



GEF-6 PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: FULL SIZED PROJECT

TYPE OF TRUST FUND: GEF TRUST FUND

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PART I: PROJECT INFORMATION

Project Title:	Sustainable management of water resources, rangelands and agro-pastoral perimeters in the Cheikhetti Wadi watershed of Djibouti		
Country	Republic of Djibouti	GEF Project ID:	9599
GEF Agency:	UNDP	GEF Agency Project ID:	5921
Other Executing Partner:	Ministry of Housing, Urban Planning and Environment (MHUPE) through the Directorate for Environment and Sustainable Development (DESD); with Ministry of Agriculture, Water, Fisheries, Husbandry and Marine Resources (MAWFHMR)	Submission Date:	25 July 2016
		1 st Re-submission Date	14 Oct 2016
		2 nd Re-submission Date	02 Nov 2016
GEF Focal Areas:	Land Degradation	Project Duration (mths)	60
IAP	IAP-Cities <input type="checkbox"/> IAP-Commodities <input type="checkbox"/> IAP-Food Security <input type="checkbox"/>	Corporate Program: SGP	<input type="checkbox"/>
Parent program:	N/A	Agency Fee (\$)	305,432

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES

Objectives/Programs (Focal Areas, IAP, Corporate Programs)	Trust Fund	GEF Project Financing (\$)	Co-financing (in \$)
LD-1: Agriculture and Rangeland Systems: Maintain or improve flow of agro-ecosystem services to sustain food production and livelihoods. P 1: Agro-ecological Intensification	GEF-TF	1,607,534	6,760,000
LD-1: Agriculture and Rangeland Systems: Maintain or improve flow of agro-ecosystem services to sustain food production and livelihoods. P 2: SLM for Climate-Smart Agriculture	GEF-TF	1,607,534	6,760,000
Total Project Cost		3,215,068	13,520,000

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: Develop an integrated model for the restoration of agropastoral ecosystem services in the Cheikhetti Wadi watershed to reduce land and water degradation, improve self-sufficiency in basic living needs of vulnerable rural communities and create conditions to enable its replication

Project Components	Type	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF	Co-financing
Component 1. Multi-level governance framework and capacities for integrated watershed management and land use	TA	<p>1.1. Improved governance structures and capacities for the management of land and water uses in the Cheikhetti Wadi watershed increases uptake of land uses aligned with water availability and ecosystem functions and provides the basis for scaling-up integrated SLM at the national level and in the face of climate change measured by:</p> <ul style="list-style-type: none"> ▪ % of agropastoralists, herders and farmers (women & men) in rangeland & local water community management groups (target 80%) and in the watershed multi-stakeholder management committee (target 50%); women account for at least 30% of the members of these committees. ▪ % of herders complying with community rangeland management agreements that reinstate rotational pasture use and water and soil conservation measures across rangeland within the Cheikhetti Wadi watershed (target: >70%). ▪ # and % of livestock within the 	<p>1.1 Knowledge platform and monitoring system set up for (i) monitoring results of Cheikhetti watershed plan (Comp. 2 & 3) to enable adaptation of practices for improvement of the quality and productivity within the Wadi and (ii) codifying management approaches to replicate to other Wadis and watersheds in Djibouti. This would include a critical meta-analysis of successes and failures of sustainable water and land management projects to identify and promote best-practices for replication.</p> <p>1.2 Water Management Committees strengthened for coordinating, monitoring and decision making on integrated management. This includes (i) Cheikhetti Wadi watershed multi-stakeholder management committee for oversight of the Cheikhetti Wadi Watershed Plan (CWWP) (see output 2.1) and to ensure equitable access to land and water; (ii) Well-water management committees in Cheikhetti strengthened and expanded; (iii) Guidance and training to other water committees in key watersheds based on this project experience.</p> <p>1.3 Rangeland management groups reinstated in western Chekhetti wadi watershed to negotiate and enforce agreements for rotational pasture use and</p>	GEF-TF	700,000	1,200,000

