CONCEPT NOTE PROPOSAL FOR SINGLE COUNTRY

PART I: PROJECT INFORMATION

Title of project: Adaptive management of the Algerian Steppe and halfah zones to support climate-smart livelihoods and ecosystem resilience (Halfah Project)

Country: People's Democratic Republic of Algeria

Thematic focal area: Multiple focal areas

Type of Implementing Entity: Multilateral Implementing Entity

Implementing entity: International Fund for Agricultural Development (IFAD)

Executing entity: Ministry of Environment and Renewable Energy (MEER)

Amount of financing requested: 10,000,000 (in U.S Dollars Equivalent)

Letter of Endorsement (LOE) signed: yes ☒ no ☐

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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.

Please note that concept note documents should not exceed 50 pages, including annexes.

Part I: PROJECT INFORMATION

A. Project Background and Context

Socio-economic context, gender and social inclusion

1. **Economic context**. Algeria has the 4th-largest GDP on the African continent, with USD 195 billion in 2022 and a per capita GDP of USD 4,342.6[3]. As the world's fifth-largest gas producer and thirteenth-largest oil producer, Algeria has repaid its foreign debt ahead of schedule and is financing the "Complementary Growth Support Program" from its own resources. However, the upward trajectory of the country's development is being tested by the vulnerability of an economic model that heavily depends on hydrocarbons. The fall in oil prices, exacerbated by the economic crisis linked to the COVID-19 pandemic, has caused Algeria's economy to be reclassified from Upper Middle-Income Country (UMIC) to Lower Middle-Income Country (LMIC) in 2020.

2. **Poverty**. Algeria is one of the few countries to have succeeded in reducing income poverty by 75% over the period 1995-2011[5]. In 2011, the extreme poverty rate stood at 0.5%[6]. Multidimensional poverty fell from 2.1% to 1.4% between 2013 and 2019, [7] thanks to improvements in health, education and living conditions. Life expectancy at birth is 76.3 years (74.5 for men and 78.1 for women). There are, however, significant differences across the country's different regions, with the Central High Plains, the Western High Plains and the South region lagging behind the Eastern High Plains and the country's three northern regions. In addition, the poverty rate in rural areas was four times higher than in urban areas in 2019.

3. **The economy of El Bayadh** is centred on agriculture and livestock, with the main economic activity in the province being sheep rearing, as further analysed in the following sections. The active population of the province amounted to 169,974 individuals in 2022, with 149,810 individuals employed and 20,164 unemployed (11.86%)[8], a rate slightly lower than the national average (12.49%). In 2018 the active population distribution by sectors was as follows: agriculture and livestock (41%), services (23%), construction (15%), industry (2%) and administration (1%).[9] El Bayadh shows a strong but underexploited touristic potential, based on the diversity of local natural sites. To this extent, the local Direction of Tourism and Crafts has developed an investment program to promote the historical, environmental, cultural and touristic potential of the province.

4. The share of population with access to key public services is reportedly high in El Bayadh: respectively 96 % and 94% for electricity in urban and rural areas (including 1,510 households and structures connected to solar energy grids); 93% for drinking water supply; 96.30% for natural gas in urban areas and 94.13% in rural areas; and 93% for sanitation[10]. The waste generated in the province amounted to 50,352 tons in 2022, of which only 108 tons (2%) were recycled (82 tons in the provincial capital). The province has only one sanitary landfill site, 5 controlled dumps, and 20 uncontrolled dumps[11]. El Bayadh has only one wastewater treatment plant, which started operating in December 2014, with a treatment capacity of 7.19 million m^3/year, equivalent to a daily treatment of 19,670 m^3/day or 123,100 eq/ha. The treated water is used for the irrigation of 250 hectares in Kheneg.[12]

5. **Demography**. Analysis of the resident population of El Bayadh by age group reveals a relatively young population, with 102,959 individuals aged 25-50 (28.59%), followed by

[3] https://data.worldbank.org/country/DZ
[5] WB. 2011. Estimation de la Banque Mondiale sur la base de l'enquête nationale de consommation des ménages 2011.
[6] https://data.worldbank.org/country/DZ
[7] OPHI /PNUD. 2021. Rapport portant sur l'indice global de la pauvreté multidimensionnelle.
[8] Direction de la Planification des Statistiques et du Budget (DPSB), El Bayadh. 2022. Annuaire statistique de la wilaya d'El Bayadh.
[9] ANIREF. 2018. Monographie de la Wilaya d'El Bayadh.
[10] DPSB. 2022. Annuaire statistique
[11] Ibid.
[12] Fayçal Djellouli. 2016. Les Ressources En Eau Dans La Wilaya D'El-Bayadh, Centre Universitaire Nour Bachir- El Bayadh.

Deleted: Introduction¶
Situated on the Mediterranean coast in the North-West of Africa, Algeria covers an area of 2,381,741 km^2, making it the largest country on the continent. The Algerian territory is divided into fifty-eight (58) wilayas, which are subdivided into daïras and communes. Sahara occupies most of the territory, covering over 2 million km^2 (87% of the country's surface). Owing to Algeria's contrasted topography (with watersheds of varied sizes and high mountain ranges), and its latitudinal position, the country's climate spans from mid-latitudes to tropical climates. The Tellian Atlas and Saharan Atlas mountain ranges divide the territory into east-west stretches: the coastal Tellian Atlas, the High Plains Saharan Atlas and the Sahara. Each of these three ensembles is characterized by specific temperature and rainfall patterns.¶
The Third National Communication to the United Nations Framework Convention on Climate Change (TNC UNFCCC – October 2023) notes that northern Algeria is an area at extreme risk. Pastures and rangelands cover 32.9 million hectares in the country. Out off this total surface, around 20 million ha are steppe rangelands stretching from east to west across Algeria, and concentrated largely in the High Plains. The risk and vulnerability analysis conducted for the MEER with the support of GIZ in 2017, classifies these territories as particularly vulnerable, highlighting the significant threat climate change poses to agro-pastoral and steppe ecosystems, including those of El Bayadh.[1]¶
The wilaya of El Bayadh includes three main geographical zones: the northern High Plains, the central Saharan Atlas and the southern Pre-Saharan zone. Steppe areas are characterized by the presence of "halfah grass (*Stipa tenacissima*) zones" (*nappe alfatière* in French), whose surface is in steep decline, with an estimated reduction of almost 30% in 16 years, and mainly covers pastoral areas located in mountain (72%) and high plain (26%) zones.[2] The present project, titled "Adaptive management of the Algerian Steppe and halfah zones to support climate-smart livelihoods and ecosystem resilience" (Halfah project), specifically targets the wilaya of El Bayadh and these vulnerable ecosystems.¶

Deleted: <#>The rebound of Algerian economy in the post COVID-19 phase has been influenced by spillovers from Russia's war in Ukraine and recurrent droughts with noticeable impact on inflation, which has been offset to some extent by the recovery in hydrocarbon output and boost in government spending and exports. The Algerian economy is estimated to have grown by 4.2 percent in 2023, a robust performance owing to improvement in private consumption and strong performance in the industry, construction, and service sectors. The short-term outlook is broadly positive, but inflation remains a concern. Real growth is forecast to remain strong in 2024, at 3.8 percent, supported in part by large fiscal spending. Inflation would start to decelerate, particularly thanks to easing fresh food prices, although its pace remains a concern.[4]¶

Deleted: The resident Algerian population was 45.4 million on January 1, 2022.[13] In 2022[14], the province of El Bayadh had a population of 360,067 inhabitants, with the majority concentrated in secondary urban areas (mostly in the provincial capital) and only 75,506 inhabitants living in rural areas. The average population density is very low at 5 inhabitants/km^2, with significant disparities across the province (from 31 in Chelala to 0.25 in Bnoud). Furthermore, the average annual population growth rate has decreased from 3.61% in 1997 to 1.41% in 2008. The average household size was 6.5 persons in 2017, slightly higher than the national average of 5.9[15].¶

82,750 individuals aged 6-15 (27%) and 65,236 individuals aged 16-24 (18.11%)[16]. The nomadic population is reported to have significantly decreased in recent years, though the related data are highly disaggregated over time. According to a 2015 report on the Green Dam project the nomadic population decreased by 21% between 1998 and 2008.[17] In 2014, the nomadic population was estimated at 36,257 (around 12% of the total population) and was present in all communes except Boussemghoun, ranging from 22 individuals in Sidi Slimane to 9,370 in Mehara.[18]

6. **Youth** (15-24 years old) represented 14.1% of the total population in 2019[19], with an unemployment rate of 27%, close to 3 times the unemployment rate of the population over 25. A study on school dropout[20] highlights that "*exclusion from the education system (illiterates and dropouts before 16 years old) concerns over 30% of 15-29 years old*". This is notably observed in poorer families (40%), in rural areas (55%) and in the case of youth with low/no instruction.[21]

Initial Gender Assessment

7. Algeria has registered strong progress in terms of Human Development Index (HDI) over the past 20 years, but gender norms continue to limit women opportunities in the country. In 2022,[22] the index was 0.682 for women and 0.774 for men, with a resulting Gender Development Index (GDI) of 0.881. The Gender Inequality Index (GII) for 2022 is comparatively low, at 0.460 resulting in Algeria ranking 114th out of 193 countries.[23]

8. The Algerian Constitution recognizes the equality of male and female citizens in all areas. No legislative or regulatory provision prohibits or restricts the participation of women in the country's political life, in accordance with the legislative and regulatory texts relating to the electoral system. In this respect, it is important to note the introduction of positive measures to facilitate women's access to membership in elected bodies , requiring certain quotas of female candidates across the various electoral cycles. To this extent, the Organic Law n°03-12 of January 12, 2012 requires parties to reserve a quota of 30% of their candidates for women in legislative and local elections, with the possibility for exclusion of any list not complying with this provision. The share of seats held by women in parliament in Algeria was however only 7.86% in 2021-2023.[24] This proportion has fell from over 30% in 2012-2016, and around 26% in 2017-2020. The 2020 Constitution (article 31 bis) promotes women political rights and recognizes that fundamental rights and freedom are guaranteed by the State, and no other high-level strategy or policy have been established specifically for gender equality and women empowerment.

9. Key stakeholders for the promotion of gender equality and women empowerment in the agriculture sector and rural economy in Algeria include: the Ministry of National Solidarity, Family and Women Condition (MSNFCF) represented locally by the Directions of Social Action (DAS); the National Council for Women and Family (CNAFF); the Ministry of Agriculture and Rural Development (MADR); the National Agriculture Extension Institute (INV) and its national unit dedicated to rural women (and equivalent at provincial level); and the national agricultural chamber (CNA) with the inclusion of rural women sections throughout the national territory.

10. The maternal mortality rate stood at 78 per 100,000 births in 2022 in Algeria, while the adolescent birth rate was 11.6 per 1,000 women aged 15-19 the same year (World Health Organization, 2023). Although the law sets the age of marriage at 19 (for both young women and men), 5.2% of rural girls aged between 15 and 19 are married, with almost 7% in the North-West and 5.8% in the South. Around 15% of young women have no more than primary

[16] DPSB. 2022. Annuaire statistique
[17] BNEDER. 2014. Etude de réhabilitation et d'extension du barrage vert. Analyse de l'état des lieux.
[18] 2014. Monographie de la wilaya d'El Bayadh.
[19] ONS. 2019. Démographie algérienne n°890/Bis,
[20] Benhaddad, A. N., & Hammouda, N. 2016. L'exclusion scolaire: causes et impacts: le cas de l'Algérie. *SAHWA Policy Paper*.
[21] IFAD. 2023. Country Strategy Note.
[22] PNUD. 2024. Rapport sur le développement humain 2023-2024.
[23] PNUD. 2022. Gender Inequality Index.
[24] 2021-2023 Inter-Parliamentary Union figures. https://www.ipu.org/parliament/DZ.

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education[25], and the UNDP GII indicates that an estimated 42.9% of women 25 and older had at least some secondary education in 2022, compared to 46.8% of men.

11. Despite significant progress made in the context of socio-economic and financial inclusion of women, they only represent 19.7% of the working population at national level[26]. Female unemployment reached 20.4% in May 2019[27], almost twice the national rate of 11.4%. The same gap was observed for female unemployment among graduates of vocational training and higher education (respectively at 20.7% and 23.9%). Unemployment among 15 to 24 year-olds stood at 26.9% for the whole age group, and 45.1% for girls. Because of the lack of reliable data on informal labour, the higher unemployment rate for women does not necessarily reflect fully the reality of the female labour force. The World Bank Gender Data estimates that only 16% of business owners in Algeria were women in 2022, placing the country in the lowest quintile of all countries for which data is available. In 2021, 31.2% of women and 56.8% of men in Algeria had a bank account. The same portal estimated that in Algeria, women spent 5.8 times as much time on unpaid domestic and care work than men.

12. FAO conducted an evaluation on gender in the agricultural and rural sector in Algeria in 2020, which highlights that women's work in rural areas is often invisible, in the form of unpaid labour in family farms, and that traditional gender norms limit their opportunities. Their labour (including processing of food products or crafts) is generally performed at home and marketed by other family members (husband or brother), in line with patriarchal gender norms. Beyond barriers posed by traditions, women's ability to commercialize their products is impeded by limited accessibility (lack of public transport and distance from markets), and lack of markets or commercialization spaces nearby. Women, just like men, are confronted with bureaucracy when seeking a job or access to public support to entrepreneurs (NESDA, CNAC, Microcredit). These constraints limit women's financial autonomy and inclusion. Data available for El Bayadh wilaya and consultations confirm these observations, and notably the hidden role women play in the rural economy.

13. FAO's 2020 evaluation identifies key measures to better integrate gender aspects in rural development processes, including: (i) decreasing rural women's workload through access to drinking water, efficient woodstoves, etc.; (ii) improving women's income through access to savings, credit and insurance products, financial/business literacy, formal training, etc.; and (iii) supporting local women associations that are able to provide for their members, promote their interests and better represent them in decision-making processes.

14. The project will undertake a detailed Gender Assessment at project proposal stage. To address the identified gender issues, the project will take proactive measures to integrate gender-focused development strategies, ensuring it will not pose a risk to the principle of gender equality and women's empowerment. In particular, three strategic pathways for gender equality and women's empowerment may be followed, in line with IFAD's strategy for Gender equality and empowerment, and with the recommendations from FAO's evaluation: (i) promote economic empowerment to enable rural women and men to have equal opportunities to participate in and benefit from profitable economic activities; (ii) enable women and men to have an equal voice and influence in rural institutions and organizations; and, (iii) achieve a more equitable balance of workloads and the sharing of economic and social benefits between women and men. Additionally, gender aspects will be mainstreamed in the project's assessment of climate risks, and relevant adaptation measures promoted under Components 1 and 2. Gender mainstreaming will also be supported throughout the studies and awareness raising activities under Component 3. Women engagement and support will rely on existing structure such as the proximity and solidarity units. Women will make up 30% of the beneficiaries and their participation in the project will be monitored. The implementation of the gender strategy and action plan will be monitored. Trainings will be

[25] CENEAPED. Septembre 2020. « Les laissés pour compte (LNOB) en Algérie: inclusion des exclus ». Ne laisser personne pour compte en Algérie, Rapport final.
[26] Office National de la Statistique (ONS).
[27] Ibid.

designed and delivered at times and in locations that are convenient to women given the demands on their time from other duties.

Geography and natural resources

15. Located on the High Plains of Oran in the southwest of Algeria, the province (*wilaya*) of El Bayadh spans an area of 71,000 km^2 (3% of the national territory).[28] From an administrative perspective, El Bayadh province is divided into 8 districts (*daïrate*) and 22 communes. Its territory extends from the Chott Echergui (salt-lake) in the North to the Erg Occidental (sand sea) in the South. The geography of the province is dominated by the Djebel Amour mountain range, which includes the following summits: Boudergua (1,873 m), El Ouastani (1,878 m) and the Djebel Ksel (2,008 m). The province is bordered to the north by the provinces of Saida and Tiaret, to the east by the Laghouat, Ghardaïa, and Adrar, and to the west and southwest by Sidi Bel Abbès, Naâma, and Bechar.

16. The province includes three main ecological zones, from north to south[29]: the **High Plains**, characterized by low and irregular precipitation, frost (40 to 60 days per year), and the presence of hot winds (Sirocco) during the dry season; the **Saharan Atlas**, benefiting from water flows from the surrounding mountains as well as relatively more significant precipitation than other areas, making it more suitable for agricultural activities; and the **Pre-Saharan Zone**, the most disadvantaged zone of the wilaya, with precipitation of around 129 mm per year and harsh winters characterised by frost and temperatures around 0 degrees.

17. **Water resources**. In steppe regions, water resources are scarce, only partially renewable and unevenly distributed. These highly vulnerable resources have been affected by droughts over recent decades. Hydrologically, the northern area of El Bayadh is drained towards the Chergui salt lake (*chott*), which serves as outlet for the entire watershed of the Oran High Plains and the southern foothills of the Saharan Atlas.[30] El Bayadh possesses a dense hydrographic network with numerous wet riverbeds (*wadis*) that fill in the wet season, namely Deffa, Falit, Sagaret, and El Gharbi.[31] The mobilized water resources are estimated at 349.63 hm^3.

18. **Forests and Forestry Department**. El Bayadh's forest estate is located mainly in the Saharan Atlas and covers an area of 122,111 ha[36] (1.70% of the wilaya's total area). Locally, the Forestry Department (Conservation des Forêts – CdF) oversees forests management, together with the protection of natural resources and, more broadly, the biodiversity of flora and fauna, combatting desertification and extending and rehabilitating the forest heritage, with annual reforestation and fruit planting operations, water and soil conservation, dune and riverbank fixation and rural track development.

19. The CdF is also responsible for the local implementation of the "*Green Dam*" national program. This gigantic "forest barrier" project was launched in 1974 to halt the advance of the desert and alleviate the arid climate. The project links Algeria's western and eastern borders over 1,500 km and an average width of 20 km. It covers an area of 3,698,558 ha spread over 13 wilayas and 165 communes[37]. The wilaya of El Bayadh is moderately concerned, with a surface area of 425,014.37 ha[38] (9.67% of the total surface area of the Green Dam and 6% of the territory of the wilaya of El Bayadh) spread over 7 daïras and 16 communes out 22.

20. **Biodiversity and protected areas.** The analysis of the floristic diversity of the El-Bayad steppe zone in 2014[39], revealed a flora richness of 144 taxa belonging to 36 families and 107 genera. None of the IUCN Red List Endangered Species listed for Algeria are present in El Bayadh. A study of vegetation monitoring between 1978 and 2005 conducted

[28] ANIREF. 2018. Monographie Wilaya d'El Bayadh.
[29] Ibid
[30] 2014. Monographie de la wilaya d'El Bayadh.
[31] Fayçal Djellouli. 2016. Les Ressources En Eau Dans La Wilaya D'El Bayadh, Centre Universitaire Nour Bachir - El Bayadh.
[36] ANIREF. 2018. Monographie Wilaya d'El Bayadh.
[37] BNEDER. 2015. Etude de réhabilitation et d'extension du barrage vert. Analyse de l'état des lieux.
[38] CdF. 6 March 2024. Présentation du secteur des forêts de la wilaya d'El Bayadh.
[39] NEGADI Mohamed, HASSANI AbdElkrim, BOUNACUER Farid et AZZAOUI Mohamed Essalah, Octobre 2014. Etude de la diversité floristique de la région d'El Bayadh (Algérie) «flore rare et menacée».

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The **High Plains**, covering an area of 8,778 km^2, with altitudes ranging between 900 and 1,400 meters at Hassi Ben Hadjam in the commune of Mehara. This zone is

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The **Pre-Saharan Zone**, covering an area of 51,073 km^2, representing 71% of the total area of the province, with altitudes ranging from 1,000 in the north to 500 meters in the south. Climatically, this is

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Groundwater resources are estimated at 226.63 hm^3, including 14.12 hm^3 for domestic water supply and 32.41 hm^3 for irrigation. [34] The province exploits four groundwater basins: i) the Chot Chergui aquifer (Lower Bathonian), ii) the El Bayadh syncline aquifer (Lower Cretaceous), iii) the Barremian-Aptian-Albian aquifer, and iv) the continental Tertiary aquifer. There are 3,709 extraction wells with a mobilized volume of 31.63 hm^3/year, corresponding to an irrigated area of 12,302 hectares.[35] Additionally, there are 18 wells for livestock watering with a capacity of 6,134 m^3.¶
Lastly, the only existing wastewater treatment plant, established in 2014, treats a volume of 19,700 m^3/day, exclusively intended for irrigation of 250 hectares of agricultural land at Boukhit.¶

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by the ROSELT observatory, showed a decline in floristic richness of almost 60% in steppe areas of Algeria. A potential protected area was studied in the area Kheloua and Krekda hills, Djebel El Ktef, Djebel el Oustani and Djebel Ksel in El Bayadh. Additionally, two Centres for the Development of Biological Resources (CDRB) have been created, respectively in Laguarmi (El Bayadh) and Moudjebara (Djelfa) for *Chlamydotis undulata* and *Geronticus eremita*.

The steppe ecosystem and its degradation

21. In Algeria, pastures and rangelands cover 32.9 million ha[41], including 20 million ha of steppe rangelands, 12 million ha of pre-Saharan rangelands and around 900,000 ha of other types of rangelands[42]. Steppe regions are characterized by a mosaic of shallow and poorly developed soils, with calcareous accumulations that reduce the depth of useful soil and are generally poor in organic matter and sensitive to degradation. The low and sparse vegetation that is typical of these areas consists of halfah grass (*Stipa tenacissima*), white wormwood (*Artemisia herba alba*), esparto grass (*Lygeum spartum*), *Arthrophytum scoparium*, psammophytes and halophytes. Since the 1950s, the extent of the *Stipa tenacissima* areas (*nappe alfatière*), an integral part of the steppe, has fallen sharply, from 4 million ha in 1950 (P. Boudy)[43] to 2 million ha in 1989[44], with a productive potential of around 524,000 ha.[45] The 2023 World Bank report on Algerian forests notes a total halfah production of over 90,000 T/year in the 1960s, to less than 900 T/year in the 2000s, and 0 T/year after 2012.

