecological values of the products they value and consume.

H. Consultative Process

161. The design of the project concept note included a two-week field mission to the target landscapes. The design team met local stakeholders in the field - women and men landowners and land users, cooperative members, producer organizations, municipality members, local entrepreneurs,

researchers, NGO staff, protected area managers, and extension agents -, and consulted in-person and through online meetings staff of national and international agencies, such as UNDP, WFP, MoA local institutions, the Lebanon Reforestation Initiative, and representatives of the Ministry of Environment. While in the field, the team visited and met with several potential beneficiaries, including women and men farmers involved in rainfed and irrigated cropping system; sheep and goat shepherds; beekeepers; food and dairy processors including several women of local cooperatives and family processing members; the owner, manager and workers of a briquettes and pellets factory; the workers involved in forest thinning and pruning operations; the managers and workers of a waste treatment and composting unit; Syrian refugees involved in unorganized, non-legal livestock ad fire wood collection; technicians involved in automatized efficient irrigation with solar pumping (see figure 4 below for the locations visited). Further field visits for consultations are planned during the full design of the project. Specifically, meetings with woman and women’s representatives are planned, as recommended by the initial gender assessment.

Table 8. Dates and contacts of people met

Name	Gender (F/M)	Location	title	Date (Oct/23)	Email	Format
Abir Fakhereddine	F	Bater	Jana Basateen Coop. head	3	NA	Field Visit
Abir Takki	F	Rashaya	ACS - Administrator an MHNR	5	abir@shoufcedar.org	Field Visit
Abou Ali Cousin	M	Saghbine	Local shepherd	9	NA	Field Visit
Abou Ali Son	M	Saghbine	Local Shepherd	9	NA	Filed Visit
Adel Ghanem	M	Warhanieh	Farmer	11	NA	Field Visit
Afra Pescaki	F	Maaser	Student - Intern	6	afra.pescalli@istituto-oikos.org	Workshop
Akram Ghanem	M	Warhanieh	Farmer	11	NA	Field Visit
Alessia Marazzi	F	Bater; Maaser Rashaya; Qaroun	IFAD Staff	3, 4, 5	a.marazzi@ifad.org	Field Visit & ACS HQ
Anwar Ghanem	M	Warhanieh	Farmer - Head of Cooperative	11	NA	Field Visit
Anwar Karamah	M	Warhanieh	Farmer	11	NA	Field Visit
Anwar Khafaji	M	Jbaa	Briquette Factory; farmland	7, 11	NA	Field visit
Arkan Khafaji	M	Jbaa	Briquette Factory Manager	7, 11	NA	Field visit
Bashar Jamil Aboutars	M	Qaraoun	Farmer	4	NA	Field Visit
Boutros Farhat	M	Saghbine	Municipality/ Community Representative	9	boutrosfarhat@hotmail.com	Field Visit
Cynthia Akel	F	Samaha Tree Nursery, Qoob Elias	Admin - Agriculture eng at the Nursery	9	cynthiaakel101@gmail.com	Field Visit
Dany Azar	M	ACS HQ, Maaser	Insects Expert; biodiversity inventory consortium	6	danyazar@ul.edu.lb	Workshop
Diyaa Hammad	M	Jbaa	Farmer - Guide	11	NA	Field Visit
Fadi Ghaith	M	Bater	Head of Agr. Cooperative - Owner big Veg/Fruits store	3	NA	Field Visit
Fadwa Kanaan	F	Mrusti	Farmer and Rural products	7	NA	Field visit
Fadwa Kinaan	F	Mrusti	farmer - Rural Dev	11	NA	Field Visit
Fady Denno	M	ACS HQ, Maaser	OIKOS - Resiland Project Administrator	6	fady.denno@istituto-oikos.org	Workshop
Fares Fayek	M	Rashaya	Owner of Rashaya Gardens - Processing	5	rachayasgardens@gmail.com	Field Visit
Feryal Saab	F	Rashaya	Member of municipality - Head of a local NGO	5	NA	Field Visit
Fidaa Bachnak	M	Mrusti; Jbaa	Project manager, ACS; Beekeeper	7	fidaa@shoufcedar.org	Field visit
Geryes Haddad	M	Rashaya	Union of municipalities head	5	NA	Field Visit
Ghanem Kinaan	M	Mrusti	farmer	11	NA	Field Visit
Hadi Ghanem	M	Warhanieh	Farmer	11	NA	Field Visit
Hamzi Nasereddine	M	Rashaya	Teacher / Responsible at Agr. School	5	hamza-agri82@hotmail.com	Filed Visit
Hanan Hassan	F	Maaser; Mrusti; Jbaa	Project manager, ACS	6,7	hanan@shoufcedar.org	Field visit, workshop
Hanna Samaha	M	Qoob Elias	Samaha Tree Nursery CEO	9	samaha.plantes@hotmail.co.uk	Field Visit
Haytham Karamah	M	Warhanieh	Farmer	11	NA	Field Visit
Jamil Dergham	M	Rashaya	Teacher at Agr. School	5	jdergam@hotmail.com	Field Visit
Jean Stephan	M	Maaser	Flora expert; biodiversity inventory consortium	6	dr.jeanstephan@gmail.com	Workshop
Jihad abdelqader	M	Mrusti	farmer	11	NA	Field Visit
Joumana Batlouni	F	Jbaa	member of agr. Cooperative	11	NA	Field Visit
Kamal Abou Assi	M	Mrusti, Jbaa, Warhanieh	Project Coordinator	11	kamal@shoufcedar.org	Field Visit
Kamal Abou Assi	M	Bater; Maaser; Qaraoun; Rashaya; Qoob Elias; Saghbine	Projects Coordinator, ACS	3,4,5,6,9	kamal@shoufcedar.org	Field Visit, Meeting, Workshop
Kamal Khattar	M	Bater	Member of women. Cooperative	3	NA	Field Visit
Kamel Kinaan	M	Qaraoun	Farmer	4	NA	Field Visit