		<p><i>Cheikhetti Wadi watershed impacted by management measures (target: >50%).</i></p> <ul style="list-style-type: none"> ▪ <i>Increased capacity of national and provincial staff in SLM and integrated watershed management and related project implementation as measured by increase in rating of Capacity scorecard above baseline value (baseline and target tbd in PPG).</i> ▪ <i>% of ongoing & newly developed rural development projects that integrate sustainability & SLM based on Cheikhetti experience (target tbd in PPG).</i> <p>This, together with impact of Components 2 and 3, restores soil productive capacity, vegetation and improved functionality & cover of agropastoral/ rangeland ecosystems:</p> <p><i>Increase in land area under effective management in agropastoral farms, gardens and rangelands with improved vegetative cover as measured by Normalized Difference Vegetation Index (NDVI¹) and Rain Use Efficiency (RUE²) (targets: tbd in PPG).</i></p>	<p>water and soil conservation measures.</p> <p>1.4 Capacity programme developed and implemented for herders, semi-sedentary herders, farmers, relevant CSO and other stakeholders for the adoption of sustainable and climate-adapted agropastoralism and farming practices. This is based on a field school combining instruction on climate-adapted techniques, demonstration fields, on-site training, and participatory research on test plots, with the collaboration of local private farms and cooperatives. It will also serve as a vehicle through which to develop farm plans (output 2.2) for most appropriate production options. It will also include intensive training of staff of MHUPE and MAWFHMR and their provincial delegations Target: 50+ staff</p> <p>1.5 Replication Strategy and Action Plan developed to scale-up and mainstream integrated management approaches of the Chekhetti wadi watershed at the national level based including national consultation workshops on the future of water resources as well as of livestock, rangelands and agro-pastoralism in Djibouti, supported by international expert input.</p>			
Component 2. Land rehabilitation and aquifer replenishment Management in Chekhetti Wadi watershed	TA	<p>2.1 Spatial planning of land and water use improved over 50,240 hectares through alignment of individual and community agropastoral plans and improved water management structures. This enables surface and shallow aquifer water to be mobilized for the sustainable development of agropastoral farms and the maintenance of ecosystem function to support livelihoods.</p> <p><i>Indicator: Groundwater/piezometric level monitored on a monthly basis at 6-8 sampling stations at selected permanent wells across the Cheikhetti Wadi watershed (target: +20%, baseline tbd in PPG).</i></p>	<p>2.1 A sustainable watershed management / land use plan for the Chekhetti Wadi (CWWP) developed according to water availability and based on preliminary surveys' recommendations to optimize replenishment of the aquifer, and optimal siting for dug wells, boreholes, gardens, agropastoral farms and rangelands in relation to target population settlements.</p> <p>2.2 Individual and community agropastoral farm plans developed in accordance to the integrated plan and to (i); optimise irrigation and restructures according to water availability and replenishment capacity in a given site and as identified in CWWP (as a basis for Output 1.3) (ii) alignment of land use production accordingly and following guidance provided during the field school training (This will provide a basis for output 3.3).</p> <p>2.3 Water management structures rehabilitated such as sills and shallow wells across the wadi and aligned with the CWWP. These would first be validated through an EIA process and with local communities participation and with the well water committees input (see Output 1.4).</p> <p>2.4 Small-scale water quality monitoring and improvement measures implemented in conjunction with SLM and water management interventions.</p>	GEF-TF	944,788	4,672,000
Component 3. SLM implemented in key areas in Cheikhetti Wadi watershed in	TA	<p>3.1 Local community members in the rural areas of the Cheikhetti Wadi watershed adopt climate-resilient agropastoralism and livelihood activities that improve basic living needs whilst reducing the pressure on limited water and land resources</p>	<p>3.1 Finance platform set up to optimise the flow of resources to land (and water) uses established in individual farm plans according to the CWWP. This would align the use of financial resources to ecosystem conditions and facilitate access to men and women for implementing land uses that generate income from sustainable uses of land and water. It</p>	GEF-TF	1,417,182	7,008,000

¹ NDVI: Normalized Difference Vegetation Index - index of plant "greenness" or photosynthetic activity