22. ***Stipa tenacissima***[46] (also known as halfah grass, alfa grass, needle grass, etc.) is a long-lived perennial grass that dominates the Mediterranean Basin steppe, covering more than 2.8 million ha and growing in almost all geomorphological units. It is distributed within a wide range of bioclimates with great tolerance to temperature variations. Its optimal bioclimatic stages are arid superior and semi-arid lower. *Stipa tenacissima* grows in densely circular tufts, often wider than 50 cm in diameter, and has narrow, long leaves (up to 100 cm long and 2-3 mm wide). The leaves are thin, ribbon-like, smooth, shiny, solid, and covered at the base with a hairy sheath, becoming folded along their long axes and curling up during drought to avoid evapotranspiration.

23. Stipa tenacissima has an overall low palatability to sheep and goats, but has a high economic value as a raw material for paper, cordage and baskets. Halfah provides a number of benefits by forming a key component of arid ecosystems sustainability; holding high economic value; being highly resistant to drought; and facilitating the establishment of biological soil crusts and vascular plants thanks to its windbreaker effect. IUCN lists halfah grass as vulnerable with a decreasing population trend in 2015.[47]

24. **In the wilaya of El Bayadh**, the Saharan Atlas is the most favoured zone for the steppe ecosystem, thanks to relatively higher rainfall. The total agricultural surface area was estimated at 5.76 million hectares in 2018, the vast majority of which (99%) was made up of collective pastures and rangelands.[48] “Halfah grass zones” (*nappe alfatière*) in El Bayadh mainly covers pastoral areas located in mountain (72%) and high plain (26%) zones.[49] The ongoing study and inventory of forest (including steppe) resources by BNDER estimates that halfah zones in El Bayadh have shrunk from an estimated 240,251 ha in 2008[50] to an estimated 168,584 ha in 2024, corresponding to almost 30% of the surface (71,600 ha) being lost in 16 years. Additionally, the study highlights the degraded or highly degraded state of large parts of remaining halfah grass zones.

[41] Statistiques agricoles, série B.
[42] MEER. Note conceptuelle sur la réhabilitation de la nappe alfatière.
[43] Nedjraoui Dalila, Bédrani Slimane. 2008. Revue VertigO la revue électronique en sciences de l'environnement. « La désertification dans les steppes algériennes: causes, impacts et actions de lutte ».
[44] 2014. Revue VertigO, la revue électronique en sciences de l'environnement. « La gestion non–durable de la steppe algérienne ».
[45] BNEDER. 2008. Etude de découpage de la Steppe en unités pastorales.
[46] CGIAR/ICARDA. 2017. Managing rangelands: promoting native grass species.
[47] https://www.iucnredlist.org/species/57471077/125468612#assessment-information
[48] ANIREF. 2018. Monographie Wilaya d’El Bayadh.
[49] CdF. 6 March 2024. Présentation du secteur des forêts de la wilaya d’El Bayadh.
[50] 2014. Monographie de la wilaya d’El Bayadh.

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Protected areas. According to the national law[40], protected areas are defined as the territory of all, or part of one or more municipalities, as well as areas within the public maritime domain subject to special regimes for the protection of the fauna, flora and terrestrial, lacustrine, coastal and/or marine ecosystems concerned. Protected areas are classified into seven (7) categories: National park; Nature park; Strict nature reserve; Nature reserve; Habitat and species management reserve; Natural site; Biological corridor.

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25. Indeed, the sharp decline in surface has been accompanied by a profound transformation of the various existing facies or floristic assemblages. As early as 1981, studies showed a drastic reduction in white wormwood (*Artemisia herba-alba*) rangelands, whose pastoral value is very high but whose specific contribution (frequency) was only 8%, and a sharp drop in the specific contribution of halfah (*Stipa tenacissima*) to 3% for a forage of mediocre quality but which was heavily grazed by default. Substitutions hence occurred from facies with good forage value (*Artemisia herba-alba*) to facies with very low forage value (*Lygeum spartum*). Similarly, investigations carried out in 3 communes as early as 2009 in the north-west of the wilaya (Bougtob, Kef Lahmar and Tousmouline) revealed a profound change in the biodiversity of rangelands.[51] On the other hand, field work[52] on protected rangelands (grazing bans) in the commune of Stitten in 2018 shows a high floristic diversity, with a good cover and no fewer than 56 species belonging to 20 families, including the Asteraceae (25%), Fabaceae (9%) and Poaceae (9%) families. The remaining families represent between 5% and 2%.

26. **Desertification**. Steppe ecosystem degradation is a complex phenomenon, driven by a combination of climatic, economic and social factors. As highlighted in the following sections, the arid and semi-arid climate, associated with a downward trend in rainfall and simultaneous increase in temperatures, with increasingly long and recurrent droughts, combined with poor agricultural and livestock production practices, have provoked a profound transformation of the steppe ecosystem in Algeria, as it has in El Bayadh.

27. This transformation is characterized by the transition from a nomadic to a sedentary system and from pastoralism to agriculture (the component of palatable grazing decreased from 50% to 43.5% between 1985 and 2000, necessitating greater reliance on supplementary feeding of livestock),[53] with already visible consequences on natural resources (water, soil, and biodiversity). The drastic reduction in traditional transhumance practices (*achaba* and *azaba*), has further led to a disruption of territorial complementarities between the steppe, high cereal plains, and pre-Saharan grazing lands. Additionally, budget allocations for the preservation and valorisation of grazing lands (grazing bans, pastoral plantations, pastoral hydraulics) have significantly decreased since 2015[54]. At the same time encroachment on vegetative cover and illegal ploughing (using modern machinery such as tractors), have led to erosion and degradation of grazing lands.

28. Stock density is an important driver of steppe ecosystem degradation. The 2008 study titled “Desertification in Algerian steppes” [55] notes that in 1998, the stock density was 10 times higher than what the rangeland could sustain. Most recently, stock density has decreased because of depleted forage resources. The lack of forage availability is identified as the main threat to pastoralism together with the availability of water resources and sanitary risks.[56]

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29. The **management of steppe rangelands** is quite complex. *In the customary land tenure system, the collective lands of the steppe were, like the collective spaces of the Maghreb, shared between families, fractions and nomadic tribes, where membership (political-religious importance), Muslim law and customs determined the modalities of appropriation, enjoyment and inheritance*.[57] This ancestral land tenure system has undergone far-reaching legislative reforms, with the 1975[58] Pastoral Code and its implementing decrees (n°75/167, 168, 169). The Code notably restricted grazing land and livestock, created livestock cooperatives, and profoundly modified customary rules, in particular by stipulating in articles 1 and 2: (i) *Rangelands located in steppe areas are State*

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[51] El Zerey Wael, Salah Eddine Bachir Bouiadjra, Mohamed Benslimane et Khalladi Mederbal. Septembre 2009. Vertigo, volume 9 numéro 2. L'écosystème steppique face à la désertification: cas de la région d'El Bayadh, Algérie.
[52] Sailia Omar et Belarbi Abdelghani. 2018. Contribution à l'étude de la diversité floristique des parcours mise en défens, cas de la commune de Stitten-Wilaya d'El Bayadh.
[53] Mohamed Hadeid, Abed Bendjelid, Jacques Fontaine, Serge Ormaux. 2015. Spatial steppe land dynamics: The example of the Upper Western Plains (Algeria). Cahiers de géographie du Québec, Volume 59, numéro 168, décembre 2015.
[54] Statement by HCDS officials during the IFAD field mission in the wilaya of El Bayadh (4-7 March 2024).
[55] La désertification dans les steppes algériennes, op.cit.
[56] GIZ. Avril 2017. Analyse de Risque et de Vulnérabilité au Changement Climatique en Algérie Rapport de synthèse.
[57] La gestion des espaces pastoraux en Algérie: dynamique et stratégies des acteurs, cahiers de la Méditerranée n° 102, 2021.
[58] Ordonnance n° 75-43 du 17 juin 1975 portant code pastoral

property and as such have been transferred to the national agrarian revolution fund; (ii) *Livestock belong to those who raise them and make a living from them, while the right to use grazing lands is reserved for herders who directly and personally exploit their herds, and for the beneficiaries of the agrarian revolution*.

30. To date, the associated legal framework has seen some changes, , in the direction of recognizing greater relevance to private ownership and providing new modalities in which these lands are appropriated, notably through programs for accession to agricultural land ownership (Accès à la propriété foncière agricole par la mise en valeur - APFA) [59], land development through concessions (GCA program) [60] and the concession of large areas to potential investors on the basis of calls for projects (ODAS system). The management of steppe areas is therefore subject to the various regulations governing different systems, depending on the area's productive potential or program(s) implemented in the agricultural domain or other sectors.

31. Additionally, the lack of coordination in the management of these areas results from challenges in implementing the legal framework. As per the Pastoral Code, steppe management normally falls under the responsibility of the General Direction of Forests (DGF) at central level and Forestry Department (Conservation des Forêts – CdF) at local level, with some overlap with the role of the High Commissary on Steppe Development (HCDS). HCDS was created in 1981 and is placed under the Ministry of Agriculture and Rural Development. Its mandate is scientific and technical, with the aim to stop the continuous degradation of rangeland and to contribute to the socio-economic development of agropastoral areas. From 1994, HCDS initiated large-scale interventions for the restoration of land resources in steppe areas, based on participatory approaches targeting pastoral management, hydraulic management, income generation and diversification, and sensitization and training.

32. To this extent, direct interventions, supported by HCDS within their programme of work in El Bayadh, include: i) pastoral planting for severely degraded rangelands (44,239 ha), ii) rangeland protection, for moderately degraded rangelands (2,366,950 ha), iii) construction and development of wells and boreholes for livestock watering, iv) construction and development of runoff water catchment structures (springs, ponds, djoubs), v) construction of floodwater recovery structures (ceds, dikes and reservoirs), and, vi) support to rural women with multi-service plastic greenhouses, beekeeping and rabbit rearing units.

33. In El Bayadh, relatively small “halfah zones” are included as part of the forest estate, and these are managed and rehabilitated by the CdF. The CdF also carries out judicial police missions (fines for offenders who infringe the regulations in force) for grazing bans in both the areas it manages and those managed by the HCDS (which does not have enforcement powers). CdF and HCDS seek to coordinate, with the former managing the national forest estate (the State's public domain) and the latter the State's private domain in its rangeland section, including Halfah grass zones. Communes (APC) are also involved in the management of protected rangeland, as the recipient of the fees to access protected communal rangeland perimeters, and by selecting herders that can be let in.

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Pastoralism and agriculture in the targeted area

34. El Bayadh is the largest province with a pastoral vocation in the country, characterised by grazing lands covering 5,693,186 hectares, of which 1,000,000 hectares were protected in 2014 (through grazing bans and pastoral planting)[61]. The ancestral and dominant practice in El Bayadh is pastoralism, with sheep, goat and camel rearing, as well as occasional cultivation of fodder and cereal (mainly wheat and barley), practiced in floodplain areas. Sheep rearing is still the most important agricultural activity, but its traditional extensive model has been transitioning to semi-intensive and intensive models in recent years. The

[59] Loi 83-18 relative à l’accession à la propriété foncière agricole (APFA)
[60] Décret n° 97-483 du 15 décembre 1997 qui fixe les modalités, charges et conditions de la concession des parcelles de terres relevant du domaine privé de l'Etat dans les périmètres de mise en valeur, JO n° 83 du 17 Décembre 1997.
[61] HCDS. 2014. Evolution des parcours steppiques dans la wilaya d’El Bayadh.

rearing of goats, and to a lesser extent, cattle and camels, is also present, albeit at a much smaller scale.

35. According to statistics by the Department of Agriculture and Rural Development of El Bayadh, there were 1,325,022 sheep in 2022-2023[62]. This represents a significant decrease compared to available data for previous periods,[63] which can be partly attributed to disaggregated nature of data, over time and space, and underscores the dramatic scale of the transformation affecting the sector due to natural resource depletion (significant grazing land degradation, combined with the pressure of climate change and overgrazing). According to a HCDS study[64], the sheep population had been growing exponentially in previous decades, going from 1 head every 8 hectare of pasture before 1980 to 1 head per hectare in 1990. The same study reports that the pasture's productivity decreased from 250 to 60 foraging units per hectare in the same period.

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36. **Agriculture**. Aside from grazing lands, the province of El Bayadh has an estimated utilized agricultural area of 77,445 ha (1.34% of the total agricultural area of the province). Around 12,375 hectares are under irrigation, representing 15.97% of the utilized agricultural area,[65] in line with the national average. The utilized agricultural area is characterized by the predominance of fallow land (82%), with the surface of cultivated agricultural area covering only 13,945 hectares (18%), distributed as follows[66]: (i) herbaceous crops: 10,779 hectares, including winter cereals (4,946 hectares), vegetables (3,101 hectares, essentially potatoes), and fodder crops such as alfalfa, green barley and oat (2,491 hectares); (ii) fruit tree cultivation: 3,166 hectares, including olive trees (1,318 hectares), stone fruit and pome fruit species (1,282 hectares), and date palms (487 hectares). Furthermore, there are 43 large irrigated perimeters located notably in Brezina and Bond, as well as in Kheiter, Boualem, and Boussemghoun, for a total area of 432,692 hectares[67].

37. The Third National Communication on Climate Change to the UNFCCC notes that the growing fodder deficit has pushed agro-pastoralists towards the cultivation of dry cereal crops, which have taken over a large part of the rangelands on land unsuitable for agriculture. The productivity of steppe soils is low, and the extension of ploughing and the introduction of mechanization are contributing to degradation as much as overgrazing.

38. The overall **productivity** recorded is as follows: (i) 15.8 quintals/hectare for winter cereals (in line with the national average but very low for irrigated cropping); (ii) an average yield of 349 quintals/hectare for vegetable crops, higher than the national average of 268 quintals/hectare in 2018[68], although the specific types of vegetable production are not specified; (iii) 160 quintals/hectare for fodder crops, although the types of fodder cultivated and the end produce (fresh, dry, or silage) are not specified. In terms of livestock production, the province recorded 59,258,000 Liters of milk, 14,607.3 tons of red meat, 241.8 tons of white meat, 2.7 tons of honey, and 1,720 tons of wool. Other activities in the rural sector include the harvesting of perfume, medicinal and aromatic plants (MAP) and small-scale processing of livestock products (cheese, butter).

Governance, Institutional and Policy Framework for Adaptation

39. **Governance**. The People's Democratic Republic of Algeria is a constitutional representative democracy based on a multi-party semi-presidential system. The President of the Republic is elected by direct universal suffrage every five years. State prerogatives are divided between the government, appointed by the President, and the bicameral Parliament, whose lower house is elected by direct universal suffrage for a five-year term. For the upper house, two-thirds of the members are indirectly elected with a single-round majority ballot by an electoral college made up of members of the wilaya people's assemblies and the

[62] DSA El Bayadh (statistiques agricoles série B), op.cit.
[63] The 2014 monography reports 1,800,000 sheep, while the 2018 monography reports 2,130,000 sheep.
[64] Evolution des parcours steppiques, op.cit.
[65] DSA El Bayadh (campagne agricole 2022-2023).
[66] DSA El Bayadh (statistiques agricoles série B), op.cit.
[67] ONTA. 2024. Les Périmètres Agricoles (Concession) à travers la Wilaya d'El Bayadh.
[68] Statistiques agricoles série B, 2018, Direction des Statistiques Agricoles et des Systèmes d'Information (DSASI), MADR.

communal people's assemblies. The remaining third is appointed by the President of the Republic. Half of the Council is renewed every three years for a six-year term.

40. **Institutional Framework for Climate Adaptation**. Climate governance at the national level involves various government bodies, including the Ministry of Environment and Renewable Energy (MEER) through the Directorate of Climate Change (DCC) and the National Agency for Climate Change (ANCC), as well as the National Climate Committee (presided by MEER) as an inter-ministerial body responsible for coordinating and supervising climate change matters. Other ministries involved in climate change adaptation include the Ministries of Water Resources, Agriculture and Forestry, Fisheries, Interior, Local Authorities, and Spatial Planning, Tourism, Public Health, Public Works, Transportation, and Tourism. Finally, other relevant entities include National Meteorology Office (ONM), National Agency for the Promotion and Rationalization of the Use of Energy (APRUE), National Waste Agency (AND), National Observatory of the Environment and Sustainable Development (ONEDD), CNDRB, Centre National Des Technologies de Production Plus Propre (CNTPP), as well as actors from local authorities, elected officials, and civil society.

41. In El Bayadh, as part of the preparation of the Local Climate Adaptation Plan (the wilaya having been identified as a priority and pilot wilaya for this process under the National Climate Plan), a local climate committee was established by the Governor (*Wali*) in 2022.

42. **Policy Framework for Adaptation**. Algeria submitted its Third National Communication to the UNFCCC in 2023, its Second National Communication to the UNFCCC in 2010 and its initial Nationally Determined Contribution in 2016. The preparation of the Fourth National Communication has been initiated. Algeria has also developed a National Climate Plan (PNC) in 2019. The PNC plans for the preparation of Local Climate Adaptation Plans (LCAPs), for which El Bayadh has been targeted as a priority wilaya. A number of additional national policies and strategies contribute to the definition of a national framework for adaptation and are highlighted in section II. D.

Climate change

(i) Past and current climate

43. The climate of El Bayadh is semi-arid continental (or semi-arid cold) corresponding to the Köppen classification *BSk*, and is characterized by two main seasons: a harsh winter with snowfall and an average temperature of 6°C, and a hot and very dry summer with an average temperature of 36°C and sharp and significant temperature fluctuations.[69] The province lies between isohyets of 400 mm in the north and 150 mm in the south, with significant environmental and climatic variations between the two.

44. **Ecological zones**. The province is composed of three main ecological zones from north to south:[70] (i) the High Plains ("*Hautes Plaines*" – El Kheiter weather station), characterized by low and irregular precipitation, frost (40 to 60 days per year), and the presence of hot winds (Sirocco) during the dry season; (ii) the Saharan Atlas (El Bayadh weather station), with relatively more significant precipitation than and harsh winters (snow cover for over 10 days per year); Winters are harsh, with snow cover for more than 10 days per year; and (iii) the pre-Saharan Zone (El Abiod Sidi Cheikh weather station), with precipitation of around 129 mm per year and harsh winters characterised by frost and temperatures around 0 degrees.

45. **Temperature**. The repartition of average monthly temperatures for the period 1990-2014 is characterized by respective average yearly temperatures of 16.57°C, 15.49°C and 17.75 °C in El Kheiter, El Bayadh and El Abiod Sidi Cheikh respectively. Highest temperatures are observed in the months of June to August, the hottest month being July (for both periods). Lowest temperatures are observed during the months of November to February with possible frost. The coldest month is January.

46. **Precipitation**. Rainfall is generally low, irregular, with strong inter-annual variations, and is heterogeneous in time and space. In the northern part of the High Plains (El Kheiter

[69] ANIREF. 2018. Monographie Wilaya d'El Bayadh.
[70] Ibid.

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Deleted: The committee is operational and chaired by the Governor while the Director of Environment serves as Secretary. The committee includes executive directors representing all sectors, the Presidents of the Provincial and Communal People's Assemblies, officials from the university centre, National Centre for the Development of Biological Resources (CNDRB), HCDS, ONM, the Brezina Dam manager, the environmental monitoring station, the Algerian association of environment and citizenship, and the national organization in charge of the fight against desertification. The committee is entitled to expand its composition and avail itself of external expertise.

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station), annual rainfall varies between 208 and 243 mm according to the time series considered. In the Saharan Atlas (El Bayadh station) region, average annual rainfall is 300 mm/year. In the pre-Saharan zone at the South of the wilaya, average annual rainfall is 133 mm. Rainfall is scarce and irregular, often brief, with showers of high intensity that can lead to flash floods.

47. **Aridity index and coefficient**.[71] The "De Martonne" Aridity index calculated for the three ecological zones characterizes the High Plains (El Keither station) as arid, Saharan Atlas (El Bayadh station) as semi-arid, and pre-Saharan zone (El Abiod station) as extremely arid. Similarly, the Emberger pluviothermic quotient (Q2) classifies the three zones respectively as "arid with cool winter"; "semi-arid with cold winter"; and "extremely arid with cool winter".

48. Climate in the wilaya is marked by **snowfall**, estimated at an average 13.1 days per year based on data from El Bayadh station. Snow precipitation contributes significantly to water reserves for vegetation especially when it melts in the early spring. Snowfall in El Bayadh reached 186 cm in 1980 and 182 cm in 1982. White frosts occur for an estimated 17.8 days a year.[72]

49. **Winds** are also an important element of climate in the wilaya and can enhance water stress in plants by participating to their desiccation. Sirocco in particular is estimated at an average of almost 20 days/year in El Bayadh. South and Southwest winds predominate, and the windiest months are April and May.[73]

(ii) Observed changes in climate

50. In Algeria, the increase in temperatures at ONM measuring stations between 1970 and 2019 is over 0.5°C per decade for average maximum temperatures and over than 0.2°C per decade for average minimum temperatures. [74] Overall rainfall in the country is highly variable and considered as one of the lowest in the Mediterranean[75]. Algeria is confronted with a gradual decrease in precipitation and a net increase in the frequency of droughts and floods. Decadal mean seasonal variability and linear trend indicate a 10.7 mm/decade reduction in precipitation since the 1950s[76]. Rainfall data series since 1900 show that rainfall has fallen by 40% in the west of the country, 30% in the centre and 20% in the east[77].

51. The analysis of maps established by the National Agency for Hydraulic Resources (ANRH) for the periods 1942-1989 and 1965-2004 shows that isohyets (100, 200 et 300 mm) are shifting significantly towards the north of the country, sometimes over 100 km, which is another indicator of climate change[78]. The analysis of change in climate zones between 1951 and 2005 also reveals a gradual but significant expansion of the area of the "hot desertic" zone[79].