Karam Kinaan	M	Mrusti	Farmer	07	NA	Field visit
Karam Kinaan	M	Mrusti	farmer	11	NA	Field Visit
Kayed Zeidan	M	Mrusti	farmer	11	NA	Field Visit
Kerman Khattar	M	Bater	Farmer - Vegetables, Olive	3	NA	Field Visit
Khaled sleem	M	Maaser	Agro- ecology Expert	6	khaled.sleem@native.com.lb	Workshop
Lara Kansa	F	Bater; Maaser, Qaraoun; Rashaya	Project Coordinator, ACS	3,4,5,6	lara@shoufcedar.org	Field Visit, meeting, workshop
Lea Kai	F	Beirut	Project Manager, UNDP	12; 31	lea.kai@undp.org	In-person & Online
Leen Boustany	F	ACS HQ, Maaser	ACS team	6	leen@shoufcedar.org	Workshop
Lina Sarkis	F	Maaser	Development Coordinator, ACS	3, 6	lina@shoufcedar.org	Meeting, workshop
Maggie halawani	F	Mrusti	member of local NGO	11	NA	Field Visit
Mahmoud Qasem	M	Qaraoun	Farmer	4	NA	Field Visit
Manal Moussallem	F	Beirut	Adviser to the Minister of Agriculture, MoE	12; 31	manal.moussallem@undp.org	In-person & Online
Manuel Grimaldi	M	ACS HQ, Maaser	student - Intern	6	manuel.grimaldi@istitut-o-oikos.org	Workshop
Manwel Batlouni	M	Jbaa	Jbaa Entrance and atelier coordinator	11	NA	Field Visit
Maya Nehme	F	Beirut	Director of the Lebanon Reforestation Initiative (LRI)	12	mnehme@lri-lb.org	In-person & Online
Mehdi Fayek	M	Rashaya	Local guide + owner of a guesthouse	5	fayekmehdi@gmail.com	Field Visit
Melhem Khattar	M	Bater	Member of farmers Cooperative	3	NA	Field Visit
Mohammad Karameddine	M	Qaraoun	Farmer	4	NA	Filed Visit
Monzer Kinaan	M	Mrusti	farmer	11	NA	Field Visit
Moufid Mahmoud	M	Rashaya	Farmer - Processing - Shop owner	5	NA	Field Visit
Mounif Abou ali	M	Mrusti	farmer - Mayor (Mukhtar)	11	NA	Field Visit
Nabil Dbeisy	M	Mrusti	farmer	11	NA	Field Visit
Nabila Kinaan	F	Mrusti	member of local NGO	11	NA	Field Visit
Nabila Mitri	F	Jbaa	member of agr. Cooperative	11	NA	Field Visit
Nasser Yassin	M	Beirut	Minster of Environment	12	NA	In-person & Online
Nazir Aawad	M	Qaraoun	Farmer	4	NA	Field Visit
Nibal Hasaniyyeh	F	Mrusti	member of local NGO	11	NA	Field Visit
Nijad Saed Eddine	M	Bater; Maaser El Shouf	Project Coordinator, ACS	3	nijad@shoufcedar.org	Field Visit, meeting
Nizar Hani	M	Bater; Mrusti, Jbaa, Warhanieh; Maaser, Qaraoun; Rashaya; Beirut	Manager of the SBR, ACS	3,4,5,6,11	nizar@shoufcedar.org	Field Visit, meeting, workshop