² RUE: Rain Use Efficiency = Ratio of Net Primary Production (NPP) over rainfall – method to identify vegetation change caused by other factor than the direct effects of change in rainfall

accordance to the Watershed Management plan	<ul style="list-style-type: none"> ▪ % of household and community plots where at least three climate-adapted agropastoralism and farming techniques are effectively applied by end project (target: 50%³). ▪ Land area of existing gardens/ farms converted to sustainable agropastoral management (target: 25 ha). ▪ Evolution of income level of men and women through sustainable agropastoralism and farming (target: 30% increase). ▪ # of operational cook stoves and biodigesters (targets: 500 and 20 respectively). ▪ Average # hours spent collecting fuelwood/week/household (target: 30% reduction) ▪ # of people who have successfully developed an alternative income generating activity compatible with SLM and supported by a feasibility study (target: tbd) ▪ % of children under 5 who have access to milk products⁴. <p>This restores soil productive capacity and vegetation cover. See indicator under component 1.</p>	would allow linking available and emerging resources to individual farm plans, namely i) existing microcredit; ii) donor resources and (iii) government programmes and budget.			
		<p>3.2 Land uses implemented in key areas to implement watershed plan. This includes (i) water capture and conservation techniques; (ii) climate-resilient and sustainable agropastoral techniques in existing and new individual and community agropastoral farms; (iii) sustainable rangeland management by semi nomadic herders that reinstates rotational pasture use and apply water and soil conservation measures.</p> <p>3.3 Livelihood program developed and implemented. This includes options to diversify local communities' income opportunities based on an assessment of local people's interest, potential for reducing non-sustainable land and resource use, and feasibility studies. Alternative livelihood activities may include: production and marketing of energy-efficient cook stoves; biodigesters construction for biogas production at household level; poultry farming; value chain development for products such as fodder from <i>Prosopis</i> (available locally) and gum Arabic from <i>Acacia senegalensis</i>.</p> <p>3.4 Tree nurseries and seed banks are established to provide seedlings for individual and community plots to meet household food, fodder and fuelwood needs, as windbreaks, and to diversify their sources of income through new value chains such as gum Arabic from <i>Acacia senegalensis</i>. In nursery establishment and planting schemes, IAS safeguards will be applied.</p>			
		Subtotal		3,061,970	12,880,000
		Project Management Cost (PMC)	GEF-TF	153,098	640,000
		Total Project Cost		3,215,068	13,520,000

C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE

Sources	Name of Co-financier	Type	Amount (\$)
National Government	Gouvernement of Djibouti GoB (MHUPE/DESD)	In-kind	2,820,000
National Government	GoB (MAWFHMR/ Agriculture, Livestock, Water, & Great Works Directorates)	In-kind	340,000
National Government	GoB (MAWFHMR/ PROGRESS, PRODERMO-FA2)	Grant	2,160,000
Donor Agency	WFP – Food for Assets	Grant	3,000,000
GEF Agency	FAO – EC SHARE	Grant	1,000,000
GEF Agency	FAO – 11 th EDF	Grant	4,200,000
Total Co-financing			13,520,000

D. INDICATIVE TRUST FUND RESOURCES REQUESTED BY AGENCY, COUNTRY AND THE PROGRAMMING OF FUNDS

GEF - Agency	Trust Fund	Country	Focal Area	Programming of Funds	GEF \$ Financing (a)	Agency Fee (b)\$	Total (c)=a+b \$
UNDP	GEFTF	Djibouti	Land Degradation	N/A	3,215,068	305,432	3,520,500
Total GEF Resources					3,215,068	305,432	3,520,500

³ This is estimated on the basis of 8 cohorts of 40 agropastoralists trained/yr from the 2nd to the 5th yr. of project or 1280 trained individuals. Assuming that 1 person/house-hold will benefit from the training, this corresponds to c. 50% of households in the intervention area. The success of the techniques will enhance their dissemination.

⁴ The most important social effect of land degradation reported by the women of the intervention zone is that there is no milk for the children.