52. In the semi-arid zones and steppe, the rainfall deficit reaches 17 to 27% as illustrated by Figure 1 below (Djelfa ONM station data). Inter-annual variation in precipitation is significant, and drought is more pronounced, particularly in the western steppes, where dry seasons have increased by 2 months, and where the risk of desertification increasing as well because of climate change. Precipitation trends are highly contrasted: while the number of rainy days has declined, the intensity of autumn, spring and summer storms is increasing, raising the risk of catastrophic floods.[80]

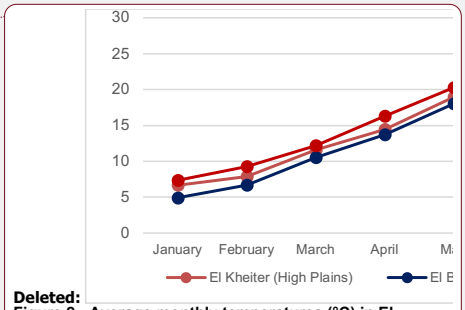

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Figure 2 - Average monthly temperatures (°C) in El Bayadh wilaya (1990-2014)¶

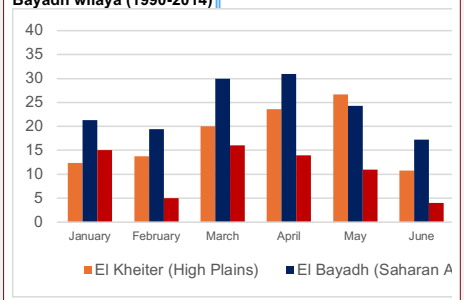

Figure 3 - Average monthly precipitation in mm in El Bayadh (1990-2014)¶
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[71] Baou A. 2020. Vulnérabilité et mesures d'adaptation dans le contexte du changement climatique dans la wilaya d'El Bayadh.
[72] A. Moussa. 2018. Impacts du changement climatique sur l'écosystème alfatier de Stitten (Wilaya d'El-Bayadh) et approche technique pour améliorer sa résilience.
[73] Ibid.
[74] Troisième Communication Nationale (TNC) de l'Algérie à la Convention des Nations Unies sur le Changement Climatique (CNUCC). Octobre 2023.
[75] Chabane. 2012. Comment concilier changement climatique et développement agricole en Algérie. Territoire en mouvement.
[76] World Bank. Climate Change Knowledge Portal.
[77] Agence nationale des ressources hydrauliques. 2009. (In MEER. 2019. National Climate Plan)
[78] Algérie. 2021. Livre blanc sur l'Impact des changements climatiques en Algérie. Ministère des Ressources en eau.
[79] Zeroual et al. 2019. Assessment of climate change in Algeria from 1951 to 2098 using the Köppen-Geiger climate classification scheme. Climate Dynamics, ISSN 0930-7575 (online), 52 (1-2), p. 227-243, JRC110985.
[80] TNC. 2023.

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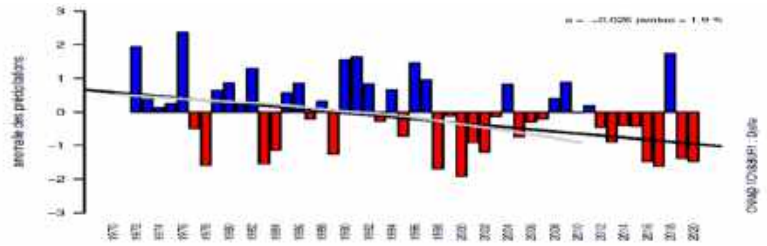

Figure 1 - Precipitation anomalies at Djelfa station (1970-2020) - ONM data

53. An analysis of climatic trends for the wilaya of El Bayadh shows that all communes are experiencing a climatic shift resulting from rising temperatures (2°C on average between 1980 and 2018) and a net decrease in rainfall (with a 60 mm drop in average rainfall between the 1907-1961 period with 313 mm and the 1961-2004 period with 253mm).[81] This shift translates into a transition from the Saharan, arid and semi-arid stages to the Saharan stage for all communes. The comparison of ombrothermic diagrams for the period 1913-1938 and 1990-2014 for the High Plains area of El Bayadh (El Kheiter station data) confirm this trend with the expansion of the dry period into the beginning of the year because of reduced precipitation and increased temperatures between January and April in particular.

(iii) Projected changes in climate

54. Maximum and minimum temperatures are expected to increase under Representative Concentration Pathways (RCP) 2.6 and RCP 8.5 in Algeria. Future climate trends for the High Plains indicate an increase in temperature of 2°C to 3°C according to the models, and an additional drop in precipitation of up to -50% according to the models.[82]

55. A climate risk assessment has been conducted for El Bayadh using the FAO CAVA Analytics platform, based on delta changes as projected by the CORDEX-CORE multi-model mean for different RCPs and future time-slices. Changes are computed with respect to the reference period 1976-2005 (historical experiment of the CORDEX initiative). Minimum and maximum temperatures will continue to rise, for all models and time periods. Projections regarding precipitation is more variable for RCP 2.6 but shows a marked decrease under RCP 8.5. Figure 2 below confirms the expected decrease in precipitation especially in the northern part of the wilaya (where the steppe ecosystem is concentrated), while Figure 3 shows an increase in dry days (less than 1mm).

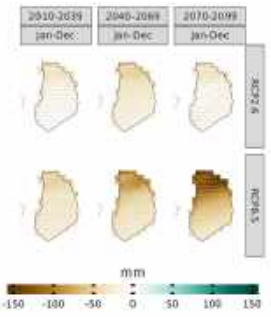

Figure 2 - Climate change signal in annual precipitation over the 21st century from historical period (1976-2005)

Figure 3 - Mean of the climate change signal for the number of days with daily precipitation below 1 mm (dry days)

Produced with the CAVA Analytics tool developed at FAO, using CORDEX-CORE multi-model mean for different RCPs and future time-slices with respect to the reference period 1976-2005 (historical experiment of the CORDEX initiative)

[81] Caractérisation climatique de la région d'El Bayadh par Djelaila Yassine, Bouzad Houcine et Benomor Zahia.
[82] TNC. 2023.

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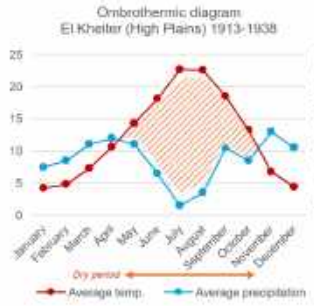

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Figure 6 - Ombrothermic diagrams for El Bayadh¶

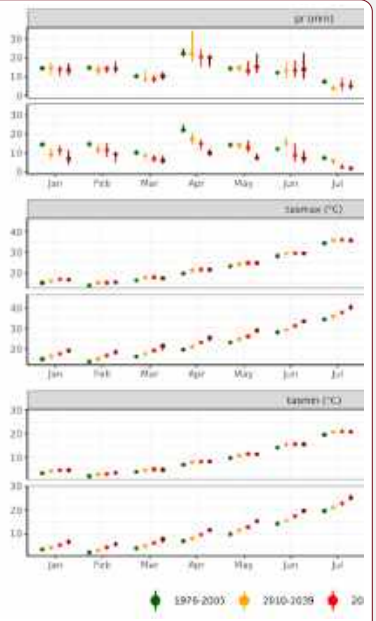

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Figure 7 - Projected changes in precipitation, maximum and minimum temperature for different periods¶
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(iv) Climate hazards

56. Algeria is exposed to a wide range of climate hazards, manifesting mainly in the risks of flooding, forest fires, heat waves, drought, desertification, silting and coastal flooding. The law of December 25, 2004 (updated in February 2024 – Law N. 24/04) on the prevention of major risks and disaster management identifies six major climatic risks, namely heavy rainfall, drought, desertification, strong winds, sandstorms and snowstorms.

57. **Droughts**. In recent decades, droughts have become more frequent, often accompanied by crop failures and forest fires, and are likely to further increase by an additional 20-30 days per year by 2069-2098, according to the RCP 8.5 model. Precipitation anomalies at the Algiers, Djelfa and Oran stations for the period 1970-2020 show changing trends in precipitation and a significant increase in the duration of drought periods over the period 1970-2020 in the central, western and foothill regions of the Saharan Atlas. This is associated with greater water stress, affecting both water supplies for populations and natural ecosystems, with consequences for agricultural yields and the risk of food shortages. Heatwaves amplify the impact of soil drying through increased evapotranspiration and, consequently, increased salinization of irrigated land, leading to a drop in production. Similarly, the drying out of the vegetation cover, associated with heat waves, increases the risk of forest fires and amplifies the desertification process. The 2017 MEER/GIZ/BNDER analysis of risk and vulnerability to climate change in Algeria, includes an assessment of drought severity, based on average duration of droughts during the period 1901-2008 (defining droughts as continuous periods during which soil moisture remains below 20%). Drought severity in the northern part of El Bayadh is characterized as “high” (over 50%) during the period.

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58. **Floods**. The national meeting on major risks, held in Algiers in October 2018, noted a substantial increase in the frequency of occurrence of floods due to river overflows or marine storms. These floods are caused, in particular, by heavy rainfall due to large-scale atmospheric perturbations, which can affect several regions of the country, or localized thunderstorms with intense rainfall across many parts of the country. Since 1954, floods have become more frequent (61% of catastrophic events recorded in the international EM-DAT database) and increasingly intense and devastating.[83] Flooding in El-Bayadh on October 1, 2011 caused 10 deaths and 6 billion DZD in damage.

59. **Sand events**. The TNC notes that that the duration of sand events (sand fogs, blown sand and sandstorms) is getting increasingly prolonged in Algeria. Sand events impact both human health (impact on respiratory system) and ecosystems (with a drying effect on vegetation). The increase in these events is correlated to the expanding desertification due to climate change.

60. **Extreme heat**. The rise in temperature, often higher than the homeothermic level and persistent over time, is observed throughout Algeria, leading to the risk of heatwaves and forest fires. Before the 1970s, heat waves, known as "Siroccos", often occurred in the second half of July. The same phenomenon can now occur in any month or season. A study[84] on the evolution of the number of days and sequences of heatwaves analysed temperature data from sixteen weather stations, representative of Algeria's different bioclimatic stages, over a sixty-year period (1951-2010). The study shows that the number of heatwaves has increased by more than 50% over the last thirty years. The onset of heatwaves has expanded to cover the months of June, July and August. In El Bayadh specifically, the study shows that “canicular days” increased from 38 during the 1951-1980 period, to 242 days during the 1981-2010 period corresponding to an increase of over 536%. Similarly, canicular sequences (periods longer than 3 days) increased in El Bayadh from 4 during the 1951-1980 period, to 23 during the 1981-2010 period (+475%).

[83] Ibid.
[84] M. Faci. CRSTRA-Biskra. 2018. Évolution du nombre et de la durée de l’apparition des canicules en Algérie.

Vulnerability to climate change and expected impacts

61. **Vulnerability of the targeted area**. The Third National Communication to the UNFCCC (2023) notes that northern Algeria is an area at extreme risk (according to the "Climate Change Vulnerability" index), and that among other things climate change will result in a drop in rainfall, leading to desertification of the northern region and degradation of agricultural systems. Pastures and steppe rangelands are located between the 400 mm isohyet in the north and 150 mm in the south. As highlighted previously, the MEER/GIZ 2017 vulnerability analysis, classifies these territories as particularly vulnerable. The wilaya of El Bayadh (along with 4 other wilayas: Djelfa, Guelma, M'sila and Sidi Bel Abbés) has been declared as highly impacted by the negative effects of climate change, and as such selected as one of the wilayas that should benefit from a priority adaptation plan (yet to be prepared).[85]

62. **Sensitivity of the steppe ecosystem**. The TNC notes that the steppe ecosystem is particularly fragile due to severe land degradation, severe climatic constraints (insufficient rainfall, violent and hot winds, silting) and edaphic constraints (vulnerable soils poor in organic matter) along with sparse vegetation, the concentration of pastoral and agricultural activities, and the fall in pastoral steppe production (from 18 to 3 billion forage units between 1978 and 2008). Overgrazing and unsustainable farming activities are also putting pressure on this fragile ecosystem.

63. **Impact on ecosystems**. Erratic rainfall and extreme heat are likely to contribute to aridity increasing by as much as 15% across the steppe area by 2040 (RCP 4.5). At the same time, soil moisture, water discharge and water runoff are likely to decrease by as much as 20% by 2040 across this region (RCP 4.5). The adverse impacts of such changes on intensified desertification and water security are likely to be considerable. In particular, soils will continue to be affected by water and wind erosion, as well as a reduction in the content of organic matter and trophic elements (nitrogen, potassium, etc.), while the higher evapotranspiration will contribute to increased soil salinity. It is estimated soil losses will reach 150 to 300 t/ha/year in cleared steppes as a result of these combined factors[86], translating in a decreased rangeland productivity of herbs, shrubs, and trees.[87] If no intervention is made, climate change will exacerbate the deterioration of biodiversity and the loss of ecosystem services in these fragile areas.

64. **Impact on water resources**. Vulnerability to climate change in steppe areas and dryland mixed farming systems of Algeria is reflected in reduced runoff and infiltration, resulting in drier wadi regimes, reduced water supply to surface water infrastructure, and therefore decreasing surface and groundwater availability. The situation is compounded by rising temperatures leading to increased evapotranspiration, further decreasing water availability and pushing the need for irrigation infrastructure and improved water management for crops and livestock, despite a lower irrigation potential. Similarly, water needs for livestock and local populations will increase, with an overall decrease in water availability. At the same time, silting due to soil erosion and increased runoff is likely to further impact water resources availability (storage capacity).

65. **Vulnerability of pastoral systems**. The climate vulnerability analysis conducted in 2017 with GIZ support for MEER includes a map synthetizing threats, vulnerabilities and potential risks for pastoralism, the key source of livelihood in El Bayadh. The resulting overall vulnerability indicator highlights El Bayadh as particularly vulnerable.

66. The same report includes an analysis of the chain of risks affecting pastoralism, identifying three intermediate risks: (i) reduction of fodder availability (as a result of steppe ecosystem degradation); (ii) reduction of pastoral water resources; and (iii) health risk for livestock. Indeed, variable precipitation and extreme heat adversely impact pastoral systems, with reduced water and forage availability affecting the pastoral (traditional)

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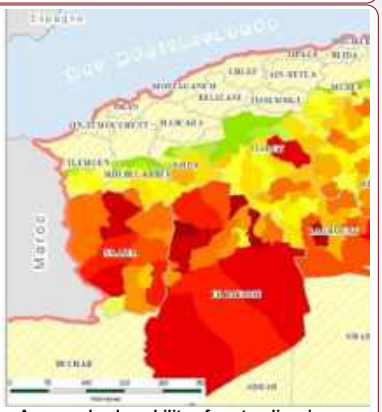

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Figure 10 – Assessed vulnerability of pastoralism in Algeria¶

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[85] MEER. 2019. National Climate Plan.
[86] Hirche, A., et al. 2007. Contribution à l'étude de la désertification dans le sud oranais.
[87] Thornton PK, Boone RB, Ramirez-Villegas J. 2015. Climate change impacts on livestock. CCAFS Working Paper no. 120. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

system.[88] Decreased pasture quality, yield and changes in pasture composition also enhance the susceptibility of livestock to pests and diseases, and decrease livestock productivity.[89] An increase in livestock mortality and morbidity would disproportionally affect most vulnerable people in the steppe and their livelihoods, and could contribute to food insecurity across Algeria[90]. Changes in soil health are likely to enhance water stress and increase the susceptibility of plantations to invasive plant species, pests and diseases[91]. As a result, the populations susceptible to extreme poverty will be the first to lose their main means of production (mainly land and livestock), and vulnerable rural populations could be pushed towards rural exodus, migrating to large cities in the already overpopulated North or abroad.

67. **Climate impacts on vulnerable groups**. Pastoralists and nomadic pastoralists are particularly vulnerable to climate change as they heavily depend on ecosystems that are directly impacted. At the same time, climate change and its effects on all sectors of the economy has significant gender dimensions. Women and youth, and especially those in rural areas, are most affected due to their vulnerability, their natural resource- and climate-dependent livelihoods, their responsibilities toward their families, and their role in safeguarding their community. Women are on the frontline of confronting the challenges posed by climate change to livelihoods and the health of their families, and yet they are often poorly equipped and resourced to respond to them.

Theory of change

Figure 4 - Project's Theory of Change diagram

Project Area and targeting strategy

68. **Geographic targeting**. The project will target the degraded steppe ecosystem (including halfah zones) in the wilaya of El Bayadh. The choice of communes to be included will be finalized in a participatory manner with all relevant stakeholders (notably the Ministry in charge of Agriculture, including DGF and HCDS, and the Ministry of Environment and Renewable Energy and the Ministry of Interior, Local Authorities and Regional Planning – MICLAT). The choice will rely on transparent criteria such as: (i) presence of the steppe ecosystem (including halfah grass areas); (ii) climate vulnerability based on level of degradation of the steppe ecosystem; (iii) population density and poverty levels; (iv) presence of local agropastoralists using concessions or land awarded by APFA; (v) possibility to concentrate investments for a complementarity of action. The steppe communes of Mehara and Boussemghoun will not be included in the geographic targeting,

[88] Ibid.
[89] FAO. 2018. Transforming the livestock sector through the Sustainable Development Goals.
[90] WHO. 2015. Climate and health country profile 2015: Algeria.
[91] FAO. 2014. Cork Oak landscapes, their products and climate change policies.

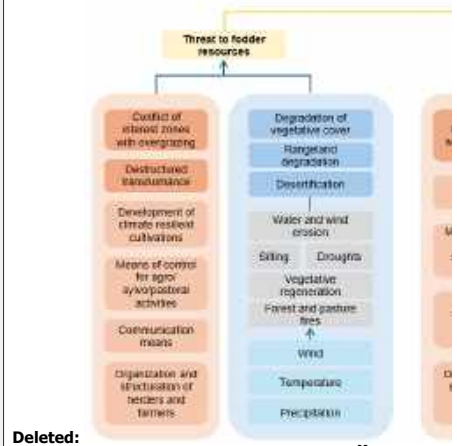

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Figure 11 - Chain of risk affecting pastoralism[92]

Deleted: <#>Northern Algeria is an area at extreme risk in the face of climate change, and the High Plains steppe ecosystem (including halfah grass zones) are recognized as particularly vulnerable. The steppe ecosystem in El Bayadh is both critical to local livelihoods and extremely degraded, making it particularly vulnerable to increasing climate shocks. Decreasing rainfall, increasing occurrence of droughts and increasing temperatures contribute to the fast-progressing desertification in the area, which is further accelerated by maladaptive pastoral practices. Those practices include inadequate stock density, pressuring steppe resources and not letting sufficient time for their regeneration.¶
Steppe ecosystem degradation in El Bayadh affects the core means of subsistence, as local livelihoods heavily depend on these ecosystems and their services. Indeed, El Bayadh is the largest province with a pastoral vocation in the country, and sheep rearing is still the main economic activity in the wilaya. Halfah grass was historically a central element of the local economy, and while its importance decreased over time, it remained a key complement for women, who drew small income from crafted halfah grass. Today, the depletion of natural resources is already affecting local livelihoods: the traditional nomadic systems have been transitioning to sedentary and sometimes semi-intensive livestock systems. These new systems rely on fodder complement that either needs to be bought or is produced locally. As these new agropastoralists have no training in agricultural production, and because water resources are free, the conduction of fodder production systems is often maladaptive with low ... [2]

Deleted: <#> The project will support the joint identification of priority areas for interventions, making sure that all stakeholders are engaged and aware of the proposed approaches and that the needs of most vulnerable stakeholders (including women) are well reflected. The project will propose complementary pathways for the resilience of the steppe ecosystem, applying local solutions (pastoral plantation, protected rangelands and grazing bans, and mobilising and storage of surface water resources) and testing new ones (reseeding of adapted pastoral species in combination with water and soil ... [3]

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to maximize complementarity with other initiatives currently in preparation (FAO/GCF Green Dam).

69. **Target groups and targeting strategy**. The project will target the most climate-vulnerable rural communities, whose livelihoods depend on the resilience of the steppe ecosystem. These include pastoralists (including nomadic and semi-settled pastoralists) and agropastoralists, together with women and men engaged in value chains associated with steppe livelihoods (small ruminants and their by-products, crafts, perfume, medicinal and aromatic plants, as well as honey). The project will rely on a combination of targeting approaches, in line with best practices from local partners, of which: community-based targeting and self-targeting measures to ensure the most vulnerable benefit from the project (participatory definition of specific criteria for the selection of vulnerable groups); direct targeting using wilaya registries to ensure social inclusion of women, youth and vulnerable groups; and use of quotas (differentiated by activity). It is estimated that the project will benefit about 18,000 people of which at least 30% women and 30% youth. Beneficiary selection and participatory engagement will be facilitated by partner institutions and stakeholders (including DE, HCDS, CNDRB, DA, CAW, etc.). Specific targeting criteria and approaches will be developed at project proposal stage, notably to ensure most climate vulnerable communities, households and individuals are targeted (i.e. identifying intersecting drivers of climate vulnerability and social exclusion and defining relevant selection criteria).

70. **Access and equity** under the project will be ensured by: (i) defining targeting criteria prioritizing most vulnerable communities, households and individuals; (ii) developing a gender and social inclusion strategy outlining the pathways by which the project intends to provide differentiated support to ensure all stakeholders are reached; (iii) ensuring that different activities are tailored to the specific needs and interests of different groups (e.g. support to nomadism under output 1.3., support to women and youth led businesses under output 2.2., etc.). Additionally, and thanks to the Gender Assessment to be conducted at project proposal stage, the project will tailor its approaches (notably in terms of capacity building associated with resilient practices) to the reality of the local context. This may entail the adoption of approaches that facilitate training at household level (to ensure men on-disseminate practices to men groups, and women on-disseminate to women groups, while supporting family farming and businesses); establishment of women only, or youth only groups organized around specific economic activities; sensitization and social mobilization processes; etc.

B. Project Objectives

71. **Objective**. The project objective is to *enhance the resilience of the steppe ecosystem and the communities that depend on it in the wilaya of El Bayadh*.

72. **Outcomes**. The project will achieve the stated objective through three outcomes:

a) **Outcome 1**. Enhanced resilience of the steppe ecosystem, including halfah grass pasturelands;
b) **Outcome 2**. Enhanced economic resilience and social capital of steppe dependent livelihoods;
c) **Outcome 3**. Mechanisms for steppe ecosystem adaptation, based on lessons from project approaches and implementation, integrated at local and national level.