Pedro Regato	M	Bater; Mrusti, Jbaa, Maaser; Qaraoun; Rashaya; Beirut; Qoob Elias; Saghbine	IFAD Consultant	3-10, 31	pregatop@gmail.com	Field visit, meeting workshop, online
Piero pelleschi	M	ACS HQ, Maaser	OIKOS - Resiland project manager	6	piero.pelleschi@istituto-oikos.org	Workshop
Raji Maasri	M	ACS HQ, Maaser	MORES SAL	6	raji.maasri@mores.com.lb	Workshop
Ramy Kamal	M	Rashaya	ACS - Ranger and Guide	5	ramikamal450@gmail.com	Field Visit
Ramzi Abi Saab	M	Warhanieh	Farmer - Bio agriculture	11	NA	Field Visit
Rania Zeidan	F	Mrusti	member of local NGO	11	ranzdh@gmail.com	Field Visit
Rashrash Najj	M	Rashaya	Rachaya Mayor	5	NA	Field Visit
Raydan Mahmoud	M	Rashaya	Farmer	5	raydan5@gmail.com	Field Visit
Rayek Abi Ali	M	Mrusti	Farmer	07	NA	Field visit
Rayek Bouali	M	Mrusti	farmer	11	NA	Field Visit
Rola Zeidan	F	Mrusti	member of local NGO	11	NA	Field Visit
Samaher Khazem	F	Jbaa	member of agr. Cooperative	11	NA	Field Visit
Shadi Abou Malek	M	Rashaya	Head of Scouts association	5	chadibm@hotmail.com	Field Visit
Shadi Zeidan	M	Mrusti	Farmer	07	NA	Field visit
Shadi Zeidan	M	Mrusti	farmer	11	NA	Field Visit
Shawki Bahmad	M	Rashaya	NGO member	5	shawki.bh@gmail.com	Field Visit
Shireen Halawani	F	Mrusti	member of local NGO	11	NA	Field Visit
Sibelle Massoud	F	ACS HQ, Maaser	archeology Expert	6	cybellemaksoud@hotmail.com	Workshop
Soud Bloquet	F	ACS HQ, Maaser	Biodiv. Inv. consortium; Herpetofauna expert	6	soudbloquet@gmail.com	Workshop
Suzane Qadi	F	Jbaa	member of local NGO	11	suzanhalawani76@gmail.com	Field Visit
Thoodan Al-Eryani	M	Mrusti, Jbaa, Warhanieh, Beirut	IFAD Staff	11, 12, 31	t.al-eryani@ifad.org	Field Visit, meeting, online
Vahakn Kabakina	M	Beirut	Climate Change Advisor, UNDP	12; 31	vahakn.kabakian@undp.org	In-person & Online
Vrej Jijyan	M	Beirut; Mrusti, Jbaa, Warhanieh	IFAD Staff	11, 12, 31	v.jijyan@ifad.org	In-person & Online, Field Vist
Wajdi Abi Saab	M	Warhanieh	Farmer - Bio agriculture	11	NA	Field Visit
Wassila Sleem	F	Jbaa	member of agr. Cooperative	11	NA	Field Visit
Yehya Daher	M	Qaraoun	Mayor	4	NA	Field Visit
Zeinab Fahs	F	Samaha Tree Nursery, Qoob Elias	PhD Lab responsible	9	zfahs88@gmail.com	Field Visit