E. PROJECT PREPARATION GRANT (PPG) REQUESTED? YES PPG Amount requested see below

Project Preparation Grant amount requested: \$98,477				PPG Agency Fee: \$9,355			
GEF Agency	Trust Fund	Country	Focal Area	Programming of Funds	PPG (a) \$	Agency Fee (b)\$	Total in \$ c = a + b
UNDP	GEFTF	Djibouti	Land Degradation	N/A	98,477	9,355	107,832
Total PPG Amount					98,477	9,355	107,832

F. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS

Corporate Results	Replenishment Targets	Project Targets
1. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	50,240 ha

PART II: PROJECT JUSTIFICATION

Environmental challenges

1. The **Republic of Djibouti** is a small coastal country in the Horn of Africa, with a total area of 23,200 km² and a coastline of 372 km. Located at the junction of three major planetary fault lines, the territory of Djibouti was formed by a series of successive volcanic activity and tectonic phenomena. Earthquakes are frequent but not serious. The line of the rift formed by the Gulf of Tadjourah and Assal Lake divides the country into two parts: the North dominated by three mountain ranges, and the South and West regions, where medium-elevation mountain ranges alternate with depressions covered with a layer of clay (the plains of Petit and Grand Bara, Gobaad and Hanlé) (see Annexes 1a/b).

2. The **climate** is tropical semi-arid desert type over the whole territory, with the exception of one mountainous region immediately to the north of the Gulf of Tadjoura with lower temperatures and increased precipitation. Average temperatures range from 23° C in January to 39° C in August and evaporation is high throughout the year. The country is poorly endowed with natural resources and has limited available water resources and precipitation – key limiting factors to rural development and human welfare. The low and erratic rainfall, which barely reaches an annual average of 130 mm⁵, results in the lack of perennial rivers across the country. Rain occurs as short, intense episodes causing floods lasting for one or two days, with inter-annual variations from one extreme to another (flood to drought).

3. **Population and socio-economic indicators.** In 2015⁶, the Djibouti population was estimated at 828,324 inhabitants with an annual growth rate of 2.2%. 77% live in urban areas, mostly in the capital region. Demography is characterized by a very young population: 32% of the population is less than 15 years old. The extreme poverty rate nationwide is 73% and the unemployment rate of 48% is much higher in rural areas, rising to 59% in the south-western region of Dikhil⁷. Households spend nearly all their budget (75% to 90%) to meet their food requirements. Food consumption indicators, changes in livelihood and nutrition data highlight a very precarious situation in Djibouti rural areas and agro-pastoral populations, being dependent on weather conditions and fluctuating commodity prices, are especially vulnerable⁸. It is estimated that 154,000 people, or 16% of the population, are food insecure⁹. The Human Development Index¹⁰ (0.47) ranks the country 168th over 188 countries. Djibouti's economic indicators are largely dependent on its service sector (81% of GDP) connected with the country's strategic location as a deep-water port. The industrial (17% of GDP) and agricultural (3% of GDP) sectors are underdeveloped but constitute the main livelihoods.

4. **Rural livelihoods - pastoralism.** The country's rural population of c. 200,000 (c. 20% of total population) depends almost exclusively on livestock production and to some extent on subsistence agriculture for their survival and livelihood. 73% (1.7 million ha) of Djibouti's surface area is used as permanent pasture for livestock (goat, sheep, cattle, camels) that feed on the sparse vegetation. In most of the country, this is the only production system permitted by the prevailing harsh climatic and agro-ecological conditions. Plains and depressions, where covered with vegetation, support herbaceous grass steppes (*Lasiurus*, *Panicum*, *Cymbopogon*). A shrub or tree cover, usually very discontinuous (maximum cover of 30% with an average of less than 5%) is associated with these formations. The following species predominate: *Acacia tortilis*, *Acacia asak* (in wadis), *Acacia horrida* (locally) and some thickets with *Cadaba rotundifolia* and *Salvadora persica*. It is estimated that there are 2,000 ha of forests and 68,000 ha of open woodlands in Djibouti, most of which are in some state

⁵ Plan d'Action National pour l'Environnement. 2000.