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C. Project Components and Financing

Table 1 - Project components and financing

Project Components	Expected Outcomes	Expected Concrete Outputs	Amount (USD)
Component 1 Restored steppe ecosystem, including halfah grass pastureland	**Outcome 1**. Enhanced resilience of the steppe ecosystem, including halfah grass pasturelands	Output 1.1. Stakeholders engaged in joint planning processes	460,000
		Output 1.2. Ecosystem restoration measures implemented	2,537,500
		Output 1.3. Improved pastoralist systems	1,700,000
Subtotal Component 1			**4,697,500**
Component 2 Transformed livelihoods for steppe dependent communities	**Outcome 2**. Enhanced economic resilience and social capital of steppe dependent livelihoods	Output 2.1. Agroecology transition promoted for sedentary livestock systems	1,090,000
		Output 2.2. Inclusive steppe value-chains structured and promoted	1,483,514
Subtotal Component 2			**2,573,514**
Component 3 Mainstreaming steppe ecosystem adaptation strategies	**Outcome 3**. Mechanisms for steppe ecosystem adaptation, based on lessons from project approaches and implementation, integrated at local and national level	Output 3.1. Local stakeholders capacitated to track and document ecosystem resilience	600,000
		Output 3.2. Targeted best practices disseminated for advocacy at communal, wilaya and national levels	470,000
Subtotal Component 3			**1,070,000**
Total project activity cost			8,341,014
Project Execution cost (9.5%)			875,576
Total Project Cost			9,216,590
Project Cycle Management Fee charged by the Implementing Entity (8.5%)			783,410
Amount of Financing Requested			10,000,000

D. Projected Calendar

Table 2 - Projected calendar

Milestones	Expected Dates
Start of Project Implementation	January 2026
Mid-term Review (if planned)	June 2028
Project Closing	December 2030 (5 years)
Project Completion	June 2031
Terminal Evaluation	December 2030

Part II: PROJECT JUSTIFICATION

A. Project components

Component 1. Restored steppe ecosystem, including halfah grass pasturelands

Outcome 1. Enhanced resilience of the steppe ecosystem, including halfah grass pasturelands

73. As described previously, the steppe ecosystem in El Bayadh is both critical to local livelihoods and extremely degraded, making it particularly vulnerable to increasing climatic shocks. Decreasing rainfall, increasing occurrence of droughts and rising temperatures contribute to the fast-progressing desertification[93] in the area, which is further accelerated by maladaptive pastoral practices. Those practices include inadequate stock density, pressuring steppe resources and not letting sufficient time for their regeneration. Actions aimed at

[93] Desertification is a gradual process by which the productivity of land is reduced. The land degradation involves a continuum of change of land quality from slight to severe. It results from a combination of man's excessive use of ecosystems that are inherently fragile. Fragility means that the habitat is vulnerable to deterioration of ecological features. Recurrent and/or prolonged droughts' effects are often dramatic as they cause widespread failure of food-producing systems. If excessive exploitation (overgrazing, over cultivation, over-denudation of trees) coincides with the incidence of drought, rates of ecological degradation (desertification) often accelerate.

protecting the steppe, including grazing bans and pastoral plantations, are being conducted locally by HCDS and to some extent CdF. However, lack of means and insufficient coordination limit the impact of these actions. Additionally, local stakeholders expressed the need to identify and implement innovative practices to address this complex issue.

74. Under this first component, the project will adopt a participatory approach, engaging all local stakeholders to enhance the resilience of the steppe ecosystem, and particularly halfah grass pasturelands. The project will support the joint identification of priority areas for interventions, making sure that all stakeholders are engaged and aware of the proposed approaches. The project will propose complementary pathways for the resilience of the steppe ecosystem (with over 3,800 hectares protected), applying local solutions (pastoral plantation, protected rangelands and grazing bans, and mobilising and storing surface water resources) and testing new ones (reseeding of adapted pastoral species in combination with water and soil conservation measures, herders managed protection of rangelands, etc., as well as the establishment of a "*pastoretum*" and halfah grass nurseries), while supporting herders in adopting integrated and sustainable rangeland management practices.

Output 1.1. Stakeholders engaged in joint planning processes

75. Under the present output, the project will establish a participatory approach, engaging all local stakeholders including women and youth. The project will support the joint identification of priority areas for interventions, making sure that all stakeholders are engaged and aware of the proposed approaches and that the needs of most vulnerable stakeholders (including women) are well reflected. This will directly contribute to outcome 1, as ecosystem resilience cannot be sustainably achieved without a preliminary engagement process, guaranteeing the ownership of actions by local communities.

76. **Stakeholders' engagement**. Pastoral communities in the project area are challenged by persistent unemployment, thus necessitating enhanced capacity of local stakeholders to promote the participation and integration of pastoralists into decision-making processes. As part of this output, the project will prepare the ground for rehabilitation actions by engaging key stakeholders from the very beginning, including: the Communal People's Assemblies (APC) representatives of targeted communes; the High Commissary for Steppe Development (HCDS); the Forestry Department (CdF); the Direction of Agriculture Services (DSA); the Direction of Environment (DE); the Water Resources Direction (DRE); the Agriculture Chamber at wilaya level (CAW); the local climate committee of El Bayadh; and local pastoralists, agro-pastoralists and their associations. Those stakeholders and in particular HCDS will act as entry point for the engagement of local communities, by informing them on the project, its objective and activities. Approaches to consult with and inform those stakeholders will align with current practices of HCDS and other local partners (in particular by clearly presenting short and long-term benefits to get stakeholders' buy in and engagement).

77. **Mapping of degradation**. The project will support the consolidation of available data on steppe ecosystem and halfah zones degradation in El Bayadh as a baseline (using indicators such as vegetation degradation, soil degradation, sand risk and silting, etc.), and by supporting local stakeholders in establishing a Geographic Information System to compile this information. The baseline exercise will rely on available information at wilaya level (technical services, HCDS, CdF, CNDRB, climate committee, etc.). The mapping will also take into account available information on water resources (surface and groundwater).

78. In addition to this baseline, the project will support a GIS rapid vulnerability analysis, accounting for: (i) ecosystem degradation mapping as consolidated for the baseline; (ii) availability of water resources; (iii) cartographic resources mapping the vulnerability to a standard set of climate risks (exposure to droughts, floods, water scarcity, extreme heat) and other features such as administrative and other regulatory boundaries (communes, settlements, protected rangelands, land use, etc.); (iv) location and quality of infrastructure (paved and unpaved roads, water and electricity distribution network); (v) oro-hydrographic elements (elevation, wadis, flood spreading areas); as well as (vi) generic socio-economic indicators where available (population density, income levels, etc.).

79. At the same time, the project will support the consolidation of a clear and up to date diagnostic of ecological, socio-economic and climatic drivers of degradation. All these activities will also be used as reference for the support planned under output 3.1.

80. **Planning of interventions**. The project will rely on an integrated and participatory approach, seeking to concentrate interventions in 20 areas selected as pilots to test complementary activities for ecosystem restoration and resilience. As such, the planning of interventions will need to differentiate highly degraded from degraded pastoral areas. The west and north-west of the wilaya show high level of degradation, with sand winds accelerating degradation, but where degradation is also reducing these ecosystem's ability to act as a barrier to sand, therefore contributing to the exposure of eastern areas. The type of interventions for ecosystem restoration and resilience differs depending on the level of degradation. In highly degraded areas where the soil is left bare, heavier interventions are needed to support the return of vegetation. In less degraded areas, grazing bans can be sufficient.

81. The targeting criteria are proposed as follows: (i) presence of steppe ecosystem (halfah grass areas); (ii) climate vulnerability based on level of degradation of the steppe ecosystem; (iii) potential of success of restoration measures (based also on soil quality: depth, presence of stones and organic matter); (iv) population density; (v) presence of local pastoralists who are interested by and willing to engage in project activities; (vi) presence of local agropastoralists using concessions or land awarded by APFA; (vii) possibility to concentrate investments for a complementarity of action; and (viii) coordination with other initiatives including the national Green Dam program (to avoid duplication). The project may build on the "Pastoral Units" approach piloted by HCDS.

82. The identification and prioritization of intervention sites and activities under output 1.2 will rely on a continuous participatory process, to ensure that all stakeholders are informed and aware of the targeting criteria and project approaches, and contribute to the selection of sites and activities. As such, the modalities chosen to restore the ecosystem will also be discussed during the participatory process (including women and youth through focus groups), in line with the socio-ecological conditions of the chosen sites. Once sites are selected, a rapid participatory diagnosis will be conducted for each area, to characterize key issues (including sociological), ensure that project activities are well tailored to the context and promote stakeholders' collaboration, thereby guaranteeing the adoption of resilient management practices for steppe rangelands.

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Output 1.2. Ecosystem restoration measures implemented

83. The mission for the preparation of the present concept was able to observe the extreme degradation of the steppe ecosystem in El Bayadh, under the combined effect of climate change (accelerating desertification via decreasing rainfall and rising temperatures), and pressure on pastoral resources linked to: (i) the increase in stock density compared to available resources; (ii) the sedentarisation of herders; (iii) the encroachment of agricultural plots (intended for irrigated fodder, cereal or potato production); and (iv) the absence of a sustainable management system for steppe rangelands. The issue of steppe ecosystem degradation is complex and multifactorial, and requires integrated and participatory solutions, that take into account all the drivers of degradation. Based on this, the present output aims at proposing a suite of restoration measures to be implemented in complementarity and based on the level of degradation of sites. The restoration measures proposed are based both on best practices already implemented and documented locally, and new and innovative approaches, and will directly contribute to the enhanced resilience of the steppe ecosystem, including halfah grass pastureland (Outcome 1).

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84. **Consolidation of HCDS interventions**. For the implementation of the present output, the project will rely on HCDS, whose mandate and actions in El Bayadh have contributed to slowing the steppe ecosystem degradation process. Following HCDS' standard practices, and closely involving CdF, the project will support grazing bans and pastoral plantation as outlined below. The CdF carries out judicial police missions (fines for offenders who infringe the regulations in force) for grazing bans in both the areas it manages and those managed by the HCDS (which does not have enforcement powers but may register infractions and

report them to APCs and CdF). CdF and HCDS seek to coordinate, with the former managing the national forest estate (the State's public domain) and the latter the State's private domain in its rangeland section, including Halfah grass zones. Communes (APC) are also involved in the management of protected rangeland, as the recipient of the fees to access protected communal rangeland perimeters, and by selecting herders that can be let in. Illegal ploughing is controlled by DSA, which can directly register offenses with the competent tribunal (as per article 28 of the Agricultural Orientation Act (Law 08-16 of 3 August 2008).

85. Grazing bans consist in a simple and inexpensive technique, which relies on the resting of large areas, where any form of intervention is then forbidden (grazing, land clearing, entering, etc.). In consultation with local authorities, in agreement with the neighbouring communities, and after the establishment of a deliberation by the APC and a wilaya decree, the HCDS proceeds to set aside the proposed site for a period not exceeding three years. Grazing bans are proposed only in areas where natural regeneration is possible and need to be accompanied by a decrease in stock density, coupled with direct support to pastoralists, notably through the provision of fodder. In most cases, grazing bans are not total, and corresponding pastures are reopened in a controlled manner (stock density control) twice a year (in the autumn and spring). Access to these protected rangelands is decided by APCs (based on fodder productivity which determines the maximum stock density) and conditioned to a fee (which goes to the APC). Grazing bans typically enable an increase from 50 Fodder Unit (FU)/ha/year to 200 FU/ha/year. The project will support grazing bans through the mobilization of full-time guardians to protect 2,500 hectares. Where relevant, the project will also facilitate natural regeneration, (i) reseeding local steppe species as identified with and selected by CNDRB, and (ii) where soil is particularly hardened, using superficial tillage along contour lines to increase capture of sediments and runoff water.

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86. Pastoral plantation is used by HCDS in highly degraded rangelands where vegetation cover cannot be restored through mere grazing bans. In El Bayadh, HCDS has tested pastoral plantation using various species, such as: *Atriplex canescens*, *A. leucolada*, *Medicago arborea*, *Opuntia ficus indica* and *Tamarix*. Pastoral plantation of halfah grass (*Stipa tenacissima*) is limited due to unsatisfactory performance. These perimeters remain close (total grazing ban) for a duration of three years and can enable an increase of pastoral productivity to 600-800 FU/ha/year.

87. The project will support the test of approaches to reinforce pastoral plantation over 250 hectares, and seek to increase its success using halfah grass, with the support of local technical services (including CNDRB and DSA) and following the principles of action-research: testing different combination of organic fertilizer; planting approaches such as half-moons and/or zaï; use of organic substrates (growth media) that store water and release it over a longer period than traditional substrates (as already tested in Spain), etc.

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88. Dune fixation. In areas with sanding issues, the project may support dune fixation measures over up to 250 hectares. Vegetation disappearance because of climate change induced droughts can render sandy soils barren which, mainly under the effect of wind, can be further degraded or facilitate the formation of dunes. These dunes can spread or move, thus threatening areas that could play an important environmental or economic and social role. To protect these areas, dune fixation operations can be undertaken. They combine two essential components: (i) a “mechanical fixation” stage; and (ii) a “biological fixation” stage. These operations are climate resilient by helping fix the dunes thereby reducing wind/water erosion. Resulting enhanced water infiltration facilitates vegetation return, further contributing to the fixation of dunes.

89. Soil and water conservation (SWC) measures. Where relevant, and notably in sloped areas where soil erosion can be accompanied by gullies because of more frequently occurring flash rains, the project will also support the implementation of additional soil and water conservation measures such as stone barriers or earth bunds, that can be sown using adapted local grass species. Where relevant, the project may explore the plantation of local tree species (ideally fodder species) in association with SWC measures. SWC measures are

climate resilient because they allow to break runoff during extreme precipitation, with the dual benefit of reducing erosion and facilitating water infiltration, thereby mitigating the effects of desertification, droughts and floods. Revegetation further contributes to the sustainability of these investments and long-term resilience thanks to regreening.

90. **Sensitization**. The successful implementation of restoration measures is dependent on the adoption of these measures by local communities and will rely on the principles of action-research. The project will ensure that a thorough and continuous consultation and sensitization process is implemented, to guarantee that all are informed of the reasons for interventions, possible restrictions of access and their consequences (fines), as well as possible compensation measures promoted by the project and implemented by public authorities at central or regional level. Additionally, the project will support HCDS in closely engaging and sensitizing local authorities to ensure that the opening of protected rangelands (after grazing bans) is done in consideration of the level of restoration of the ecosystem, and respects the maximum stock density and timings compatible with vegetative cycles. The project experience will also enable to identify core needs for the sustainability of steppe resilience approaches, and to advocate for Government subsidies to address these needs beyond the project lifetime (e.g. HCDS operations, salary of guardians, etc.).

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91. **Herders-led pastoral plantation and grazing bans**. In highly degraded areas where herders are present, they often need to either abandon their activity or seek to conduct it relying strictly on fodder and animal feed. The project will propose innovative approaches (also leveraging the principles of action-research), where HCDS supports the restoration of the local steppe ecosystem using improved techniques (for example combining half-moons and adapted seeds), while herders support the works and are hired as guardians for the duration of the restoration period (3 years), with no change to land tenure arrangements. In addition to these incentives, the herders may receive technical assistance from the project, and feed complement during the first years of restoration. As per HCDS current practices, this support may also be combined to incentives including planting of hardy fruit species, breeding support, beehives, etc. The project will accompany herders to restore 300 hectares of highly degraded land.

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92. Half-moons have been used in Sahelian areas of West Africa for several decades to restore degraded lands. The process involves excavating small (~1m radius) semicircular ponds and using the displaced soil to create a retaining wall or bund on the downhill edge. The ponds retain rainwater and allow it to gradually seep into the ground, improving soil health in its proximity. Half-moons are critical during the rainy season because they can ensure continuous moisture to the crops during subsequent dry periods. Moreover, by limiting surface runoff, the half-moons conserve water, and reduce erosion that help retain soil nutrients. The bund can be sown with pastoral species and where conditions allow, can be associated with tree plantation. The project will identify and test adaptive (drought resilient) and local grass in association with half-moons, and may also test the planting of Stipa tenacissima seedlings in the core of half-moons.

93. **Conservation and multiplication of local genetic resources**. The project will work in close collaboration with CNDRB, HCDS, CdF and all relevant stakeholders to establish a local nursery and seed bank for steppe species. This process may also mobilise the assistance of the International Center for Agricultural Research in the Dry Areas (ICARDA). The creation of the nursery and seed multiplication and seed bank will include testing to facilitate the diffusion and success of plantation of local steppe species, especially to improve steppe restoration and resilience actions. Beyond halfah grass (*Stipa tenacissima*), targeted species may include trees and shrubs such as: Atlas pistachio (*Pistacia atlantica*), juniper, evergreen oak (*Quercus ilex*), *Retam raetam*, etc ; and herbaceous such as *Artemisia herba-alba,* Hedysarum spinosissimum spp., eu-spinosissimum, Matthiola longipetala var., Lotus pusillus, Hippocrepis multisiliauosa (annual species); and Plantago albicans, Zollikoferia resedifolia spp. Eu-resedifolia (biannual species). Additionally, the propagation of local melliferous species (e.g. *Ziziphus lotus*, *Echium trygorrhizum*, *Eryngium ilicifolium*, *Euphorbia sulcata*, *Malva parviflora*, *Retama raetam* and *Medicago litoralis*) will be supported by conserving seeds and using them preferentially in the restoration of degraded rangeland.

94. ***Pastoretum***. To complement efforts to protect the steppe ecosystem and halfah zones, the project will work closely with DE, HCDS, CdF and local authorities to set up a *pastoretum* or "live gene bank" for pastoral species, aimed at preserving local ecotypes, with the support of the National Centre for the Development of Biological Resources (CNDRB). The selected steppe area or areas will be protected from grazing on a full-time basis, and the project will support the formal recognition of the selected area as protected (possibly as *natural reserve* or *habitat and species management reserve*), with the establishment of research stations/observatories (as supported under component 3). The climate resilience of the pastoretum will be supported by the implementation of above-mentioned soil and water conservation "climate proofing" measures, including half-moons, earth bunds, stone lines. The location of the pastoretum will also be carefully assessed to ensure it is protected from extreme climatic events, such as flash floods and landslides.

Output 1.3. Improved pastoralist systems

95. Under this output, the project will support sustainable pastoralist systems thanks to participatory rangeland management in the targeted areas, with a view to ensure the compatibility of the livestock sector with efforts to restore the steppe ecosystem. Additionally, the project will support the mobilization, storage, and sustainable management of surface water resources, while promoting sustainable rangeland management practices. Together, these activities will directly contribute to the enhanced resilience of the steppe ecosystem, including halfah grass pastureland (Outcome 1).

96. **Pastoral hydraulics**. The project will intervene in selected sites for the mobilization, storage and sustainable use of surface water and notably the recovery/management of flood waters, in line with interventions already carried out by HCDS and other local stakeholders, and in consultation with the wilaya Water Resources services (Direction des Ressources en Eau).

97. Feasibility studies. In targeted intervention sites and in complementarity with the initial diagnostics, the project will conduct technical, economic, social, and environmental feasibility studies for the selected hydraulic installations. These studies will take into account future climate trends, and ensure that infrastructures are designed accordingly. The study at the catchment area level will provide recommendations with regards to: the rehabilitation or upgrading of hydraulic infrastructures (Djoubs, cisterns, ponds, bunds, dikes, hill reservoirs (micro dams), ceds for flood water spreading, etc.); the social and economic development of natural resources (implementation of upstream measures for water and soil conservation, including revegetation); the management of livestock watering and where applicable partial irrigation activities (fodder in particular); the introduction of accompanying measures: establishment of Management Committees (water users' associations), and training of technical services as applicable. Solar pumping may be supported where relevant.

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98. The works will be conducted with the support of local workforce, ensuring that all beneficiaries are aware and trained on operations and maintenance needed to protect the infrastructure. Two main types of infrastructures will be supported;

- Flood water recuperation and management infrastructure such as Ceds (diversion dikes), and possibly sand dams, to both slow the flow of water during occasional heavy rains (thereby reducing flood risk and erosion) and enable water infiltration and its use over longer periods of time. Relevant sites concerned with flood water recuperation will also be supported under output 2.1 as these areas may enable an increased fodder production.
- Surface water collection using various dimensions of infrastructures such as hill reservoirs, dikes, stone/earth bunds, ponds, cisterns (djoubs), pastoral wells, etc.

99. Where necessary, water infrastructure will be fitted with a water meter to monitor consumption and prevent overexploitation and waste of water. The climate resilience of these investments will be guaranteed by: (i) feasibility studies accounting for future climate trends and adapting infrastructure design accordingly; (ii) use of upstream soil and water conservation measures and revegetation; and (iii) establishment of management committees ensuring participatory and sustainable use of the resource.

100. **Management committees**. To reinforce the activities under the present output, the project will create/consolidate water and rangeland user associations, which will benefit from in-depth training and awareness-raising. Training will specifically relate to resting and regeneration management and efficient water use. The project will ensure the inclusion of women and youth in the committees, and organize dedicated sensitization sessions for these groups.

101. **Training to herders on sustainable rangeland management**. Herders and their associations will be targeted and trained alongside users' associations on good rangeland management practices, focusing on effective grazing management (with, for example, the introduction of grazing management plans for sites rehabilitated under output 1.2). On dedicated occasions, herders' families will be invited to training sessions to facilitate women inclusion and the emergence of women groups/associations. The project will also support the participatory establishment of pasture management plans and rotational grazing, through which local stakeholders agree on a rotation of livestock over pastures along the season, to allow for the resting of rangeland. Fodder production on restored pastoral land may also allow "cut and carry" fodder systems (which reduces grazing pressure and limits conflicts over livestock as local communities harvest grass within the ex-closure). This will be explored with HCDS, CdF and other local stakeholders. The communities will also be trained in participatory monitoring and supported with conflict resolution mechanisms.

102. **Support to nomadism**. While livestock production systems are rapidly shifting towards sedentarity in El Bayadh, some nomads and a larger share of semi-settled pastoralists remain in the wilaya. The project will seek to include and support their traditional livelihoods, by working with them (with the support of HCDS), and with all relevant stakeholders to ensure they are recognized, that transhumance routes are visible, and that minimum services (water point, veterinary services, fodder reserves, etc.) are available along these routes. The project will support a study on the dynamics of transhumance in El Bayadh, and may also propose pastoralist field schools coupled with vaccination support.