I. Justification

162. The proposed project responds to a request of the government. Annex 1 presents the official letter from the Minister of MoE to IFAD requesting further financial resources to support climate change adaptation for rural development in the ecocultural landscapes of the Shouf-West Beqaa-Mount Hermon corridor. MoE sees the necessity of mobilizing resources for landscape and livelihoods' climate resilience, because climate change is poorly incorporated in rural development plans and policies. MoE aims to

use this project to upscale the implementation of the NDC adaptation priorities and to upscale promising approaches that are currently being piloted in the framework of various projects.

163. The table below outlines the baseline and the alternative adaptation scenarios that the Adaptation Fund will help materialize, focusing on the full cost of adaptation reasoning.

Table 9. Baseline scenario and alternative adaptation benefits

Baseline scenario	Alternative Adaptation Benefits of Adaptation Fund Project
<p>Higher frequency and intensity of drought periods expanding over autumn and spring. Decrease in annual rainfall and its seasonal distribution, in particular expanding over spring and autumn months. Marked decrease in snow cover during winter, significantly reducing surface and underground water recharge. Climate models predict higher temperatures and less rainfall with higher maximum number of consecutive dry days over an extended summer season from early April till early November. Surface water bodies, springs and wells dry up during production season, and remaining water sources are more polluted, with a major impact on quality and quantity of yields and production losses of less adapted crops.</p> <p>Food legumes, a major component of the Lebanese culinary tradition, are detrimentally impacted by heat and drought. High temperatures are also associated with drought and less cloud cover, both of which cause damage to apple harvests. Temperature and precipitation changes affect grape production and the quality, exposing grapes to sunburn and early ripening. Higher temperatures increase vulnerability to spring frosts.</p> <p>Fodder for livestock is extremely scarce in the vast grasslands with limited presence of woody vegetation and dry springs, contributing to pasture degradation, and higher costs for water and fodder.</p>	<p>. The project will empower farmers and shepherds with knowhow, C-adaptive farming technologies and inputs, restored woody fodder, and the protection and recharging mechanisms for water points, to build their adaptive capacity on the management and self-monitoring of C-smart production plans.</p> <p>. The plans will lay out management measures for farmers and shepherds to respond to the changing climate conditions and extreme weather events. Measures include: (i) farming systems: e.g. crop calendar optimization to climate changes; selection and use of drought- and pest-resistant crop species and varieties, using as rootstock wild crop relatives; diversifying production systems with several woody and herbal crops, including wild aromatic plants; adoption of agroforestry tree-crop-livestock integration and biodynamic-conservation agriculture farming principles enhancing soil and water conservation and reducing pollution with minimal/no use of synthetic agrochemicals; restoring farmland habitats supporting microclimate and hydrologic regulation, pest control, pollination and soil nutrient cycling, in/around farming plots, such as hedges and wind breaks with trees and shrubs, ruderal vegetation lines, freshwater vegetation in water lines and points. (ii) livestock management: e.g. organized short-distance transhumance with rotation-resting systems, matching mobility with vegetation greening and water availability; temporary enclosures to restore woody fodder vegetation in degraded grasslands and the planning of pasture recovery periods; adaptive stocking rate strategies, etc.</p> <p>. The project will also construct and rehabilitate water points and support the protection and water recharge of springs and wells.</p>
<p>The increase in heat waves, combined with drought/water stress and strong winds, is the main cause of the increasingly frequent, devastating large scale wildfires throughout the Mediterranean region. This problem already negatively impacts Lebanon, and specifically the development areas of the target landscapes, where there is an accumulation of dry biomass in excessively dense secondary coppice forests, and dense scrub formations. This generates a high risk of fire spread that interface with a high risk of fire ignition due to maladaptive practices, negligence, uncontrolled hunting, and arson. Furthermore, the uncontrolled construction of houses is significantly increasing the wildland-urban interface, with a consequent increase in the risk of fires and pollution. Wildfires cause significant losses of homes, assets, productive systems, and human lives, with devastating effects for vulnerable populations in the project area.</p>	<p>. The project will address fire risks through fire-smart management actions that help recover its former mosaic-like structure. To this end, the project will identify the high-fire risk areas of the landscape where fire-spread risk interfaces with fire-ignition risk, to carry out fire-smart actions for the integrated management of biomass, reduce fuel load within environmentally sustainable limits, while using it for local businesses on bioenergy and compost production. This will contribute to reducing GHG emissions with the avoidance of wildfires; an increase in carbon stocks in vegetation and soil; healthier and climate-resilient conditions of more mature, diverse and NTFP-producing forests; and the rehabilitation of abandoned agricultural terraces with a fuel-break function in critical areas of the landscape, dedicated to diversified traditional/new products of high ecocultural and economic value, including the production of aromatic, medicinal, and wild edible plants.</p>