⁶ CIA (US). The World Factbook. Accessed online : <https://www.cia.gov/library/publications/the-world-factbook/geos/cn.html>

⁷ EDAM 2012

⁸ IPC Cadre Intégré de Classification de la Sécurité Alimentaire. 2015. République de Djibouti. Résultats d'analyse de la situation de l'insécurité alimentaire aigüe actuelle. Accessible from : http://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/Djibouti_IPC_Insécurité_Alimentaire_Aigüe_Oct2015.pdf

⁹ OCHA. 2016. El Niño : Overview of impact, projected humanitarian needs and response.

¹⁰ UNDP. 2015. Human Development Report. Accessed online : http://hdr.undp.org/sites/default/files/hdr_2015_statistical_annex.pdf

of degradation because of over-harvesting for firewood and feedstock and a lack of regeneration due to constant grazing pressure. Each tribe operates a well-defined territory where livestock is sometimes freely conducted without respect for rangeland management rules because of imbalances between resources and livestock.

5. **Surface water, arable lands and agriculture.** Surface waters are formed by temporary rivers which mostly flow into the endorheic interior plains or are lost at sea. These waters are one of the main sources of supply for rural communities. In general they are little used (5%), the rest is lost through runoff (2.5%) and evaporation (92.5%)¹¹. In rural areas, water is usually exploited through shallow wells capturing underground watercourses in the alluvial aquifers while deep boreholes are needed for cities to ensure high water requirements. Throughout the country, high quality water occurs in the wadi channels recharged by occasional rainfalls. The recharge of groundwater occurs primarily by the infiltration of flood waters in the wadis, the diffuse infiltration being almost null. Rainwater infiltrates into the channel and flows along slowly inside the channel sediment. Here, the rainwater is protected from evaporation by the channel sediments. It is available over several months or several days in the channel by this retarded movement. Aquifers contained in alluvial deposits (sand, gravel, and clay-silty conglomerates) offer opportunities for the development of agriculture in the alluvial plains with relatively affordable operating costs, because they are shallow. Soils suitable for agriculture occur on the first and second terraces along the wadis, and in these areas, are not limiting factors for agricultural development. A soil survey¹² assessing also fertility and water availability over the entire country identified soils suitable for irrigated and rainfed agriculture – primarily associated with the wadis – capable of supplying a large portion of the country's needs in agricultural products. According to the Djibouti Vision 2035 strategy document, a total area of 100,000 ha could be farmed using surface water. While the easily cultivable land area is 10,000 ha, 88% of arable land remain uncultivated¹³. It is concentrated especially in the plain of Hanlé, in addition to smaller areas near riverbeds (wadis) that provide opportunities for small-scale gardening by communities.

6. **Land degradation and its drivers.** Over the last decades, the country has been facing a significant and growing challenge to its natural, semi-natural and productive ecosystems due to severe and increasing land degradation and desertification. The rangelands in Djibouti are especially susceptible to degradation – they are marginal and infertile areas, subject to uncertain climatic conditions, often with highly erodible soils, little ground cover and poor water supplies. Most rangelands are now degraded to such a degree that they cannot anymore provide for the resources required by opportunistic herders constantly at the brink of survival, even if traditional systems were still in place. The factors underlying degradation may be partly related to regional climatic patterns and trends – especially repeated extended droughts – that can arguably be attributed to climate change. However, inappropriate land use practices exploiting an already highly vulnerable resource base are at least an equally important factor undermining the livelihoods of rural populations, a situation in which natural disturbances can lead to a vicious cycle of unsustainable use, degradation and poverty. In greater details the drivers of land degradation are as follows:

7. *Climate stress*, high temperatures and fluctuating precipitation have had an impact on the availability of water and natural resources and undermined the productivity of agriculture and livestock across the country. Since 2007, Djibouti has been facing a prolonged drought event that has heavily affected pastoral-agricultural production and rural livelihoods. Rainfall has been 75% below average in some regions. The 2010 Rapid Drought Impact Assessment showed that the 2010 drought had a devastating impact on the water security and livelihoods of the 240,000 people living in rural areas, particularly small-scale farmers and herders. The 2015-2016 El Niño-induced drought has had a massive humanitarian impact in the Horn of Africa region, including in parts of Djibouti where delayed and below-average rains have limited pastoralists' access to pasture. Wells, underground cisterns and other water infrastructure have been seriously reduced. In addition, some 3,000 nomadic pastoralists (600 families) from the Somali Region of Ethiopia have settled in Goubetto in the Ali Sabieh Region in January 2016 alone²⁰, thus further increasing pressure on the limited resources in this region. More recently¹⁴, above-average rains in May 2016 replenished wells and improved pastures, including in the El Niño drought-affected northern and southern pastoral areas. However, the rains will not be sufficient to fully restore herd sizes and livestock productivity, leaving many households severely affected including in the project intervention area.