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Component 2. Transformed livelihoods for steppe dependent communities

Outcome 2. Enhanced economic resilience and social capital of steppe dependent livelihoods

103. While climate-driven, the degradation of steppe ecosystem is also complex and multifactorial. In El Bayadh, this issue affects the core means of subsistence, as local livelihoods heavily depend on the steppe ecosystem and its services. Halfah grass was historically a central element of the local economy, and while its importance decreased over time, it remained a key complement for women, who drew small income from crafted halfah grass. Similarly, women engage in other income generating activities and small businesses around steppe products (such as perfume, medicinal and aromatic plants, but also wool products, leather products, etc.). Today, the depletion of natural resources puts local livelihoods at risk.

104. Communities that are highly vulnerable to climate change have a strong need to adapt, but their risks of adopting inappropriate interventions are also significant, as high vulnerability results from a combination of high exposure, high sensitivity and low adaptive capacity. When interventions for adaptation are inadequate, or unsuccessful adaptation (maladaptation) occurs, vulnerability is further elevated to create a vicious cycle.[94] The accelerated desertification of the steppe ecosystem further to the decreasing rainfall and increased occurrence of droughts in El Bayadh is already impacting local livelihoods: the traditional nomadic systems have been transitioning to sedentary and sometimes semi-intensive livestock systems. These new systems rely on fodder complement that either needs to be bought or is produced locally (e.g. irrigated barley or alfalfa). As most pastoralists have no training in agricultural production, and because water resources are free, the conduction of fodder production systems is often inefficient with low yields and high water consumption, in a context where water resources are already heavily strained. These

[94] Magnan, A. K., et al. 2016. "Addressing the risk of maladaptation to climate change." WIREs Climate Change, Vol. 7, Issue 5, 646-665.

practices are maladaptive, and risk causing more harm on the long run, especially considering climate trends.

105. Under the present outcome, the project will support the enhanced economic resilience and social capital[95] of steppe dependent livelihoods in El Bayadh, through the sustainable transformation of these livelihoods. To do so, the project will support the agroecology transition in sedentary livestock systems, promoting more integrated practices, water efficiency, adapted varieties, etc. while also providing veterinary support to pastoralists and agropastoralists and seeking to support quality over quantity to reduce stock density. At the same time, the project will help structure steppe dependent value chains, to ensure value addition, and leverage them to sensitize stakeholders on the need to preserve steppe resources. This will directly contribute to the increased resilience of local livelihoods.

Output 2.1. Agroecology transition promoted for sedentary livestock systems

106. Under the present output, the project will support the integration of agroecology principles in these new production systems, to support their resilience and sustainability. This will build on current HCDS experiences, where agropastoralists receive fodder plant, and commit to handling the planting, irrigation, and maintenance of the plantation, in line with HCDS terms and conditions for the rational use of the fodder plot. These activities, aiming at promoting the agroecology transition for sedentary livestock systems, will also directly contribute to the enhanced economic resilience and social capital of steppe dependent livelihoods (Outcome 2). Indeed, direct support provided to agropastoralists will both done with a view to increase their social capital, and support to systems that are more sustainable and reduce the pression on steppe resources will contribute to their enhanced economic resilience.

107. **Targeting**. Under this output, the project will target established agropastoralists using concessions or land awarded by APFA within its intervention area (i.e. in proximity to degraded steppe ecosystem and rehabilitated water catchment infrastructure). As per HCDS current practices, this support may be combined to incentives including planting of hardy fruit species, breeding support, beehives, etc. The project will not promote the establishment of new concessions but will use the lessons from its implementation to support local authorities in adapting the contractual specifications (*cahier des charges*) for new concessions, to ensure that they include criteria in terms of sustainable water and soil use, adoption of good practices, and virtuous management of surrounding ecosystems.

Integration of agroecology principles in fodder production

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108. Agroecology is considered a bottom-up, wider approach mostly used to describe a holistic ecological system of small-scale self-sustained farming in which environmental principles are highly apparent, regardless of payment schemes or short-term profit. FAO identifies the following 10 elements of agroecology[96]: (i) diversity; (ii) co-creation and sharing of knowledge; (iii) synergies; (iv) efficiency; (v) recycling; (vi) resilience; (vii) human and social values; (viii) culture and food traditions; (ix) responsible governance; and (x) circular and solidarity economy.

109. **Agroecology training for technical services**. The project will support the agroecology transition by capacitating all relevant stakeholders to understand and adopt agroecology principles. During its first year of implementation, the project will ensure that project staff, DSA, and chamber of agriculture (CAW) staff (extensionists), CNDRB, the wilaya climate committee and other relevant stakeholders receive training on agroecology and its principles, specifically tailored to the needs of high plains and steppe production systems. The training will look in detail at fodder production but will also consider other key types of productions present in the wilaya (cereals, potatoes, other horticulture products, and arboriculture). The same stakeholders will receive a follow-up training at mid implementation. The purpose of the training will be to capacitate them to both (i) identify agropastoralists who adopt such techniques and may be willing to share their knowledge and practices with their

[95] Economic resilience is intended as the enhanced income stability of targeted households, while social resilience will be promoted both thanks to improved social capital and empowerment.
[96] FAO. 2018. The 10 Elements of Agroecology. Guiding the transition to sustainable food and agricultural systems.

peers; or (ii) identify which of these practices could be relevant for the agropastoralists involved in the project. The enhanced capacities of technical services on agroecology and climate resilient agriculture will directly benefit at least 2,000 agropastoral households (12,000 people of which 50% women) in the wilaya.

110. **Action research on agroecology practices involving agropastoralists**. Based on the training received, and diagnostic of targeted fodder production plots, the extension services, and local technical services, in consultation with agropastoralists, will consolidate technical orientations and recommendations to improve the resilience of fodder production in the area, by testing different techniques using action-research principles. The training will adopt the learning by doing approach, which is an action-based training method. Co-learning approaches such as farmer field schools (FFS), which have already been piloted in Algeria (by FAO in particular), may be tested in the project area, benefitting up to 200 hectares. The themes considered may include:

- The test and adoption of more adapted species and varieties (local cultivars), including drought resilient fodders such as sorghum (in replacement of maize) and cowpea (*Vigna unguiculata*), triticale, pea, fava bean and lupine. The project will also support CNDRB testing the production of local palatable species (herbaceous such as *Artemisia herba-alba*, or shrubs such as *Retama raetam*) in the nurseries supported under output 1.2.
- Growing mixture of cover crops together and valorising multiple use (e.g. barley for both fodder and grain).
- Adoption of conservation farming methods to protect soils and conserve moisture, using mulching, limited tillage, no tillage, etc.
- Promotion of water-efficient irrigation systems (drip where applicable, pivot) based on calculated water needs, and raising agropastoralists' awareness on good practices for irrigation (timing of irrigation to avoid hottest hours, crops real water needs, etc.).
- Where relevant, promotion of agroforestry with the association of local trees or shrubs (such as *Retama raetam*) and/or rustic fruit trees (e.g. nut varieties, olive).
- Support to improved soil fertility management, using animal waste from sedentary livestock systems and/or composting. Additionally, the project could explore using sewage sludge from the local wastewater treatment plant and solid urban waste (after composting) with the National Waste Agency (Agence Nationale des Déchets – AND), very little of which is used directly or processed. Sustainable waste management and the circular economy is outlined in the corresponding national strategy and a related programme established by MEER.

111. **Integration of fodder crops in agricultural systems**. Beyond fodder production systems, the project will seek to reduce the wilaya's forage deficit by supporting the introduction and improving the productivity of forage legumes into agricultural crops rotations (including possibly in large irrigated perimeters). These activities will also rely on lessons from the project experience in terms of resilient fodder production, and the generated production could be stored to create a "forage bank" at wilaya level for lean periods.

112. **Veterinary services**. The increased temperatures and other effects of climate change have direct impacts on animal health, notably with the appearance of vectors and pests earlier in the season. Working with the Wilaya Veterinary Inspectorate and the Communal Hygiene Offices (BHC) at Communal People's Assemblies (APC) level, and in partnership with the sector-based associations (sheep, goats and even cattle, as these are often mixed herds) of the Wilaya Chamber of Agriculture (CAW), the project will focus on the following activities, directly benefitting up to 2,000 households (12,000 people of which 50% women):

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- Health prophylaxis capacity building and awareness raising as a set of measures to be taken to prevent diseases and thus significantly reduce animal diseases that cause high economic losses and jeopardize the health safety of meat and milk products and by-products and ultimately the health of consumers (and producers in the case of zoonosis). This capacity-building will focus on the most widespread infections, which cause the greatest economic losses (foot-and-mouth disease,

sheep pox and brucellosis). For foot-and-mouth disease, brucellosis and leishmaniasis, this will be complemented by vaccination campaigns for sheep and goats.

- Treatment of the most prevalent parasitic diseases in sheep and goat farms in the region (fascioliasis, varon mites, scabies, ringworm, etc.), which in steppe areas alone have an infestation rate among ewes of 54%. These untreated infections cause major economic losses linked to this morbidity and lead to a deterioration in the quality of animal by-products (skin, wool). This may also be further supported by promoting the local race (Hamra).

Output 2.2. Inclusive steppe value-chains structured and promoted

113. Under the present output the project will seek to promote the resilience of steppe related value-chains, putting women and youth at the centre of the local economy, targeting the following products: small ruminants products (milk, meat, wool, and skin), fodder, and steppe products including halfah based crafts, Perfume, Medicinal and Aromatic Plants, beekeeping and possibly rabbit rearing. This will directly contribute to the enhanced economic resilience and social capital of steppe dependent livelihoods (Outcome 2). Algeria's medicinal plant industry rely on collectors, sellers and consumers and Algeria's pharmaceutical and medicinal plant market has grown considerably in the last decade. Other NWFP value chains, such as herbs, spices, and honey, are still underdeveloped and are mostly harvested for self-use or sold on a small-scale, subsistence level. For this output, the project will build on successful experiences supported locally (with the GEF/SGP in El Ghassoul supporting the spearmint value chain) and elsewhere in Algeria (IFAD ProAgro Jeunes project currently underway in three other wilayas). The project will also replicate the experience of women's cooperatives developed in the wilayas of El Tarf and Annaba on the honey and mastic tree value chains (GENBI and PEBLA Projects, MEER/GIZ).

114. **Value chain mapping** is the first step in the VC development process and relies on the identification of stakeholders connected to the VC, confirmation of VC potential, verification that the project target groups will benefit from its development, as well as confirming buyers' demand, climate risks analysis, analysis of players, and attractiveness of opportunities to smallholders (especially women and youth). The project will ensure that key stakeholders identified through the mapping will be engaged on a continuous basis during implementation, as the animation process is key to building the social capital needed to increase resilience. The mapping process will also be the occasion to discuss aspects related to the quality of products considered, with a view to support a shift towards quality (over quantity).

115. **Value chain consolidation and social engineering**. Value chain development processes are driven by the main stakeholders themselves: agropastoralists and rural women, as well as local intermediaries, and not directed by external experts. The role of the project team (and supporting extension services) is not to dictate specific actions but rather to facilitate the dialogue between all stakeholders, helping to create trust and deepen networks, share knowledge, address common issues, identify prospects for business opportunities between participants, leading to the strengthening of the VC. These dialogues and action plans then generate spin-off activities and investments driven by the priorities jointly identified by the stakeholders. The project will actively work to create opportunities for meaningful participation by women, youth, and others whose voices are often left out of decision-making (including by supporting the creation of women cooperatives), in particular for small ruminants products value chains that may be male-dominated. Other targeted VCs offer essential outlets for the wilaya's rural women, as well as direct decent employment or self-employment opportunities for young people, including through the processing and marketing of livestock products. This will require targeted consultations, capacity building, and engagement of facilitators from the excluded groups.

116. **Professionalization and access to finance**. The project will support the professionalization of value chain stakeholders, by providing training on business management, accounting, quality approaches, etc. The GERME Program successfully developed by the ILO in the IFAD-funded Pro Agro jeunes Algérie project in three wilayas

(Biskra, Guelma and Mostaganem) will be replicated. It focuses on Create your Business (CREE) and Manage Your Business Better (GERME).

117. The project will also promote access to equipment and materials needed to develop activities associated with the targeted value chains (meat, milk, and associated products, halfah grass, wool and leather crafts, honey, perfume, medicinal and aromatic plants and possibly rabbit rearing). This may include for example weaving looms for wool, tanning equipment for leather, extractors and vats adapted for the conservation of honey, cold and moulding equipment for on-farm cheese production, alembics for aroma distillation (essential oils), etc. The project may also support access to equipment, inputs or raw materials in relation with these value chains, in favour of cooperatives. It is estimated that over 1,000 MSMEs will be supported. Additionally, the project will support its beneficiaries in accessing incentive mechanisms managed by the national entrepreneurship support and development agency (ANADE) and the national micro-credit management agency (ANGEM) by linking them with these agencies and supporting them with the production of relevant documents.

Component 3. Mainstreaming steppe ecosystem adaptation strategies

Outcome 3. Mechanisms for steppe ecosystem adaptation, based on lessons from project approaches and implementation, integrated at local and national level

118. Integrated steppe adaptation approaches consolidated and/or piloted under the project respond to several national needs and priorities, by providing solutions for the resilience of the steppe ecosystem and halfah grass areas in particular. In its priorities to meet the objectives of the Convention (UNFCCC), the Third National Communication outlines the need to "*promote innovative ideas for a rational use of resources, thereby contributing to reducing the country's climate vulnerability*", underlining the importance of establishing systems for data collection and decision making, and of sensitizing stakeholders by using an array of communication outlets. The TNC also highlights the importance of research and development, referring to the national research programme (PNR) and its three priority areas: (i) "physical environments, climate and agriculture"; (ii) "forests" (including the steppe ecosystem of which halfah grass zones); and (iii) "water resources". The project will contribute to generate information across all these areas. At the same time, the National Climate Plan outlines priority adaptation actions for forest and steppe, which include the creation of an observatory for the ecological, climate and socio-economic surveillance of the steppe ecosystem.

119. Under the present outcome, the project will seek to consolidate mechanisms for steppe ecosystem adaptation, and support their integration at local and national level, thereby contributing to the priorities outlined previously. To do so, the project will build the capacities of local stakeholders to track and document ecosystem resilience and the relevance of proposed solutions. These stakeholders include notably the HCDS, the local climate committee, and research partners (University, CNDRB).

Output 3.1. Local stakeholders capacitated to track and document ecosystem resilience

120. The aim of this output is to build the capacities of key institutional stakeholders to ensure the resilience of the steppe ecosystem. Activities will consist in supporting and engaging them to document project activities and their impact, while consolidating the knowledge generated (and possibly other relevant initiatives in the country), to identify best practices for steppe ecosystem resilience and facilitate their replication at local and national level. The generation of lessons on strategies and mechanisms for steppe ecosystem adaptation from project approach and implementation is necessary to achieve Outcome 3: "strategies and mechanisms for steppe ecosystem adaptation, based on lessons from project approaches and implementation, are integrated at local and national level".

121. **Support to local stakeholders' capacities**. The project will support key local stakeholders, including the HCDS, CNDRB, DEW and climate committee, by providing them with the means to perform monitoring activities (vehicles, equipment, software, etc.). The project will also ensure these stakeholders receive relevant training (e.g. on the use of GIS

and remote sensing, on climate adaptation mainstreaming, etc.). Exchange visits with other areas where steppe adaptation solutions have been successfully implemented (including in neighbouring countries) will be organized. Additionally, the project will support the climate committee in its mandate including: (i) the articulation of instruments and institutional arrangements to integrate and coordinate adaptation issues and ensure temporal phasing with other local (wilaya) planning instruments; (ii) the integration of relevant lessons from the project into the local climate adaptation plan.

122. **Partnerships with El Bayadh University and other research partners to document project interventions**. Research and research action are at the core of the project, as it will be testing new and innovative approaches to restore the steppe ecosystem and support their resilience. As part of this, the project will establish a partnership with El Bayadh University (seeking to align with the National Research Plan) and promote the engagement of national postgraduates/master students to document thematic project experiences (including with regards to gender and social inclusion in steppe areas, etc.). The sociological dimension of steppe ecosystem resilience will also be closely considered including through baseline study on gender aspects. The final products will be the thesis produced by each student, adopting an analytical approach, and seeking to propose conclusions that may be useful for policy discussion and decision making.

123. At the same time, the project will establish a collaboration with CNDRB, to support activities promoting local biodiversity resources under the first and second components: (i) testing of approaches and creation of nurseries/seed banks of pastoral species, and seeking solutions to optimize halfah grass replication and plantation; (ii) creation and management of a local *pastoretum*; (iii) joint research action with DSA to identify local species and varieties that may be introduced in forage production systems. Under this collaboration, CNDRB will closely document the results of the tests conducted. The project may also engage the Scientific and Technical Research Center on Arid Regions (CRSTRA) and the Center for the Development of Agriculture un Arid Regions (CDARS).

124. **Monitoring system for decision-making**. The Third National Communication highlights the need for monitoring systems to support decision making in the face of climate change. The project will help collect and consolidate key baseline information on the level of degradation of steppe natural resources under its output 1.1. Under the present output, the project will work with local stakeholders to develop a monitoring system that can be made accessible to all and provide a real time update on the state of the steppe ecosystem. This tool will serve as a basis to prioritize new areas to be protected but will also contribute to the decision of reopening areas under grazing bans (with APCs). The project may support additional ad-hoc studies about the steppe ecosystem in the area.

125. **Observatory of steppe resources**. As part of the monitoring system, the project will support HCDS and CNBRD in establishing one or more research stations or observatories in critical zones of the steppe ecosystem in El Bayadh. These small stations could be equipped with basic meteorological equipment, include rooms for researchers, and may also be used as shelters by guardians. They will also play a key role for training and knowledge sharing with agropastoralists. Such stations are in line with the recommendations of the PNC, and will enable a continuous monitoring of the environment.

Output 3.2. Targeted best practices disseminated for advocacy at communal, wilaya and national levels

126. Under the present output, the project will leverage its experience as well as other successes in building steppe ecosystem resilience to disseminate efficient, resilient and adaptation practices at local (wilaya), national (inter-wilaya) and international levels. At the same time, the project will use these lessons to provide recommendations at local and national levels for enhanced policies and decision making for the resilience of the steppe ecosystem. The dissemination of lessons on strategies and mechanisms for steppe adaptation (consolidated under output 3.1) will hence be aimed at their integration at national and local level, therefore directly contributing to Outcome 3: “strategies and mechanisms for steppe ecosystem adaptation, based on lessons from project approaches and implementation, are integrated at local and national level”.

127. **Consolidation of results and community of practice**. The project will consolidate information generated through action research under components 1 and 2, as well as studies under output 3.1, and seek to identify other successful experiences (at national and international level) in building steppe ecosystem resilience. In particular, the project will research good practices from other countries where halfah zones can be found, and may establish linkages with other such experiences with a view to create a national and international communities of practice.

128. **Dissemination of project results**. Based on the information generated and identified, the project will support the capitalization and dissemination of best practices using a variety of media that are currently used by local and national partners. Brochures (as already used by local partners such as CNDRB to communicate on upcoming activities and disseminate information), radio (e.g. El Bayadh local radio, already used for disseminating information about local events linked to environmental management) and TV programs (as already leveraged by the National Institute for Agricultural Dissemination – INVA) as well as social networks (e.g. Facebook accounts of technical directions in the wilaya – that are already used to disseminate information) may be used for broad dissemination to the general public. Project results will be further disseminated through the local centre of the National Conservatory for Environmental Training, based in El Bayadh, whose main missions are to raise awareness, inform and educate people about environmental protection.

129. At the same time, the project will support inter-communal exchange visits and visits in other steppe wilayas for local stakeholders including agropastoralists, with the aim to disseminate the project experience but also learn from others, as exchange visits and study tours are a widely recognized practice for dissemination of techniques. Finally, the project will replicate the wilaya's experience in organizing an international seminar on sustainable steppe development.

130. **Advocacy**. The project's documented experience and approaches will also be shared with decision-makers at local and national levels, with the view to mainstream solutions for steppe ecosystem resilience in relevant policies and strategies. In particular, the project will support studies to propose schemes leveraging national subsidies for the conservation of the steppe ecosystem (including solutions for the sustained financing of restoration and resilience actions). The project may also work in close collaboration with the FAO/GCF Green Dam project, which aims among others to support the revision of the national pastoral code.

B. Project benefits

131. The project aims to provide economic, social, and environmental benefits, with particular attention to the most vulnerable communities and vulnerable groups within those communities, including gender considerations, and is not foreseen to have any negative impact. IFAD, as Implementing Entity, relies on its Social, Environmental, and Climate Assessment Procedures (SECAP) to enhance social, environmental, and climate resilience throughout the project. The project will benefit about 18,000 people (of which at least 30% women and 30% youth) in the High Plain areas of El Bayadh wilaya. The project's target groups will comprise vulnerable smallholder producers – mainly agro-pastoralists, pastoralists, and other vulnerable rural poor.

132. **Economic benefits**. The integrated implementation of ecosystem restoration techniques and sustainable rangeland management (component 1), combined to the agroecology transition of sedentary livestock systems will ensure the sustainability of ecosystems and thus the greater resilience of local livelihoods (component 2). The project will indeed contain and invert a negative trend of declining profitability of livestock systems driven by natural resource depletion and climate change, by promoting integrated and sustainable livestock management practices. The without project scenario would continue to show downward incomes.

133. The project's economic benefits comprise of: (i) income stability, by supporting the adaptation of livestock production models to the current state of natural resources and future climate scenarios; (ii) reduced livestock production costs, by incentivising lower reliance on purchased fodder, promoting the availability of cheaper and more efficient/nutritious fodder,

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and the adjustment of stock density (quality over quantity); (iii) higher fodder yields through restored pastoral resources and improved fodder production and productivity (water availability and efficiency, adapted varieties and local cultivars, improved soil fertility management, good agricultural practices such as crop rotation, etc.); (iv) higher revenues thanks to improved livestock productivity and health, by facilitating access to veterinary support (reduced morbidity and mortality) and improved fodder quality; (v) higher value/prices through quality improvement of raw produce (milk and meat) and value addition (butter, cheese, etc.); (vi) business development with access to finance for working and investment capital, entrepreneurship skills. Finally, the project will support income diversification, facilitating the development of complementary economic activities for small ruminants products (milk, meat, wool and skin), fodder, and steppe products including halfah based crafts, PAM Plants, and beekeeping (through business development services, equipment, technical training, access to market).