J. Project Sustainability

168. The sustainability strategy for the project builds around three pillars, namely the social, environmental and economic return on the investments that set the ground for the continuity of the actions of the project once completed. The project will address the interconnection among the three pillars of sustainability, in that every project intervention will consider the spillover effects among pillars (e.g. the economic opportunities that transitioning C-smart production systems create for new employment segments and business competitiveness).

169. Environmental sustainability: the sustainability of project investments on climate-smart NRM, production systems, and businesses, will be conditional upon the achievement of long-term environmental objectives such as:

- The reduction of the GHG emissions caused by wildfires and the use of fossil fuel energy through the wildfire prevention interventions on C-smart waste/biomass management, the local production of bioenergy products for cooking and house heating requirements, and the use of solar pumping for efficient irrigation.
- Increase of carbon stocks in more healthy and mature forests after biomass management interventions, and more fertile soils with higher organic matter in farmland plots under agroforestry biodynamic production systems.
- Higher production and use of energy from renewable sources.
- Improved soil fertility and water conservation in sustainable management systems, such as minimal/no till farming with cover crops and alive/dead mulches under rainfed or efficient irrigation; rotational grazing systems; more mature thinned/pruned forest stands.
- Greater availability of water as a result of the C-smart production systems and food chain, and the improvement/rehabilitation of water storage and recharge points in the landscape.
- Pollution reduction through the management of urban and agriculture waste, replacement of fossil fuel energy sources, and the minimization of synthetic agrochemicals in farming production.

170. Social sustainability: the sustainability of project investments will be conditional upon the achievement of long-term social objectives, such as:

- Poverty reduction through diversified production systems, employment and small local business, reducing climate-shock losses and allowing sufficient margins for food and income security.
- The reduction of gender inequality through equal access to resources, training, technical support and finance.
- The enhancement of social cohesion through social learning and collaborative governance mechanisms of social interaction (landscape committees, associationism among landowners and users, user and producer organizations, cooperatives, marketing platforms, etc.).
- Improvement of vulnerable people's health and access to basic education, energy and water needs.
- The adoption of social corporate standards and policies for fair and safe working environments in local businesses.
- The development of vocation training building that value and include people of diverse backgrounds, gender, etc., opening employment opportunities to a wider range of vulnerable actors.
- Improved cross-sectoral planning at landscape level, with adequate structures in place to ensure that the planning is executed regularly and timely, responding to the needs of local actors and stakeholders.

171. Economic sustainability: the sustainability of project investments will be conditional upon the achievement of long-term economic objectives such as:

- The promotion of economic models based on the circular economy which, as such, are able to convert waste into goods, and balance resource exploitation.
- The development of business plans demonstrating the economic return on investment and profitability in the short-term.
- The ACS Cedar Loanfacility will continue funding climate-smart initiatives through its revolving fund mechanism.

K. Environmental and Social Impacts and Risks Relevant to the Project

172. The project is regarded to have a **moderate risk (Category B)** according to the Adaptation Fund's Environmental and Social Policy. According to IFAD's Environmental and Social Safeguards Screening Checklist, the proposed project has a "**Moderate Environmental and Social Risk**" and a "**Moderate Climate Risk**" at concept note stage.

173. For the full proposal, the design team will complete a detailed screening and produce a Review Note of the Social, Environment and Climate Assessment Procedures (SECAP). This tool will allow to assess the social, environmental and climate change issues relevant to the project and identify how the project might impact them and how IFAD's mainstreaming themes (gender, youth, nutrition, environment and climate change) could be addressed through an integrated approach. On the basis of the screening, the design team will elaborate an environmental, social and climate management plan (ESCMP) and an Ex-Act carbon assessment.