8. *Deforestation* by abusive logging (to meet timber requirements in local and urban areas, for fencing of farms, as fuelwood and for making charcoal for the needs of urbanized areas) as well as *forest degradation* by and excessive pruning to feed livestock and overgrazing depleting ground vegetation cover. Driven by increasing kerosene prices, rural populations turn systematically to wood and charcoal for energy production using a type of low thermal efficiency stove.

¹¹ NAPA 2006

¹² Goebel J.E., Douale A., and F. Omar. 1983. Djibouti Water Resources and Soils Analysis. Report prepared for the Agency for International Development Contract No: AIDJafr-C-3.673.

¹³ MAEMRH. 2009. Plan Directeur du développement du secteur primaire 2009 – 2018.

¹⁴ <http://www.fews.net/east-africa/djibouti/key-message-update/may-2016>

In rural areas, charcoal is produced and sold to supply local use and urban centers. The annual exploitation of wood clearly exceeds annual wood productivity. Between 2004 and 2008, import of kerosene decreased by 4 million liters, corresponding to 4634 tons of charcoal or 23,172 tons of wood corresponding approximately to 289,655 mature trees¹⁵. Forage reserves such as pruning-resistant Acacia trees are the most affected species and disappearing from the landscape because of over-exploitation. Savannas are left without undergrowth and lack regeneration. The species *Balanites racimosa*, locally in danger of disappearing, is prone to excessive cutting for commercial purposes (including in the plains around Dikhil) to meet the needs of urban areas to repel mosquitoes. The considerable effort over the last two decades for the development of irrigated agriculture, has been accompanied by significant deforestation activities in watersheds, coastal plains and valleys. Such deforestation was significant in the watershed of the Cheikhetti Wadi and in Hanlé (Masgidlou, Gami, Cheikaïto, Abaïtou, Hanlé).

9. *Unsustainable pastoral practices* include overgrazing associated to sedentarization and loss of traditional agreements for rotational pasture use. Overgrazing leads to a rarefaction of plant cover, leaving the ground bare and exposed to water and wind erosion, and trampling by livestock leads to the physical degradation of soils. Inadequate grazing regimes or excessive livestock densities, or otherwise unsustainable extraction of the mostly sparse and highly vulnerable vegetation and soil cover are an important, if not the principal driver of the land degradation trend. Any vegetation is stripped of the land as soon as it emerges after rains. Soil conditions and the herbaceous and forest cover of the watershed are determinants of the amount of water stored in the soil. Without vegetation, land is eroded and rainwater flows over the hardened surface of the ground without seeping in and recharging groundwater. Land cleared of its grass cover becomes vulnerable to soil erosion, more so during heavy rains that strip the soil and impoverish seed banks. The scarce rainwater infiltrates less, causing the water table to drop and water becomes even more difficult to draw. Lower water tables need deeper wells with more powerful pumps. This brings increasingly saline water to the surface that is harmful to both human health and agricultural soils. In consequence significant areas are losing their productive capacity. Overgrazing is primarily related to the sedentarization of nomadic herders, the progressive abandonment of rangeland management systems which involved setting temporal and spatial exclusions (deferred grazing), changes in climate conditions that force the nomads to stay longer in refuge areas, and the poor distribution of water points along rangeland, which concentrates the pressure in confined spaces. The lack of sustainable management of rangelands due to the abandonment of traditional pastoral codes has resulted in the permanent grazing of vegetation with impoverishment of rangeland species diversity and the prevention of any possibility of natural regeneration, leading to a rapid pasture degradation. This phenomenon is particularly visible around the water points and the major routes of transhumance. With the exception of the Northern region, no organization regulates the use of rangelands and grazing is anarchic.