134. Non quantifiable economic benefits will also be derived from the enhanced ecosystem services associated with ecosystem restoration practices supported under the first component (benefitting up to 3,800 hectares), but also with climate resilient practices supported under the second component (on a scale of up to 200 hectares), including among others: reduced soil erosion and desertification, increased carbon sequestration, avoided water runoff and biodiversity losses.

135. **Social benefits**. The project will target 18,000 vulnerable smallholders. The project's targeting strategy will ensure that services supported are provided in a fair, equitable and inclusive manner. The social benefits are multiple: (i) accompanying a sustainable sedentarisation process and containing urbanization by making local livelihoods more resilient; (ii) building social capital by fostering a culture of cooperation, and reducing the risk of conflict over pastoral resources; (iii) improving the delivery of extension and technical services for crop and livestock; (iv) generating health benefits by reducing risks of zoonosis; (v) promoting economic empowerment and social inclusion (especially of women, youth and vulnerable households, with women and youth respectively representing at least 30% of project beneficiaries). The project wholly relies on participatory and bottom-up processes, bringing together a wide range of stakeholders to participate in dialogue, decision-making and implementation, with the aim to lead transformative processes for a more resilient steppe ecosystem.

136. The project will put special emphasis on promoting gender equalitiy and empowering women, as their role is vital to reduce the vulnerability of livelihoods and ecosystems to the negative impacts of climate change. This will be done by recognizing gender differences in adaptation needs and capacities as part of resilient landscapes and resilient livelihoods; by supporting gender-equitable participation and influence in adaptation decision-making processes; and by facilitating gender-equitable access to finance and other benefits resulting from investments in adaptation. An Initial Gender Assessment was conducted for the preparation of this Concept Note, and a detailed Gender Analysis and Gender Action Plan will be prepared at project proposal stage to further identify activities tailored to women and other vulnerable groups' needs (including youth and minorities).

137. **Environmental benefits**. The project primarily targets the resilience of ecosystems, both by supporting steppe resilience (3,800 hectares) and agroecology transition for sedentary livestock systems (200 hectares) and alleviating the pressure on natural resources, thanks to interventions supported under components 1 and 2. The rehabilitation of degraded ecosystems, and sustainable management of fragile land will yield direct environmental benefits, by contributing to the fight against desertification but also the promotion of biodiversity (by supporting the return of original ecosystems including halfah grass and other local species, and creating a protected *pastoretum*). All project activities also contribute to enhancing carbon storage in the soil (land rehabilitation, reduced erosion, and revegetation).

C. Cost Effectiveness

138. The project is based on an integrated approach, consisting in concentrating investments in priority intervention sites, to maximize impacts, and hence cost effectiveness. Indeed, the approach both allows to guarantee multiple benefits thanks to the complementarity of interventions, and to generate downstream benefits thanks to integrated planning and management.

139. Under the first component, the project will support participatory planning processes, guaranteeing the ownership and engagement of local stakeholders, further securing the sustainability of investments. The reliance on local institutions (HCDS, CdF, CNDRB, DE, etc.) guarantees economies of scale and the sustainability of investments. At the same time, the project will mobilize local workforce for its activities, providing income to most vulnerable households, while supporting the long-term resilience of local ecosystems. Ecosystem restoration practices supported under the first component, and agroecology practices supported under the second component have proven to be cost-efficient, which is a key incentive for their long-term adoption and sustainability. Climate resilient practices supported under the second component tend to show net additional incomes under the foreseen climate scenarios, meaning that agropastoralists adopting these practices are likely to be better off in the long run. Component 3, focused on knowledge integration and policy support, will also contributes to the cost-effectiveness of the project, by seeking to propose consistent approaches for and encourage resource allocation and mobilization towards the resilience of the steppe ecosystem, resulting in a more cost-effective and coherent approach at national level.

140. The project proposal preparation will include a comprehensive cost-benefit analysis of all components and activities, as well as an alternatives analysis to ensure cost efficiency. This analysis will assess the financial implications of each component, considering factors such as implementation costs, maintenance requirements, and long-term sustainability. By conducting a rigorous cost-benefit analysis, the project aims to identify cost-effective strategies, optimize resource allocation, and prioritize interventions that deliver the greatest economic, social, and environmental benefits. This proactive approach to cost efficiency will enable the project to maximize its impact and ensure the long-term viability of its outcomes.

Table 3 - Cost-effectiveness and alternatives to project

Benefits generated – losses averted	Alternative to project
Component 1. Restored steppe, including halfah grass ecosystems	
- 20 sites are identified and establish participatory local diagnostics and priority intervention measures - 3,800 ha of steppe ecosystem under resilient management practices - 200 HH engaged in pastoralist-managed rangeland protection - 5 innovative approaches tested for steppe adaptation (including pastoralist managed rangeland protection, combination of SWC to reseeding, innovative water conservation measures, steppe protected area, etc.) - 20 surface water collection systems rehabilitated, directly benefitting 1,000 households (6,000 people of which 50% women). - 1,000 pastoralists trained on sustainable pasture management practices	- Alternatives to the project consist in implementing landscape restoration planning without relying on participatory processes - The absence of participatory process and lack of engagement of local communities in the works result in limited ownership and incapacity to maintain the investments, which deteriorate and are lost over time - Business as Usual approaches are implemented without coordination resulting in scattered investments and limited impact - BAU approaches do not integrate innovations and improvements that can increase the success of land restoration solutions - Highly innovative alternatives that rely on inputs sourced outside the wilaya would risk being unsustainable and posing a threat to the environment - In alternative scenarios, support may focus on access to groundwater resources, risking their depletion
Component 2. Transformed livelihoods for steppe dependent communities	
- Extensionists and service providers are trained on agroecology and climate resilient practices tailored to the steppe ecosystem benefitting 2,000	- Alternative to projects consist in a continued sedentarisation relying on intensive rather than integrated approaches, which would rely on a vision

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agropastoralist households (12,000 people of which 50% women) - 200 agropastoralists HH are directly engaged in agroecological production within sedentary livestock systems - 2,000 pastoralists and agropastoralists benefit from climate resilient veterinary services - 1,000 local MSMEs supported in 5 targeted VCs - 1,000 kits (equipment) allocated to local MSMEs - 80% of targeted households report the adoption of environmentally sustainable and climate resilient technologies and practices, directly contributing to their enhanced climate resilience - 80% of households targeted have stable and sustainable sources of income (increasing their adaptive capacity).	and interventions for the sustainable management of steppe resources - Intensive livestock systems continue to put pressure on the ecosystem and accelerate its degradation, ultimately resulting in total desertification and decapitalization/migration - Under alternative approaches, local government may focus on high value-added sectors such as cattle, with increased pressure on local resources (water, fodder), and leaving most vulnerable HH on the side - Under alternative approaches, women led businesses and activities are not supported, and communities' vision of the steppe ecosystem doesn't evolve towards the enhanced conservation of resources
Component 3. Mainstreaming steppe ecosystem adaptation strategies	
- HCDS and climate committee reinforced in their role to support steppe ecosystem resilience - 1 partnership with El Bayadh University and 10 students engaged in documenting project result - Studies and communication products are developed based on project results and approaches - Monitoring system in place for decision making - Project experiences are shared at local, national, and international level (including with organization of an international seminar on steppe resilience)	- In an alternative scenario, the project could focus on local activities without seeking to establish wider communities of practice, thereby risking to miss the identification of alternative solutions for the steppe ecosystem resilience. - The project would not be able to scale-up lessons learned and experiences into policy documents without systematizing results and generating relevant knowledge and policy products

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D. Strategic alignment

141. **Background**. Algeria joined the UNFCCC as early as 1993, and ratified the Kyoto Protocol and Paris Agreement in 2005 and 2016 respectively. As a signatory to the UNFCCC, Algeria has submitted its Intended Nationally Determined Contribution in 2016; its Initial, Second and Third National Communications in 2001, 2010 and 2023 respectively; and its First Biennial Update Report in 2023. The Fourth National Communication is under preparation. Algeria has also ratified the United Nations Convention on Biological Diversity in 1995 and the United Nations Convention to Combat Desertification (UNCCD) in 1996.

142. The **Third National Communication to the UNFCCC** (2023) underlines the vulnerability of northern Algeria and of the steppe ecosystem. The TNC also describes the overall adaptation strategy and its implementation in priority sectors for the period 2023-2027, as an integral part of the process of implementing the National Adaptation Plan (NAP), while referring to the strengthening of climate governance at the service of the NDC, and the involvement of the scientific research sector with the adoption of the 2021-2027 National Research Plan (NRP). Adaptation actions are identified for priority sectors including forests (and the steppe ecosystem), agriculture, water resources and health.

143. Algeria's **Nationally Determined Contribution (NDC) for the period 2021-2030** aims to reduce its greenhouse gas (GHG) emissions by 7% under the voluntary scenario (using its own financial resources) and by 22% under the conditional scenario (dependent on international financial and technological support) by 2030. The NDC covers different sectors, including energy, industry, transportation, agriculture and forestry, construction, environment, and water resources, and promotes priority adaptation measures to protect populations, natural resources, and basic infrastructures against the risks of extreme weather. The measures, to which the project contributes directly, include (i) strengthening the resilience of ecosystems (floods and drought) in order to minimize the risk of natural disasters linked to climate change; (ii) combating erosion and rehabilitating degraded land as part of the fight against desertification; (iii) integrating the effects of climate change into sectoral strategies, in particular agriculture, water, human health and transport; (iv) adapting the institutional and regulatory framework to climate change; (v) strengthening institutional and human capacities

to combat climate change; (vi) setting up a monitoring and early-warning system and strengthening capacities to manage extreme climatic events; and (vii) drawing up regional and local climate change adaptation plans.

144. To achieve the NDC targets, the country developed a **National Climate Plan (NCP) in 2019** comprising 155 actions, including 63 for adaptation, 76 for mitigation, and 16 cross-cutting themes. Adaptation actions include: i) adaptation of the institutional and regulatory framework to climate change; ii) institutional and human capacity building for the fight against climate change; and iii) development of regional and local climate change adaptation (CCA) plans and are divided into two programs with different timelines (short and medium terms): (i) emergency actions, planned by 2023, and (ii) actions requiring a longer timeframe and necessitating the strengthening of the organizational framework and mobilization of human and material resources for implementation by 2035. The PNC notably includes forests, steppes and biodiversity among its main themes, as well as the following priority actions: (i) the restoration of the steppe ecosystem through the regeneration of halfah grass areas (Mid Term Action – AMT n°20); (ii); the installation of an observatory for ecological, climatic and socio-economic monitoring of the steppe ecosystem (AMT n°21) (iii) the elaboration of local adaptation plans for three pilot wilaya including El Bayadh (Short Term Action n°31).

145. The project also contributes to the objectives and priorities set out in the following:

a) **The National Land Development Plan (Schéma National d'Aménagement du Territoire (2010-2030)**[97], and its local action plans (PAT), in particular:
   - o *The development of a strategy to preserve and enhance the steppe ecosystem and implementation of a program to combat desertification in arid, semi-arid and dry sub-humid areas*;
   - o *Strengthening the productive base and rural diversification by: i) improving the productivity of cropping, livestock, and forestry systems, and ii) diversifying the rural economy by developing activities that make the most of natural, heritage and human resources*;
   - o *The promotion of local development dynamics and territorial enhancement through: i) the protection and regeneration of natural environments through the upgrading of mountain massifs, ii) the regeneration of the steppe ecosystem, the protection and rehabilitation of the oasis system, iii) the diversification of economic activity by ensuring a more judicious exploitation of resources and putting an end to certain unsustainable modes of exploitation; iv) the development of micro and small businesses based on the enhancement of the specific resources of the natural environment and local know-how*.

b) **The National Strategy for Sustainable Forest Management by 2035 (2016)**, with the following objective: "*the conservation and sustainable management of the resources (soil, water, flora, fauna) of the forest, halfah grass areas and other natural areas, with a view to ensure their sustainability and guarantee sustained production of goods and services for the benefit of the population and the national economy*." The strategy looks closely at measures for the preservation of halfah grass steppe areas, to which the project directly contributes.

c) **National Strategy for the Environment and Sustainable Development (SNEDD)** for the period 2018-2035, which defines the goals and operational objectives as well as the appropriate measures to fill the gaps identified during the five-year assessment of the state of the environment and to determine the priority projects and potential roles of all national players. Axis 5 specifies measures for adaptation, anticipation, and strategic planning for climate change.

d) The **National Biodiversity Strategy and Action Plan (NBSAP 2016-2030)** focuses on the conservation, sustainable use, restoration and enhancement of biodiversity for the benefit of present and future generations. This aims to ensure the long-term

[97] Algeria's National Land Development Plan. 2030. Available online: https://andp.unescwa.org/plans/1122

preservation of Algeria's exceptional natural capital, which can be sustainably put to use in the service of the country's human and social capital.

e) The project is also aligned with the **programs run by the MSNFCF and MADR for rural women**, through the various public support schemes and the integrated national program to support female entrepreneurship and empower rural women.

146. The project will also ensure alignment to the **National Adaptation Plan**, which preparation initiated with UNDP support in 2023, and which stated objective is "*to strengthen Algeria's capacity to combat climate change, by prioritizing food security and climate-resilient agriculture*". More generally and where relevant, the project will seek alignment with: the Government Action Plan, the Forest Strategy (2020-2030), the Water Resources Strategy (2020-2030), the National Drought Plan (2019), the National Water Plan (2013), the National Scheme for Land Use Planning (2004), and Algeria's National Environmental Action Plan for Sustainable Development (2002).

147. Additionally and at sub-national level, the project will align on and/or contribute to: the sub-programme for the sustainable management of Halfah grass zones, integrated under the National Strategy for Sustainable Forest Management by 2035; the Green Dam programme (targeting 13 wilayas out of 58); the HCDS programme of work for the rehabilitation of degraded rangeland and fight against desertification in 22 steppe, agropastoral and Pre-Saharan wilayas (currently under review by the Ministry of Agriculture); and the local climate adaptation plan for El Bayadh (currently under preparation).

148. The project will contribute directly to the following Sustainable Development Goals: **SDG 1** (No poverty), **SDG 2** (Zero hunger), **SDG 5** (Gender equality), **SDG 8** (Decent work and economic growth), **SDG 12** (Responsible consumption and production), and **SDG 13** (Climate action).

E. National Standards and Environmental and Social Policy

149. Through its SECAP, IFAD aligns its practices with the Adaptation Fund's policy to uphold environmental and social standards throughout its projects. As such, the project complies with the Environmental and Social Policy of the Adaptation Fund, (see ESP risk assessment summary in section II. K) and has been designed to minimise any negative environmental impact, resulting in net environmental benefits. The project will respect and adhere to the relevant laws and codes as outlined below.

150. Law no. 2003-10 of July 19, 2003 on the **protection of the environment in the context of sustainable development** comprises 8 titles and 114 articles, in which the role of the public authorities in monitoring and overseeing the various components of the environment (flora and fauna, living environment and quality of life) is asserted, while the **requirement for an environmental impact assessment** and the possibility for associations to bring civil action also feature prominently. Execution Decree no. 07-145 of 2 Joumala El Oula 1428 corresponding to 19 May 2007 determines the scope of application and modalities of approbation for environmental impact studies and notices. Annex 1 of the Decree lists out 29 types of projects requiring environmental impact studies, while Annex 2 lists out 14 types of projects requiring environmental impact notices, of which hill reservoirs ("retenues collinaires") under item 10. Halfah will comply with the process of obtention of environmental impact notices for hill reservoirs supported under output 1.3 as applicable. No other activity is concerned by environmental impact studies or notices.

151. The table below highlights key standards that may apply to project activities and corresponding project responses.

Table 4 - Compliance with national standards

Law Legislation	Standards applied	Project response
Law no. 2003-10 of July 19, 2003 on the protection of the environment in the context of sustainable	Obtention of environmental impact notices required for hill reservoirs	The project will ensure environmental impact notices are obtained for hill reservoirs

Deleted: <#>The **Algerian Constitution of 2020**, adopted by referendum on November 1, 2020, comprises 225 articles divided into 6 Titles: I) General principles governing Algerian society; II) Fundamental rights, public freedoms and duties; III) Organization and separation of powers; IV) Supervisory institutions; V) Consultative bodies; VI) Constitutional revision. Among the many social, economic, technical and environmental provisions contained in this document, articles 21, 37, 40, 44, 62, 63, 64, and 66 are particularly relevant to the project.¶

Deleted: <#>The law states that "*development projects, infrastructures, fixed installations, factories and other engineering structures, as well as all construction and development works and programs, which by their direct or indirect, immediate or remote impact on the environment, and in particular on species, resources, natural environments and spaces, ecological balances, as well as on the quality of life, are subject to a prior impact study or environmental impact assessment*". It is not expected that project activities will require EIA

Deleted: <#>Law no. 2023-21 of December 21, 2023 **on Forests and Forest Resources** comprises 6 titles and 165 articles. Its purpose is to define and lay down rules for the management, protection, extension and development of the national forest heritage within the framework of sustainable development, as well as the use of forests and forest lands and their protection from deforestation and erosion. It also aims to protect wild flora and fauna, conserve soil, combat desertification and enhance the value of forests and forest resources, with contributions from other sectors. The law notably includes steppe resources (and halfah grass areas in particular) as part of forest resources, and defines modality for their protection and use.¶
Other relevant laws that may apply to the project include, amongst others: Pastoral Code (1975), Agricultural Orientation Act (Law 08-16 of 3 August 2008), Law of Accession to Agricultural Land Ownership (Law 83-1), Land Framework Law (Law 90-25), Law over land concessions (Law 108 of February 2011), Law on Water (Law 5-12), Veterinary Medicine and Animal Health Protection Act (Law 88-08), Law on the prevention of major risks and disaster management (Law 04-20), and Law on waste management, control and disposal (01-19).¶

development and Execution Decree no. 07-145		
Law on Water (Law 5-12 of 4 August 2005)	- Water infrastructure need to align with norms and standards for studies, works, monitoring, use, maintenance, etc. - In areas with high risk of water erosion, antierosion measures upstream of water infrastructure are required. - The use of water resources requires preliminary authorizations/concessions. - Use of water for agriculture is conditioned to a rationale and efficient use	- The project will comply with all norms and standards as defined by regulations. - Where needed, the project will ensure upstream antierosion measures are implemented. - The project will support stakeholders in requesting relevant authorizations/concessions for water used. - Where irrigation is supported, the project will promote water efficient techniques
Executive Decree 15-19 of 25 January 2015 setting the modalities of review and delivery of urbanism certificate	Specific modalities for the review and delivery of urbanism certificate depending on type of construction	The project will seek the obtention of relevant permits for the establishment of Observatories under component 3, as applicable
Agricultural Orientation Act (Law 08-16 of 3 August 2008)	- Defines land that can be used for agriculture - Recognizes the possibility of need for restoration interventions in rangeland, including resting of rangeland (grazing bans) - Defines zoosanitary and phytosanitary protection measures - Defines the characteristics of professional farmers and farmers'organisations - Sets the standards for dissemination of practices - Establishes a quality system for agricultural products	- The project will not promote the use of non-agriculture land for agriculture use - The project will comply with standard procedures for the declaration and enforcement of grazing bans - The project will ensure compliance with all sanitary standards - The project will support compliance with registration of professional farmers and their organisations - The project will comply with standards established - The project will ensure quality standards are respected
Law no. 2023-21 of December 21, 2023 on Forests and Forest Resources	- Includes steppe resources (and halfah grass areas in particular) as part of forest resources, and defines modality for their protection and use - Defines aspects for the management of protected areas within zones classified as forests (including halfah zones) - Promotes the protection and development of halfah, other Non-Timber Forest Products, and perfume, aromatic and medicinal (PAM) plants.	- The project will comply with regulations for the management and protection of halfah zones (modalities for their protection, expansion, valorization) - The project will comply with these modalities for the establishment of a pastoretum - The project will promote the sustainable development of Halfah, PAM plants and other steppe related value chains
Veterinary Medicine and Animal Health Protection Act (Law 88-08)	Frames the delivery of veterinary medicine including animal protection and disease prevention measures	The project will comply with measures sets in the law, including attention to the use of authorized medication

F. Duplication

152. As illustrated in the table below, there is no duplication of the project with other funding sources. The key components and objectives of Halfah stem from the consultation process conducted with local and national stakeholders, in line with the priorities expressed in key national strategies aimed at addressing climate change. Potential synergies with ongoing projects are highlighted below.