174. The main findings of the preliminary risk screening are integrated in the table below:

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Compliance with the Law	X	The project implementing and execution entities, management team and partners will ensure compliance of relevant national laws.
Access and Equity		The project aims to improve equitable access to water, inputs, equipment, training, coaching, business development, and funding support for vulnerable smallholder farmers, with a major focus on women. Further assessments will be carried out during the full design to better target gender and youth constraints.
Marginalized and Vulnerable Groups	X	The project has a targeting approach that aims to increase the access of vulnerable groups to awareness, education, capacity development, technical support, funding and assets to adopt climate-smart production systems and businesses. All needs and concerns will be identified during the full proposal preparation phase, including the mechanism to ensure participation and equal access.
Human Rights	X	The project will respect international human rights. It integrates overarching human rights principles to strengthen social and environmental sustainability. During the full proposal development phase, any potential risk of human rights violation during project activities will be further assessed.
Gender Equity and Women's Empowerment		The project will promote gender equity and women's empowerment. Specific measures include: <ul style="list-style-type: none"> Assessing the specific CC adaptation problems and needs in a gender analysis in conjunction with stakeholder engagement, so that the rights, needs and opportunities of women and men and the different needs, roles and barriers are recognized and addressed. Ensuring strong outreach strategies to achieve active women involvement in implementation and monitoring of climate-smart. Ensuring women are represented in landscape committees, learning and user groups, producer organizations, local businesses, marketing platforms, etc. Mainstreaming gender aspects in the project's study on climate change and in the handbook on pastures. Inviting women to bring their voices to relevant policy discussions.
Core Labour Rights	X	The project will ensure that all appropriate health and safety measures are taken in accordance with both national and international standards. Lebanon is a member of the International Labour Organization since 1948 and has ratified the eight Fundamental Conventions. Compliance will be monitored through progress reports, supervision missions, the mid-term review, and terminal evaluation.
Indigenous Peoples	X	Not applicable.
Involuntary Resettlement	X	The project will not involve any involuntary resettlement.
Protection of Natural Habitats		The project will not intervene in the core zones of the protected areas overlapping the target landscapes, according to existing legislation and management plans. The project will intervene in the development zones where climate-smart interventions will help improve healthy conditions (maturity, structure, functionality and species diversity) of degraded habitat types. Climate-smart agroforestry biodynamic cropping systems will ensure the maintenance of a percentage of farmland supportive habitats in/around farmland plots, protecting the existing natural plant communities or increasing their presence through ecological restoration.
Conservation of Biological Diversity	X	There is no risk to the conservation of biodiversity. The project will help reduce overcollection of wild plants in the field by planting them in restored agriculture terraces and will help produce in local nurseries crop wild relatives as climate adapted grafted rootstock seedlings, as well as seedlings from other useful wild plants for C-smart production and restoration interventions. Biodiversity indicators will be used to monitor the benefits of natural habitats and species on climate-smart agriculture, forest and pasture management improvements.
Climate Change		The risk of increased greenhouse gas emissions is low. The project interventions on climate-smart biomass management in high-fire risk areas of the landscape will help reduce GHG emissions by avoiding the burning of waste and the occurrence of wildfires and will help increase carbon stocks in more mature managed forest stands and in more fertile agriculture soils. An assessment with the EX-ACT carbon calculation tool will be carried out for the full proposal.
Pollution Prevention and Resource Efficiency	X	The project will meet international and national standards for pollution prevention and resource efficiency. Climate-smart farming systems will minimize the use of synthetic agrochemicals building on organic farming principles and IPM, will support the

		establishment of green filters wastewater treatment, and will collect urban and agriculture waste to be transformed into bioenergy and compost products. Compliance will be monitored through progress reports, supervision missions, the mid-term review, and terminal evaluation.
Public Health	X	The project is designed in a way that avoids potentially significant negative impacts on public health. The project interventions on climate-smart biomass management and bioenergy production will help reduce health problems by replacing polluting diesel heating systems in the homes of vulnerable households.
Physical and Cultural Heritage	X	The project is unlikely to have any adverse impacts on physical and cultural heritage of the people in the intervention areas. On the contrary, the project builds on the cultural heritage of the landscapes to enhance the quality, and branding marketing strategy for high-value agriculture, forest and livestock products.
Lands and Soil Conservation	X	The project aims to improve vegetative cover, introduce soil health and soil water conservation measures, restore/implement C-smart farming, forestry and pastoral interventions climate-resilient with the use of diverse native useful plant species, crop wild relatives and local crop varieties, and improve water management.

PART III: IMPLEMENTATION ARRANGEMENTS

Demonstrate how the project aligns with the Results Framework of the Adaptation Fund

Project Objective(s) ¹	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Promote the adoption of nature-based solutions to restore climate-smart landscapes and livelihoods in the Shouf-West Beqaa-Mount Hermon corridor	36,000 ha of landscapes with high climate-risk areas mapped and prioritized for C-smart interventions. 910 ha rehabilitated. 2,000 vulnerable households benefiting from C-smart investments.	Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	% target population aware of predicted adverse impacts of climate change, and of appropriate responses % target population applying appropriate adaptation responses	129,000
		Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress	Ecosystem services and natural resource assets maintained or improved under climate change and variability-induced stress	220,000
		Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas.	% target population with sustained climate-resilient alternative livelihoods	120,000
		Outcome 7: Improved policies and regulations that promote and enforce resilience measures	Climate change priorities are integrated into national development strategy	101,000
		Outcome 8: Support the development and diffusion of innovative adaptation practices, tools and technologies	Innovative adaptation practices are rolled out, scaled up, encouraged and/or accelerated at regional, national and/or subnational level.	3,017,000
Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)
Outcome 1.1: Enabling conditions to prioritize and apply climate-smart	36,000 ha of landscapes with high climate-risk areas mapped and prioritized for C-smart interventions.	Output 5: Vulnerable ecosystem services and natural resource assets strengthened in response	5.1. # of natural resource assets created, maintained, or improved to withstand conditions resulting from	220,000

interventions in high-value ecocultural landscapes.		to climate change impacts, including variability.	climate variability and change (by type and scale)	
Outcome 1.2: Climate-smart policies and regulations in place at various levels.	# of policy recommendations supporting CC adaptation mainstreaming of municipal plans. 200 civil servants and other actors empowered to implement climate-smart policy recommendations.	Output 7: Improved integration of climate-resilience strategies into country development plans	7.2. # of targeted development strategies with incorporated climate change priorities enforced	101,000
Outcome 2.1: Nature-based solutions adopted through capacity development, climate-smart field interventions and green businesses.	910 ha rehabilitated. 2,000 vulnerable people trained on climate-smart jobs.	Output 8: Viable innovations are rolled out, scaled up, encouraged and/or accelerated.	8.2. # of key findings on effective, efficient adaptation practices, products and technologies generated	3,017,000
Outcome 2.2. Increased value for high-quality, climate smart commodities through innovative marketing strategies and value chain improvement.	% increased income by vulnerable households coming from climate-smart commodities. # of products branded with climate-smart label.	Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.2. Increased income or avoided decrease in income	120,000
Outcome 3.1. M&E system and self-assessment tools for project management and practitioners.	# of climate-smart indicators incorporated in the landscape-level plans and monitored. 50 PMU and partner organizations staff trained on climate-smart M&E.	Output 3.2: Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning	3.2.2 # of tools and guidelines developed (thematic, sectoral, institutional) and shared with relevant stakeholders	67,000
Outcome 3.2 Partners and practitioners empowered to assess landscape resilience during and beyond project lifetime.	140,000 people reached by the project's communication work. # of knowledge products disseminated and accessible through relevant knowledge platforms. # of project partners involved in international learning visits.	Output 3.1: Targeted population groups participating in adaptation and risk reduction awareness activities	3.1.1 Percentage in targeted population awareness of predicted adverse impacts of climate change, and of appropriate responses	62,000

Implementation Arrangements

175. The Project will establish a gender-balanced Project Management Unit (PMU) in the Al Shouf Cedar Society (ACS) headquarters in the SBR and MHNR for execution. The PMU will rely on ACS current project management unit, including qualified staff on climate-adaptive natural resources management, business development, social learning, monitoring and evaluation, multi-stakeholders' participation and gender issues. The Ministry of Environment (MoE) of Lebanon as Adaptation Fund DA will have overall responsibility of the project and will coordinate with all relevant ministries. The project will also establish a Project Steering Committee (PSC) chaired by the Ministry of Environment, or its designated representative, and including key staff from key project partners, whose responsibility will be approval of the annual work plans and budgets (AWPBs) as well as serving as a coordination body.
176. The project will be implemented by ACS, the entity responsible for the management of the Shouf Biosphere Reserve and Mount Hermon Nature Reserve, in collaboration with local public and private partners. ACS will be responsible for the the day-to-day management and execution of project activities, including overall administration, fiduciary aspects, procurement, monitoring and evaluation. The SBR and MHNR Appointed Protected Area Committees, which include representatives of key public and private institutions in the target landscapes, will play a major role, among others on: (i) intensive