Table 5 - Analysis of risks of duplication

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Project name	Summary and geographic area	Identified synergies
Conservation, preservation, and value chain development of the mint from El Ghassoul and its ecosystem in the wilaya of El Bayadh GEF Small Grant project channelled by UNDP. Ongoing project, 2024-2026 Total financing: 50,000 USD	The intervention aims at protecting the Ghassoul mint ecosystem (*Mentha viridis* L.) while securing the livelihoods of local producers and processors. The project will protect the ecosystem of origin of the mint, in association with other medicinal plants and adapted rustic fruit trees (figs, vines, apricots, pomegranates). The project will support the development and structuring of the mint VC, in connection with eco-tourism in the local ksours, with the final objective of creating employment opportunities and building the resilience to climate change of the mint ecosystem and communities in El Ghassoul. The project will be implemented by the Chambre d'Agriculture de la Wilaya d'El Bayadh. The target area is the Commune of El Ghassoul, in the Wilaya of El Bayadh.	**Lessons learned.** The protection of key ecosystems can be enhanced through the sustainable sourcing of products linked to these ecosystems, such as the mint and other medicinal plants in El Ghassoul. Value chain structuring around these products allows to preserve ecosystems and generate livelihood opportunities, while enhancing resilience to climate shocks. **Synergies**. Potential synergies are identified with regards to the development of the mint value chain that could be retained under output 2.2. The cooperatives of women established and supported under the GEF Small Grant project will be considered for inclusion under output 2.2. **Avoiding duplication of efforts**. There will be no duplication of activities, as the GEF Small Grant Project will complete in 2024.
Improved climate resilience in steppe and dry forest areas of the Algerian Green Dam. GCF-funded project, implemented by FAO and DGF. CN under preparation. 7-year duration from project approval. Total financing: 99.5 million USD (GCF+co-financing)	The project aims to improve the climate resilience of small farmers and pastoralists and their livelihoods associated to livestock and non-wood forest products (NWFPs) VCs. The project will follow an integrated three-pronged approach: 1) Improved regulatory framework and enabling environment for climate change-resilient land use management; 2) Restoration of degraded agro-sylvo-pastoral landscapes, land suitability, biodiversity, and carbon sequestration; 3) Empowering smallholders through climate change-resilient land management and NWFP and livestock value chains. The project is part of the first national climate plan drawn up in Algeria for the period 2020-2030 and will constitute a reference for the entire Green Dam program. The project targets specific communes within six wilayas: El Bayadh (communes of Boussemghoun et El Mehara), Naâma in the West M'Sila, Djelfa in the Center and Tébessa and Khenchela in the East	**Lessons learned.** Limited lessons learned are available, since the project is at design stage. **Synergies**. Potential synergies are identified under the three components, with a focus on the steppe-related activities in the wilaya of El Bayadh. The project will adopt a harmonized approach with regards to: (i) protecting, rehabilitating and improving pastoral heritage management; (ii) promoting sustainable water use among pastoral communities; (iii) supporting steppe NWFP VCs including through a quality approach. Halfah may also leverage FAO's experience in developing new tenure approaches through pastoral units. **Avoiding duplication of efforts**. As the timeline of approval of the GCF project is unclear, Halfah will keep an open dialogue with FAO and DGF to ensure coordination in the implementation of relevant activities. There will not be a duplication of activities, as Halfah excludes the Communes under the FAO/GCF project from its target area.
Barrage Vert Initiative (Green Dam) National Programme (DGF) Launched in 1970s, current implementation under the 2023-	The Barrage Vert initiative targets 16 communes in the wilaya of El Bayadh, implementing a set of activities aimed at increasing the resilience of the steppe and forests against the desertification and the effects of climate change. Key initiatives include the rehabilitation of the ecosystems through pastoral plantations and arboriculture, tree plantation and dune fixation to directly	**Lessons learned.** The initiative has generated many lessons in its initial years of implementation that informed following designs. Key insights include the need for an integrated approach to promote the regeneration of steppe ecosystems, integrating interventions to support livelihoods to ensure the sustainability of biophysical improvements. **Synergies**. Given the high relevance of the project both at national and regional level,

2030 programme of work. Total financing: unknown at the time of CN drafting.	address the issue of silting, and water and soil conservation measures. These will be complemented by activities directly benefiting local communities, including the establishment of water points, and opening of rural tracks. The implementation of the Barrage Vert initiative is ongoing under the programme Barrage Vert 2023-2030.	Halfah will coordinate to ensure implementation complementarity. **Avoiding duplication of efforts**. Halfah will target degraded steppe in the high plains area of El Bayadh, coordinating with the Barrage Vert initiative to avoid duplication. Sites for protected steppe will be identified at implementation stage, following a well-defined targeting strategy, excluding the steppe already included in the Barrage Vert programme of work.
Protecting the environment and biodiversity in Algeria's coastal regions (PEBLA) project GIZ project 2020-2024 Total financing: 6.2 million EUR	The PEBLA project aimed to improve the environmental, economic, and planning conditions for integrated coastal zone management in Algeria. Among the different actions promoted, the PEBLA project has strengthened the organisational, entrepreneurial, and technical skills of resource users for the development of ecosystem services. It has also promoted marketing through contracts with the private sector.	**Lessons learned.** The project successfully engaged the private sector for the marketing of sustainably-sourced products. This was possible thanks to the trainings provided to women cooperatives, covering entrepreneurial, organisational, and technical topics. **Synergies.** The trainings provided to women cooperatives have been essential to successfully structure these organizations and connect them to the private sector. The Halfah project will replicate such trainings, drawing from the curricula developed by the PEBLA project. **Avoiding duplication efforts.** There will be no duplication of activities, as the GIZ PEBLA Project will complete at the end of 2024 and is implemented in a different wilaya.
Environmental Governance and Biodiversity (GENBI) project GIZ project implemented by Algeria's MEER Completed project, 2014-2019	The project aimed at introducing instruments and approaches to mainstream environmental governance that protect the environment and preserve biodiversity. It promoted dialogue among all partners involved and trained key employees in the Wilaya and its municipalities. Key achievements include: - The project team has cooperated with local partners to create a geographic information system for El Kala National Park and thus obtain sound information on biodiversity. - The project team has also identified four product lines, one for each targeted ecosystem, including oils from the mastic tree (*pistacia lentiscus*), and oil and vinegar from prickly pears (*opuntia ficus-indica*). Two cooperatives of 35 women were created for the transformation of mastic tree, supporting both women economic empowerment and biodiversity protection. The target area is the wilaya of El Tarf, in Northern Algeria.	**Lessons learned.** The project successfully established, trained, and equipped women cooperatives for the transformation of mastic tree. This was done in connection with the assessment of four targeted ecosystems and a valuation of their ecosystem services, providing a valuable example of women empowerment in connection with biodiversity protection. **Synergies.** The GENBI project developed specific approaches to preserve biodiversity and improve environmental governance. Halfah will draw from its lessons and best practices, looking specifically at the mastic tree value chain. Best practices related to women economic empowerment through the transformation of *Pistacia lentiscus* will be replicated whenever relevant. **Avoiding duplication efforts.** There will be no duplication of activities, as the GIZ GENBI Project has completed and was implemented in a different wilaya.
ProAgro Youth. Support to integrated agribusiness hubs	The overall objective is to facilitate professional integration of rural youth into agricultural value chains. The project provides youth with the	**Lessons learned.** The inclusion of youth in agricultural value chains is a key factor to ensure the sustainability the sector and its constant innovation, building resilience to

in Algeria, Cote d'Ivoire, Madagascar and Malawi IFAD-funded project (grant), implemented by ILO Ongoing project, 2022-2024 Total financing: 11.23 million USD	necessary skills for wage employment according to the needs of the private sector and supports the development of enterprises and value chains, including the establishment of new businesses. In Algeria, the ILO is coordinating a consortium with local implementing partners including the BNEDER, the National Employment Agency (ANEM), the National Entrepreneurship Support and Development Agency (NESDA). The project is implemented in three wilayas: Biskra, Guelma and Mostaganem.	climate change. Specific methodologies have been developed to build the skills of young people to manage their own businesses. **Synergies.** Lessons learned from the implementation of ProAgro Youth will inform the design of the Halfah project, strengthening the pathways for the inclusion of youth in the selected value chains for steppe products. The learning tools developed by ProAgro will be of use in the Halfah project, focusing on the Create your Business (CREE) and Manage Your Business Better (GERME) programmes. **Avoiding duplication of efforts.** There is no risk of duplication, as the ProAgro project does not cover the wilaya of El Bayadh.

G. Learning and Knowledge Management

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153. Effective knowledge management – including the collection, generation and dissemination of information – is an important component of climate change adaptation. Learning from adaptation activities and being able to transform knowledge into products that are targeted at various audiences is essential to effective climate change adaptation.

154. The Halfah project is centred on knowledge generation and management, as one of its core principles is to both build on existing local approaches for the resilience of the steppe ecosystem, and to propose new approaches based on experiences from other contexts. As such, the project identifies and will continue to identify innovative technical and sociological solutions for the adaptation of the steppe ecosystem and livelihoods, and to document their success in the context of the wilaya. Learning is mainstreamed in the project, as it draws from documented experience for steppe restoration and fighting restoration, for sustainable rangeland management and resilient sedentarisation, but also for the promotion of women entrepreneurship. Agroecology (supported under component 2) is in itself a process that is dependent on learning.

155. At the same time, the project will provide a wealth of substrate for knowledge management and recognizes its importance. Action research is a key element of all components, with the involvement of local partners (HCDS, CNDRB, DSA, CAW, climate committee, etc.) to test and document approaches (enhanced pastoral plantation, selection of local varieties and species, etc.). The third component puts the emphasis on this KM process by establishing partnerships with the University and research partners and promoting the involvement of master students to document project activities (including sociological drivers of success and approaches for gender inclusion).

156. Dissemination of lessons is also mainstreamed into the project, as circulation of knowledge is planned at all levels, using standard media (radio, TV, social networks) as well as visits and exchanges. Inside the wilaya, the project will encourage and support beneficiaries to visit other sites and compare approaches, but the project will also support visits to and from other wilayas, and possibly other countries in the region that are engaged for the steppe ecosystem (and halfah grass) resilience. These processes will culminate in the organization of an international seminar on sustainable steppe development in El Bayadh. Interlinked support to learning and knowledge management under the project will ultimately support the integration of steppe ecosystem adaptation strategies into local and national policies and strategies.

157. The overall responsibility for Knowledge Management (KM) and communication will rest with the project M&E Officer, who will coordinate with other members of the Project Management Unit (PMU), local authorities and other project stakeholders to identify case studies that illustrate the impact that the project has had on improving rural livelihoods and centralize key information generated. More generally the M&E Officer together with the rest of the PMU will process the knowledge generated into an appropriate format for the general

public and disseminate it. This will be done through workshops and seminars, exchange visits, electronic/digital media (radio, television, and internet – emails and websites); social media (YouTube, Facebook, Instagram, etc.), and print media (flyers, brochures, reports, working papers, monographs, manuals).

158. The project will also document lessons learned and disseminate knowledge products through annual performance reports (APRs), briefing notes, infographics & flyers, knowledge platforms, project performance reports (PPRs), the mid-term evaluation report (MTR) and terminal evaluation report, project stories and project videos.

H. Consultative Process

159. A joint mission involving the Ministry of the Environment and Renewable Energies (MEER), the International Fund for Agricultural Development (IFAD) and the United Nations Office for Project Services (UNOPS) took place in Algeria from 3 to 9 March 2024, and travelled to the wilaya of El Bayadh from 4 to 7 March 2024. The mission has successfully met and consulted all stakeholders at local level, following a participatory process. Stakeholders consulted included: local authorities, deconcentrated services, represented by the executive directors of the wilaya (Direction de l'Environnement - DE, Direction des Services Agricoles - DSA, Conservation des Forêts - CF, Direction des Ressources en Eau - DRE, Direction de l'Action Sociale - DAS, Direction du Tourisme et de l'Artisanat - DTA, Direction de l'Energie et des Mines - DEM, Direction de l'Industrie et de la Production Pharmaceutique- DIPP, Direction de la Planification, des Statistiques et du Budget - DPSB), regional and local technical institutions (Haut-Commissariat au Développement de la Steppe - HCDS, Centre National de Développement des Ressources Biologiques - CNDRB, Office National de la Météorologie - ONM), universities and research institutes, environmental protection associations, women's associations, the Wilaya Chamber of Agriculture (CAW) and the wilaya-level Comité National Interprofessionnel par Filière (milk, cereals, MAP), rural women, craftswomen, cattle breeders' associations, fruit producers and cold storage units, etc. More information is available in Annex 2.

160. The mission was accompanied by the wilaya climate change committee chaired by the Wali, which brings together a variety of stakeholders actively reflecting on issues related to steppe ecosystem conservation and climate change adaptation. The results and conclusions of the field mission were discussed at MEER headquarters with its representatives on March 7, 2024. The main findings and conclusions of the mission were discussed during a virtual meeting on March 14, 2024 with representatives of the Ministry of Foreign Affairs and the National Community Abroad (MAECNE), MEER, AND, HCDS (Ministry of Agriculture and Rural Development - MADR), IFAD and UNOPS. After the mission, additional consultations were conducted remotely with FAO, UNDP, the wilaya committee on climate change, the agricultural extension institute gender focal point and the Ministry of National Solidarity, Family and Women Condition.

161. Key feedback and inputs from consultations conducted include:

a) Proposed approaches are relevant and well aligned with needs to increase climate resilience for steppe ecosystem. They reflect the local situation and priorities expressed.

b) Local stakeholders are well aware of climate impacts and their accelerated occurrence. They feel powerless in the face of these impacts but do seek to identify relevant adaptive strategies, while asking support to identify technical and sociological solutions/innovations.

c) Ecosystem resilience cannot be sustainably achieved without a preliminary engagement process, guaranteeing the ownership of actions by local communities (pastoralists and agropastoralists), who can then go on to manage and replicate interventions locally.

d) Current practices yield some solutions but they are insufficiently integrated: concentration and multiplicity of actions, together with enhanced coordination mechanisms and stakeholders engagement and awareness are key for project success. The project also needs to adapt to the local contexts and levels of degradation.

e) Women in rural areas are invisibilised and El Bayadh is no exception. The wilaya has little consolidated studies on the topic, and this will be a specific point of attention for the project.

f) Nomads and semi-settled pastoralists' traditional livelihoods and practices are threatened by the degradation of steppe ecosystem, shifting their transhumance patterns and forcing them to settle in villages or temporary camps. Pastoralists are worried about land degradation and declining grazing lands, and are looking for solutions and alternatives. However, state interventions have been uncoordinated and have not considered their customary land rights. The project will seek to fully integrate these groups in its activities and their planning through the stakeholder engagement and participatory process, to ensure that their needs are fully reflected.

I. Justification for funding

162. The justification for the requested funding lies in the comprehensive assessment of the full cost of adaptation associated with implementing the present project. The project is focused on the climate resilience of highly vulnerable steppe ecosystem and populations of Algeria. Thanks to Adaptation Fund supporting the full cost of adaptation of activities planned under the project, the present initiative will bring about a paradigm shift by identifying integrated approaches for the resilience of the steppe ecosystem and communities that depend on them in the wilaya of El Bayadh. Thanks to project support and showcased best practices, Algeria will be equipped with the means to mainstream steppe ecosystem resilience solutions into relevant policies and strategies. The table below highlights the baseline and alternative adaptation scenario under the project.

Table 6 - Baseline and alternative adaptation scenario the Adaptation Fund will help materialize

Business as usual scenario	Adaptation Fund additionality
Component 1. Restored steppe ecosystem, including halfah grass pasturelands	
The drought and heat cycles continue to accelerate environmental degradation for the steppe ecosystem in El Bayadh, resulting in widespread desertification, loss of biodiversity, loss of pastoral land and fodder resources, decapitalisation of livestock and loss of livelihoods. Under this pressure, steppe ecosystem become increasingly vulnerable and continue to decrease in size, with an ever-reduced capacity to withstand shocks and pressure. At the same time, local stakeholders are insufficiently organized to jointly address the accelerating desertification and initiatives remain isolated and inefficient.	- Prioritisation and planning process for 20 sites of interventions - 3,800 ha of steppe ecosystem under resilient management practices - 200 HH engaged in pastoralist managed rangeland protection - 5 innovative approaches tested for steppe adaptation (including pastoralist managed rangeland protection, combination of SWC to reseeding, innovative water conservation measures, steppe protected area, etc.) - 20 surface water collection systems rehabilitated, benefitting 1,000 households (6,000 people of which 50% women). - 1,000 pastoralists trained on sustainable pasture management practices
Component 2. Transformed livelihoods for steppe dependent communities	
Under the pressure of increasingly recurrent droughts, combined with rising temperatures, and the resulting desertification of the steppe ecosystem in El Bayadh, pastoral systems are forced to transition to fully sedentary and semi-intensive systems, relying on irrigated fodder production. These maladaptive systems put a further strain on land, soil and water resources and provide very limited yields. Loss of livelihoods ensuing from the desertification of the steppe ecosystem primarily affects women and most vulnerable groups, who can no longer rely on MAP and Halfah grass to complement their income.	- Extensionists and service providers are trained on agroecology and climate resilient practices tailored to the steppe ecosystem benefitting 2,000 agropastoralist households (12,000 people of which 50% women) - 200 agropastoralists HH are directly engaged in research-action for the agroecology transition in sedentary livestock systems - 2,000 pastoralists and agropastoralists benefit from climate resilient veterinary services - 1,000 local MSMEs supported in 5 targeted VCs - 1,000 kits allocated to local MSMEs - 80% of targeted households report the adoption of environmentally sustainable and climate resilient technologies and practices, directly contributing to their enhanced climate resilience

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Value chains are poorly structured and do not enable stakeholders to obtain a stable income.	- 80% of household targeted have stable and sustainable sources of income (increasing their adaptive capacity).
Component 3. Mainstreaming steppe ecosystem adaptation strategies	
Relevant experiences for steppe ecosystem adaptation are not consolidated, and relevant approaches are not integrated at the local and national level. Approaches for the resilience of the ecosystem continue to rely on poorly connected and integrated solutions, without seeking to expand options.	- HCDS, CNDRB and climate committee reinforced in their role to support steppe ecosystem resilience - 1 partnership with El Bayadh University and 10 students engaged in documenting project result - Studies and communication products are developed based on project results and approaches - Monitoring system in place for decision making - Project experiences are shared at local, national and international level (including with organization of an international seminar on steppe resilience)

J. Sustainability

163. The project is based on, and is driven by, sustainability principles that are promoted throughout its activities by i) emphasising the active participation of communities and local stakeholders in the implementation and management of project interventions, as a means to also ensure ownership of the project and its outcomes by all relevant stakeholders (social sustainability); ii) strengthening the community-level technical capacity to ensure stakeholders have adequate knowledge and skills to maintain the benefits of the project interventions (operation and maintenance); iii) promoting the adoption of cost-effective, environmentally friendly and long-lasting solutions to help restore, improve and/or protect the ecosystem (economic and financial sustainability); iv) training communities on climate-resilient integrated techniques and setting up systems to ensure the continuity of access to adapted seeds and seedlings (technical sustainability), v) promoting steppe products value chains as a means for communities to perceive the long-lasting value of the ecosystem and further engage in its preservation (environmental sustainability), and vi) by supporting the integration of mechanisms for steppe ecosystem adaptation at local and national level, thus ensuring the sustainability and replicability of the project (institutional sustainability). Additionally, the project is fully aligned on the priorities highlighted in relevant national policies and strategies.

164. **Environmental sustainability** is at the heart of project approaches, by seeking to restore fragile ecosystems and establish mechanisms to guarantee their sustainability, thereby supporting the return of biodiversity. Under its first component, the project will promote the adoption of sustainable pastoral practices, while the second component will support the transition of semi-intensive sedentary livestock systems to agroecology. The project will rely on participatory approaches to fully address issues that affect the long-term sustainability of natural resource management and the welfare of local communities.

165. **Operation and maintenance**. The project's participatory and community-based approach will ensure the ownership of investments by local stakeholders, including relevant institutions, who will be responsible for project investments beyond the project's lifetime. By relying on local workforce to conduct SWC and other works, the project guarantees that local households are trained and master the techniques to prepare, maintain and replicate climate resilient techniques for ecosystem restoration. Additionally and for hydraulic infrastructure, the creation of management committees will establish the guidelines, roles and responsibilities to sustainably manage the infrastructure and conduct O&M. Finally, the project will support the establishment of seedbanks and a pastoretum, that will sustainably provide the planting material needed for ecosystem restoration.

166. **Institutional sustainability**. The project is fully aligned on the priorities highlighted in relevant national policies and strategies, and is anchored in a strong engagement of all relevant instances at local level, as verified during the consultative process. Participatory processes will be conducted with the communities, representatives of local authorities, and all relevant institutions as outlined in output 1.1. At the same time, the project strives to generate and consolidate knowledge on integrated steppe adaptation solutions and mainstream them at the local and national level. The sustainability of knowledge generated

will be guaranteed by: (i) the engagement of local institutions to produce this knowledge, and their ownership of the methodology, process, and resulting documents; (ii) the consolidation of local, national and international communities of practices around steppe adaptation; (iii) the dissemination and integration of key results in relevant policies and strategies.

167. **Social sustainability**. Halfah fully relies on participatory and inclusive processes, ensuring that all stakeholders (and in particular women, youth and minorities) are aware of the project and its interventions, and actively contribute to key processes, starting with the prioritization of actions and participatory diagnostics under output 1.1, but also through the management committees established under output 1.3, as well as direct support to agro-pastoralists whose engagement will be ensured by relying on extension services as an entry point, using co-learning approaches such as FFS under output 2.1, and support to value chain structuring and cooperatives under output 2.2, etc. Through these participatory processes and by implementing activities that directly meet their needs (as confirmed by the consultative process), the project both guarantees the ownership of interventions by local communities, and the development of social capital at local level. Sufficient social capital influences the quality and set of options (or constraints) that households face when threatened by climate change. Indeed, adaptation is a dynamic social process, as the ability of societies to adapt is determined, in part, by the ability to act collectively. Increased social capital is at the core of the project's social sustainability and will be further reinforced by conflict resolution mechanisms mainstreamed throughout implementation.

168. **Scaling-up** will be further ensured by a strong ownership of local stakeholders, starting with the capacitation of all relevant stakeholders. In addition to developing the social capital of targeted communities, the project will encourage peer-to-peer exchanges and learning under its third component. The local level planning will allow identifying further investment needs, while giving communities the tools to replicate actions themselves. At the same time, the project will support mechanisms to leverage national subsidies in favour of steppe ecosystem resilience, therefore facilitating the replication of interventions.

K. Environmental and Social Impacts and Risks

169. The environmental and social screening presented in the table below provides a brief overview of the risk assessment that will be further detailed in the ESMP to be prepared at the full project document stage, and evidences the minor risks related to the project, and for which additional detail and dedicated mitigation measures will be integrated into the project. Any site-specific risks identified can be readily addressed. As a result of these elements, the project has been identified as **Category B** (**Moderate risk** based on IFAD's Social, Environmental and Climate Assessment Procedures – SECAP – screening tool, equivalent to category B in the Adaptation Fund's Environmental and Social Safeguards) with regards to socio-environmental aspects.

170. During the project preparation phase, the proposal will undergo detailed assessments in accordance with both the Adaptation Fund and IFAD's Social, Environmental and Climate Assessment Procedures (SECAP), as well as gender policies. To ensure transparency and inclusivity, the full design mission at project proposal stage will engage in further public consultations at ministerial levels, with beneficiaries, donor and partner organizations, local authorities and institutions, civil society, academia, and women and environment associations in the wilaya. Comprehensive records will be maintained as evidence of all consultations conducted.