community mobilization through awareness raising and consultation events in each landscape to introduce the project objectives, outcomes and expected results, key issues on climate change impacts, resilience and adaptation, and the project implementation mechanisms; (ii) organization of participatory workshops for the prioritization of high climate-risk interventions areas, the selection of priority climate-smart interventions; (iii) organization of information events on learning and financing opportunities supporting the project beneficiaries' investments on climate-smart management practices and climate-proof businesses; and (iv) ensuring the development of proper management, workplans and budget by the PMU. It is expected that the capacitated landscape governance structures will play an increasing role in supporting the implementation of the project, guaranteeing its sustainability.

177. The targeted municipalities and municipal unions, the MoA local institutions (agriculture advisory departments, schools and research centres, and forest centres), and the local Water Establishment offices, will play a major role in steering the implementation and respect by the project beneficiaries of the policy regulations supporting climate-smart land uses and management practices in the target landscapes.
178. In terms of activities, service providers who are partners of or hired by the project (competent individual experts, consultancy firms, NGOs, agriculture and forest extension agencies, and private organizations) will provide technical expertise, capacity building, advisory and implementation support to the project beneficiaries. Climate-smart restoration and management interventions will be coordinated by the PMU with national entities, such as national NGOs and research organizations that are active in target landscapes. Under component 2, farmer & forest field and business schools will be implemented in partnership with FAO, and with the support of the MoA extension staff and of international experts, making use of the peer-to-peer approach involving farmers and foresters from other countries in the region as experts with demonstrated knowhow on climate-smart management practices and businesses in their properties. The development of climate-smart forest and agriculture management plans will also benefit from the technical support of Balamand University and Saint Joseph University. The provision of grants will rely on the managing structure established by ACS for its Cedar Loans. A detailed due diligence on ACS will be conducted at design stage to assess their capacity to manage and monitor the environmental and social risks connected with external financing. Finally, the development and dissemination of Guidelines for climate-smart management of agriculture, forest and pastoral land will entail a strong coordination with relevant Ministries.
179. IFAD, as the Implementing Entity, will undertake the oversight and quality control of the project. A mid-term review will be conducted to evaluate the project's progress, identify areas for further improvement and revise the project approach.

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government

<i>Mr Nasser Yassin, Minister of Environment, Ministry of Environment</i>	Date: 11/ 29/ 2023
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REPUBLIC OF LEBANON
MINISTRY OF ENVIRONMENT

THE MINISTER

Beirut 29/11/2023
Our Ref: 2929/B

The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: afbsec@adaptation-fund.org
Fax: 202 522 3240/5


Subject: Endorsement for Climate Change Resilience and Ecosystem Connectivity Project (CC-REC)

In my capacity as designated authority for the Adaptation Fund in Lebanon, I confirm that the above national project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the country.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by the International Fund for Agricultural Development. The executing entity will be identified during the full proposal development stage.

Looking forward to expanding cooperation,

Sincerely yours,


Nasser Yassin, PhD
Minister of Environment



CC: - MoA-DG – UN CCD NFP
MoE - DGoE - Service of Registrar – Department of Public Relations and External Affairs
MoE - DGoE - Service of Natural Resources – Department of Ecosystems, UNCCD NFP
MoE - DGoE - Service of Environmental Technology, UNFCCC NFP
MoE - DGoE - Service of Environmental Technology – Department of Air Quality
MoE - Climate Change Projects

B. Implementing Entity Certification

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans and subject to the approval by the Adaptation Fund Board, <u>commit to implementing the project/programme in compliance with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund</u> and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
Implementing Entity coordinator: Mr Juan Carlos Mendoza Casadiegos, Director, Environment, Climate, Gender and Social Inclusion Division	
Date: 19 December 2023	e-mail: juancarlos.mendoza@ifad.org
Ms Janie Rioux Senior Technical Specialist – Climate Change- AF coordinator ECG division	email: j.rioux@ifad.org
Project contact person: Mr Walid Nasr, Regional Lead Environment and Climate Specialist	
e-mail: w.nasr@ifad.org	
Mr Vrej Jijyan, Country Director for Lebanon	
e-mail: v.jijyan@ifad.org	