171. **Unidentified Sub-Projects (USPs)**. The nature of project activities has been formulated to the extent that pre-identification of environmental and social risks is possible, and the team will seek to identify project specific intervention areas to the extent that identification of environmental and social risks is possible during the fully developed proposal preparation. The wilaya of El Bayadh has also been screened to identify all site-specific environmental and social risks, and the project formulation team is confident that the project will not generate risks with regards to ESP 9, 10 and 14 in particular. However, and because specific project areas are not determined yet, the project may be considered to include USPs ("partially identified USPs"). In the case that USPs are still recognized at

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project proposal stage, an Environmental and Social Management System (ESMS) with measures to comply with the Environment and Social Policy of the Fund for concerned activities will be included in the project ESMP (to be prepared at the full project document stage). During implementation, each USP would then be screened prior to its implementation to identify potential site-specific risks and adopt appropriate mitigation measures to be captured by relevant ESMPs for implementation, monitoring and reporting.

Table 7 – Adaptation Fund Environmental and Social Checklist

Checklist of Environmental and Social Principles		No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
ESP 1	*Compliance with the Law*	X	**No/Low risk** Indirect risks may arise from project service providers not aligning with all relevant laws, regulations and policies as identified in Part II. E.
ESP 2	*Access and Equity*	X	**Low risk** Direct risks could arise from an improper targeting approach, leaving out most vulnerable groups including women, youth nomads and semi-settled pastoralists: for women, their invisibility in the agricultural sector may render their targeting difficult resulting in exclusion from specific project activities (steppe restauration, trainings on agroecology, etc.); for youth, their lack of voice may result in their lower access to decision-making processes; for nomads and semi-settled pastoralists, their mobile nature may impede interactions and direct targeting, resulting in decreased access to project support. Indirect risks may arise from aid diverting at various levels: e.g. for women and youth specifically, the male heads of households may request priority access to project support; elite capture may exclude most vulnerable households; project team may face difficulties to engage nomads and semi-settled pastoralists due to their mobile nature. Cumulative risks are associated with intersectional aspects, e.g young women, nomadic women, etc. being exposed to additional barriers in access to project activities and benefits.
ESP 3	*Marginalized and Vulnerable Groups*	X	**Low risk** Direct risks could arise from improperly engaging most vulnerable groups including women, youth nomads and semi-settled pastoralists: for women, their invisibility in the agricultural sector may render their engagement difficult resulting in insufficient tailoring of activities to their specific needs; for youth, their limited interest in agriculture and livestock related tasks and the lack of lucrative opportunities in the local economies may make it difficult to engage them, resulting in insufficient tailoring of activities to their specific needs; for nomads and semi-settled pastoralists, their mobile nature may render their engagement difficult resulting in insufficient tailoring of activities to their specific needs. Cumulative risks are associated with intersectional aspects, e.g. young women, nomadic women, etc. being exposed to increased risks of marginalization.
ESP 4	*Human Rights*	X	**Low risk** This project affirms the rights of all people and does not violate any pillar of human rights. No activities will be proposed that could present a risk of non-compliance with either national requirements relating to Human Rights or with International Human Rights Laws and Conventions. While there are pending special procedures with the Office of the United Nations High Commissioner for Human Rights in Algeria, two pending reports on freedom of assembly and on human rights are noted and will be reassessed at full proposal formulation.

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Deleted: E. Relevant local and national stakeholders will be consulted at project proposal stage to ensure that all applicable legal requirements are taken into account. The project activities will also directly align with IFAD's SECAP, as well as the Adaptation Fund Environmental and Social Policy, and Gender Assessment Policy.

Deleted: The project is designed to decrease the vulnerability, and increase resilience, of targeted communities, in particular the most vulnerable and marginalised groups such as women and youth. The project will ensure that its benefits are distributed fairly with no discrimination nor favouritism. The project will pay special attention to women and youth for equitable access to the benefits of the project. Key considerations have been taken into account through the initial gender assessment conducted at Concept Note stage.¶ Fair representation and participation of women, youth, and marginalized categories, in the joint planning process under outputs 1.1 and 1.3 will be ensured through a participatory consultative process. The participatory processes and inclusion of activities specially focused on women such as support to dedicated value chains will enable women to advocate for equality and equity for sustainable development. ¶ Additionally, IFAD will widely promote its grievance mechanism, providing means for anyone who believes have been wronged to seek appropriate remedies. By prioritizing transparency and accountability, the project aims to mitigate any adverse effects on affected individuals and ensure their rights are protected.

Deleted: Marginalized and vulnerable groups – especially women - will be consulted during the proposal development process to ensure that their identified threats, priorities and mitigation measures are reflected, in particular with the establishment of a Gender Assessment and Gender Action Plan. Key considerations have been taken into account through the initial gender assessment conducted at Concept Note stage. This project will empower vulnerable groups to make decisions on concrete adaptation actions, valuing their traditional and local knowledge. This project will create a space for women, and youth to choose adaptation activities in a transparent and participatory manner. Additionally, this project will respect land, property and customary rights.

ESP 5	*Gender Equality and Women's Empowerment*	X	**Low risk** Direct risks could arise from an improper targeting approach and engagement, leaving out women, based notably on their invisibility in the agricultural. This could result in limiting their access to project activities, and reducing their benefits, notably in terms of voice and representation, economic empowerment, and reduction of workload. Indirect risks are associated with culture and norms in the project area that may limit women's social status and constrain their access to productive resources, jobs, and social services. Additionally, it is possible that the empowerment of women and women-targeted activities results in backlash against them, associated with increased risk of marginalization and GBV. Cumulative risks are associated with intersectional aspects, e.g. young women, nomadic women, etc. risking lower opportunities of equality and empowerment.
ESP 6	*Core Labour Rights*	X	**Low risk** Indirect risks may arise from project service providers not aligning with international and national labour laws and codes, as stated in IFAD's policies.
ESP 7	*Indigenous Peoples*	X	**N/A** There are no indigenous people in the project area
ESP 8	*Involuntary Resettlement*	X	**Low risk** The project could result in temporary access restriction to pastoral resources as a result of steppe ecosystem restoration measures (as currently conducted by the HCDS). This may temporarily and directly impact customary land use, particularly affecting most vulnerable households, as well as nomads and semi-settled pastoralists.. Cumulative impacts are associated with intersectional aspects, e.g. young pastoralists, nomadic pastoralists, etc. for whom the risk of temporary access restriction may result in a higher impact due to their higher vulnerability.
ESP 9	*Protection of Natural Habitats*	X	**No risk** The project is not expected to have any negative impact on critical natural habitats including those that are (a) legally protected; (b) officially proposed for protection; (c) recognised by authoritative sources for their high conservation value, including as critical habitat; or (d) recognised as protected by traditional or indigenous local communities. Site selection criteria to be further elaborated at project proposal stage will de-facto exclude such sites from project interventions.
ESP 10	*Conservation of Biological Diversity*	X	**No risk** The activities of this project will not adversely impact the conservation of biological diversity.
ESP 11	*Climate Change*	X	**Low risk** The project will not generate any significant emissions of greenhouse gases and will not contribute to climate change. It is not expected that activities in support to pastoralism (small ruminants) will result in increased numbers of animal, as the project will aim to enhance productivity while reducing stock density and pressure on pastoral resources.
ESP 12	*Pollution Prevention and Resource Efficiency*		**Low risk** Site specific risks are very limited, and can be easily identified and effectively addressed.
ESP 13	*Public Health*	X	**No risk** No adverse impact on public health related issues is envisaged under the project.

Deleted: Key considerations have been taken into account through the initial gender assessment conducted at Concept Note stage and are reflected in the CN strategy for gender inclusion (see below). The Project will expand on the Gender Assessment at project proposal stage, identifying pathways for women empowerment within the project's theory of change. To address the identified gender issues, the project will take proactive measures to integrate gender focused development strategies, ensuring it will not pose a risk to the principle of gender equality and women's empowerment. In particular, three strategic pathways for gender equality and women's empowerment will be followed: (i) promote economic empowerment to enable rural women and men to have equal opportunities to participate in and benefit from profitable economic activities; (ii) enable women and men to have an equal voice and influence in rural institutions and organizations; and, (iii) achieve a more equitable balance of workloads and the sharing of economic and social benefits between women and men.¶
Additionally, gender aspects will be mainstreamed in the project's assessment of climate risks with the aim of identifying gendered impacts of climate change. This will allow to identify the different needs, barriers, and opportunities available to the targeted men and women and address key concerns. Women will make up 30% of the beneficiaries and their participation in the project will be guided by a detailed Gender Action Plan. The implementation of the gender strategy and action plan will be monitored regularly, and lessons learned collected yearly to inform or correct project implementation.¶
Complaints if any will be addressed through the Grievance redress mechanism.

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Specific criteria associated with availability and sustainable use of water resources will be developed at project proposal stage.

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ESP 14	*Physical and Cultural Heritage*	X	**No risk** The project is not expected to have negative impacts on the physical and cultural heritage of El Bayadh.
ESP 15	*Lands and Soil Conservation*	X	**No risk**

Deleted: Through the ESMP the project will identify if any national or international cultural heritage will be included in or near the project zones and describe the location of the heritage in relation to the project. Such sites will be de facto excluded from project implementation.

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The project will support the restoration and resilience of highly degraded ecosystems, including through the promotion of lands and soil conservation measures.

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Part III: IMPLEMENTATION ARRANGEMENTS

A. Alignment with Adaptation Fund Result Framework

Table 8 - Alignment with Adaptation Fund Result Framework

Project Outcomes	Project Outcome indicators	Adaptation Fund Outcome	Fund Outcome Indicator	AF Grant Amount (USD)
Component 1. Restored steppe ecosystem, including halfah grass pastureland				
Outcome 1. Enhanced resilience of the steppe ecosystem, including halfah grass pasturelands	Number of hectares of ecosystem protected	**Outcome 5**: Increased ecosystem resilience in response to climate change and variability-induced stress	**5**. Natural resource assets maintained or improved under climate change and variability-induced stress	4,697,500
Component 2. Transformed livelihoods for steppe dependent communities				
Outcome 2. Enhanced economic resilience and social capital of steppe dependent livelihoods	% of households reporting adoption of environmentally sustainable and climate resilient technologies and practices % of smallholders reporting an increased income stability from steppe value chains (production/commercialization)	**Outcome 6**: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas.	N/A	2,573,514
Component 3. Mainstreaming steppe ecosystem adaptation strategies				
Outcome 3. Mechanisms for steppe ecosystem adaptation, based on lessons from project approaches and implementation, integrated at local and national level	Number of innovative adaptation practices rolled out, scaled up, encouraged and/or accelerated at regional, national and/or subnational level	N/A	N/A	1,070,000
Project Outputs	Project Output Indicators	Fund Output	Fund Output Indicator	Grant Amount (USD)
Component 1. Restored steppe, including halfah grass ecosystems				
Output 1.1. Stakeholders engaged in joint planning processes	Number of restoration plans established	**Output 5**: Vulnerable ecosystem services and natural resource assets strengthened in response to climate change	**5.1**. No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)	460,000
Output 1.2. Ecosystem restoration measures implemented	Hectares of land under resilient management			2,537,500

Output 1.3. Improved pastoralist systems	Number of management committees established Number of rangeland management plans established Number of hydraulic works completed	impacts, including variability		1,700,000
Component 2. Transformed livelihoods for steppe dependent communities				
Output 2.1. Agroecology transition promoted for sedentary livestock systems	Number of households trained on/sensitized about resilient practices	**Output 6**: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	N/A	1,090,000
Output 2.2. Inclusive steppe value-chains structured and promoted	Number of households engaging in resilient income generating activities Number of value chains structured and supported			1,483,514
Component 3. Mainstreaming steppe ecosystem adaptation strategies				
Output 3.1. Local stakeholders capacitated to track and document ecosystem resilience	Number of studies and knowledge products produced Monitoring system established Number of local stakeholders sensitized on innovative adaption practices, tools and technologies	N/A	N/A	600,000
Output 3.2. Targeted best practices disseminated for advocacy at communal, wilaya and national levels	Number of dissemination events conducted (by type) Number of policies/strategies influenced			470,000

Part IV: ENDORSEMENT

A. Record of endorsement on behalf of the Government[98]

Ms Saida Laouar Deputy Director for the Preservation of the Coastline, Marine Area and Wetlands	Date: 05 August 2024

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, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund 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: Ms Janie Rioux Senior Climate Finance Specialist ECG Division	**Email**: j.rioux@ifad.org
Mr Juan Carlos Mendoza Casadiegos Director Environment, Climate, Gender and Social Inclusion Division	
Date: 7 August 2024	**Email**: ecgmailbox@ifad.org
Project contact persons	
Mr Walid Nasr Regional Lead Climate and Environment Specialist	**Email**: w.nasr@ifad.org
Mr Philippe Remy IFAD Country Director for Algeria	**Email**: p.remy@ifad.org

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[98] Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

Annex 1: Letter of endorsement by the Government

الجمهورية الجزائرية الديمقراطية الشعبية

People's Democratic Republic of Algeria

Ministry of Environment and Renewable Energy

5th August, 2024

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

Subject: Endorsement for "the Adaptive management of the Algerian Steppe and halfah zones to support climate-smart livelihoods and ecosystem resilience (Halfah)" Project.

In my capacity as designated authority for the Adaptation Fund in Algeria, 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 Algeria.

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 Agriculture Development (IFAD). The role of the executing entities and in particularly of The United Nations Office for Project Services (UNOPS), will be identified during the full proposal development phase.

Sincerely,

Saida Laouer,
Deputy Director for the Preservation of the Coastline, Marine Area and Wetlands

Annex 2: Stakeholder consultation process

Stakeholders consulted and date	Topics/Concerns	Project response
Ministry of Foreign Affairs (MAECNE) Director and Deputy Director *Tueday 9 January 2024*	First contact and framing meeting for the preparation of the project	N/A
CN process launch meeting MAECNE, MEER, MADR, HCDS,UNOPS *Tuesday 9 January 2024*	Sharing of documents, identification of relevant stakeholders	- Stakeholder consultation process relied on contacts shared - Alignment on original concept
CN process launch meeting MAECNE, MEER, MADR, DGF, HCDS, UNOPS *Thursday 25 January 2024*		
Preparation of field mission MEER (including NDA and CNDRB) *Sunday 11 February 2024*	Recommendations of sites and stakeholders for the field mission	Sites effectively visited and stakeholders consulted
Preparation of field mission MEER (including NDA, HCDS, ANCC, Vice director for climate adaptation and CNDRB) *26 February 2024*		
Introductory meeting with stakeholders in El Bayadh - HCDS, Agriculture Services Direction, Agriculture Chamber, Direction of Environment, CNDRB - Members of climate committee - Women associations - Associations and stakeholders related to the perfume, aromatic and medicinal plants *Monday 4 March 2024*	Focus group on livestock and rangeland management - Description of multifactorial (including CC) steppe degradation dimension - Challenges met by populations dependent on the steppe	Description of the climate problem to be addressed and drivers of maladaptation Inclusion of all relevant stakeholders in proposed solutions
	Focus group on rural women and PAM: climate challenges and other issues met by rural women and in these value chains (reduction of steppe resources, lack of opportunities and support)	Inclusion of activities in direct support to rural women and their businesses
Field visits in Cheguig and Stitten - Members of climate committee - Representatives of HCDS - Guardians of grazing bans areas *Tuesday 5 March 2024*	- Observation of level of degradation - HCDS approaches for protection and limits of the approach (scope, coordination with APCs, etc.)	- Replication of HCDS approaches under component 1 - Introduction of support to coordination mechanisms and engagement of all stakeholders
Pastoralist household in Cheguig - Members of climate committee - Representatives of HCDS - Guardians, herders and rural women *Tuesday 5 March 2024*	Focus group with women from the household: observed disappearance of halfah grass and direct impact on livelihood, observed climate issues	- Description of climate impact on vulnerable groups and their livelihoods - Inclusion of activities for rural women
	Focus group with men from the household: impacts of CC and coping strategies of pastoralists	Inclusion of activities to promote herders led grazing bans
Pastoralist household in Cheguig (brothers) - Members of climate committee - Representatives of HCDS - Pastoralists *Tuesday 5 March 2024*	Description of issues pastoralists are faced with due to climate change (disappearance of steppe resources, forced sedentarisation, need to buy fodder, lack of training on fodder production, livestock pests and diseases, etc.)	- Inclusion of activities to support forced sedentarisation - Inclusion of activities to support
Meeting on local value chains - Members of interprofessions (livestock, milk, fruits, MAP) - Agriculture Services Direction (DSA) - Members of climate committee *Tuesday 5 March 2024*	- Role of DSA in the provision of technical assistance - CC issues for major value chains/ economic activities in the wilaya - Issues and solutions in the livestock sector (fodder deficit)	- Inclusion of activities to enhance and climate proof fodder production - Holistic approach to address livestock sector issues
Women entrepreneurship Women leader in charge of crafts commercialization *Tuesday 5 March 2024*	Lack of opportunities for business development	Dedicated support for women entrepreneurship
Presentation on climate change effects and impacts in El Baydh Members of climate committee *Tuesday 5 March 2024*	Presentation of a detailed climate analysis conducted with the support of El Bayadh University	Results reflected in the climate analysis section of the CN
Presentation of the project, its objectives and approach to the Wali Local authorities (wali) *Wednesday 6 March 2024*	- Presentation of the mission, project objectives and next steps - Validation of proposed approaches	Confirmation of relevance of proposed approaches
Technical directions of the wilaya - Wilaya Executive Directors of the various technical services (environment, agriculture, water resources, forest conservation, tourism & crafts, planning & statistics, budget, industry, university, meteorology, etc.) *Wednesday 6 March 2024*	Engagement of all technical services directors and presentation/validation of the project and its approach - Request for data and statistics - Detailed discussion on available water resources and their management - State and needs regarding climate information (meteorological stations)	- Validation of project approaches and activities - Inclusion of activities to support mobilization of surface water - Elimination of activities regarding to meteorological stations (needs covered)

Visit and presentations at El Bayadh University - University director and professors - University students *Wednesday 6 March 2024*	- Presentation of the University and its activities - Discussion with students on proposed project activities and approaches - Past experience organizing international seminar on steppe	Recommendations included under component 3
Rural women situation in El Bayadh - Direction of Social Action (DAS) - Women engaged in crafts sales at the local market *Wednesday 6 March 2024*	- Presentation of DAS activities and existing opportunities for women entrepreneurship - Direct experience of women at local market (source of products, costs)	Inclusion of support to access finance through ANGEM and capacity building on business development and management for women
Forest Conservation in El Bayadh Forest Conservation Director and technical staff *Thursday 7 March 2024*	- Detailed presentation of Forest Conservation activities in El Bayadh - Complementarity of interventions with HCDS	- Linkage made with BNDER for initial results of study on forest resources - Mechanisms for synergies CdF/HCDS
Artisanal house in El Bayadh Craftswomen and beekeeper *Thursday 7 March 2024*	- Visit of existing facility for craft commercialization - Positive experience on beekeeping	Inclusion of support providing equipment kits under component 2
Ministry of Environment and Renewable Energy Director of biodiversity, National Designated Authority, Vice director in charge of the preservation and valorisation of mountain, steppe and desert ecosystems, focal point for the Halfah project *Thursday 7 March 2024*	- Observations of the mission, proposed approach and way forward - Confirmed engagement of the MEER - Possible implementation modalities	Relevance of approach confirmed
Restitution of the mission at central level MEER (NDA, BD focal point); HCDS Djelfa; Ministry of Foreign Affairs; UNOPS *Thursday 14 March 2024*	- Presentation of mission conclusion and calendar - In depth discussion on targeting - Agreement to review mission report as interim step	- Mission report with approaches validated - Comments on sustainability addressed - Approach for geographic targeting reflects recommendations
UNCT Partnership Office *Monday 25 March 2024*	Identification of relevant UN initiatives for synergies	Inclusion of FAO/GCF Green Dam project
Restitution of the mission at local level HCDS Djelfa; Working group of wilaya committee on climate change (DSA, CAW, HCDS, University, MEER and DEW representative) *Tuesday 27 March 2024*	- Presentation of project approach - Confirmed relevance of approach and high fidelity of analysis - Importance of coordination mechanisms and closely engaging pastoralists and agropastoralists - Need for adaptive management	Fine tuning of project activities based on the discussion
FAO/GCF Green Dam project FAO Representative and project focal point *Tuesday 2 April 2024*	Discussion on approach and synergies for the project as well as geographic complementarity	- Synergies of interventions outlined in duplication table - Elimination of communes targeted by FAO from geographic area
UNDP Environment and Energy Team Leader *Wednesday 3 April 2024*	UNDP activities in support to climate adaptation/environmental sustainability	Strategic framework for adaptation takes into account strategic support provided by UNDP
Land tenure and rural women HCDS Djelfa; Working group of wilaya committee on climate change (DSA, CAW, HCDS, University) *Tuesday 23 April 2024*	- Dedicated discussion on land tenure: understanding APFA and concessions system - Sharing data and analysis on rural women in the wilaya	- Agreement to focus project activities on agropastoralists who already have formal access to land (to avoid further pressure on land resources) - Inputs to Initial Gender Assessment
Agricultural Extension Institute Gender focal point *Monday 6 May 2024*	National/agriculture framework for women empowerment, lessons learned and relevant activities	Recommendations for women empowerment reflected into project document
Ministry of national Solidarity, Family and Women Condition (MSFC) Director of planification and training, Social Development Agency (MSFCF) Office chief in charge of the preservation of steppe ecosystems (MEER) *Wednesday 8 May 2024*	- Impact of climate change on rural women and sectorial programmes in place to support rural women - Importance of supporting women entrepreneurship - Existence of local level proximity and solidarity units	Recommendations for women empowerment reflected into project document (including engagement of proximity and solidarity units)
Final validation meeting Chaired by MEER representatives, with participation of MEER: CNRBD, ANCC, DDPVER, DGEP, DCC; MADR: HCDS, DGF; ADS/MSFC, AGIRE/MH *Thursday 20 June 2024*	- Final presentation of the project and comments received during the national review and internal IFAD review - Additional discussion/clarifications	All comments addressed in the final version of the document

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