10. *Unsustainable subsistence agricultural practices* include land clearing and inadequate irrigation methods. The installation of vegetable gardens on the terraces of wadis, rich in natural vegetation, is always accompanied by a cutting of such vegetation for fencing and the delimitation of gardens, resulting in a clearing of the surrounding areas. In arid land with high evaporation rates, inappropriate agricultural practices may rapidly lead to reduced soil fertility, increased vulnerability to erosion, and increased runoff. Although irrigated areas from shallow and drilled wells are limited, some soils are degraded due to salinization, caused by excessive and uncontrolled irrigation with waters increasingly loaded with salts and high evaporation rates.

11. *Water and wind erosion* are favored by the decrease in plant cover and especially of herbaceous strata, mainly caused by overgrazing and deforestation.

12. *Invasive alien species*. The Mesquite *Prosopis juliflora* (and possibly other *Prosopis* species to a lesser degree) represents a growing problem in Djibouti as it invades and can dominate vegetation in agricultural and pastoral lands especially in the presence of sandy soils with groundwater availability such as in wadis. It already occupies some 60 km² in the country. Deliberately introduced as a multiple-use tree and forage resource decades ago to stem desertification, it is now seen as a nuisance by pastoralists because it outcompetes native vegetation and its thorns injure livestock. However at this time, the impact of this and other IAS cannot be compared to the more widespread and severe consequences of poor land management. As in other countries like in India and Ethiopia, there are attempts to control the species by promoting the utilisation of its many products (seed pods and fermented leaves as feedstock, wood for charcoal making and posts, flowers for honey-making, etc.¹⁶), yet it is hard to assess whether this can stem the further expansion of the species.

¹⁵ MHUEAT. 2011. Stratégie et plan d'Action pour la Mise en oeuvre de la Grande Muraille Verte à Djibouti (SGMVD)

¹⁶ <http://www.iedafrique.org/Valorisation-des-espaces-colonises.html> ; <http://www.lanationdj.com/prosopis-djibouti-faire-dune-nuisance-source-profit/#> ; <http://www.fao.org/technical-cooperation-programme/success-stories/detail/en/c/292367/>

13. **The land degradation-poverty cycle.** Faced with this combination of factors, rural pastoral communities are exposed to a vicious cycle. Encouraged by government policy to promote the education of children, formerly nomadic groups/families have settled with their livestock which further exacerbates the loss of plant cover around settlements. The land has lost its productive capacity and without the knowledge to adapt their agro-pastoral practices, semi-sedentarized herders gradually abandon their gardens. Herds are reduced by half or more, and are in a precarious health condition. The price per head has increased but herd size is so small that it is difficult to sell the animals, thus affecting household incomes. In the absence of alternative sources of income, people turn to charcoal production to supply the needs in urban areas, which further exacerbates the pressure on already impoverished resources. This is further impacting women who report having to devote from 4 to 6 hours every 2 days to collect firewood whereas such resources were previously available on the banks of the wadi. People's survival is precarious and ensured in part by the WFP programs. This land degradation-poverty cycle results in a strong emigration to urban areas, especially by young people with little education seeking to escape this poverty cycle and find work, but who finally join the ranks of the unemployed in urban areas.

Baseline: recent or soon-ending relevant initiatives

14. The Government has recognized the need to address this land degradation-poverty cycle and has invested substantial amount in recent years to do so with the support of its development partners (most notably FAO, IFAD, JICA, UNDP, UNEP, UNESCO and WB and with significant support from the GEF-TF and LDCF). Main lines of action are sustainable water and land management and climate change adaptation through the development of climate-adapted agro-pastoralism. Water security and sustainable land management were addressed through the PROMES-GDT and PRODERMO projects. The main achievements were to harvest surface rainwater to supply local villages. Other emergency actions were limited to securing access to water for humans and livestock in the Dikhil region by building two wells and training users to ensure their maintenance (FAO/ International Organisation for Migration project). Whilst these provided some positive results their sustainability was limited by the lack of community ownership of the recommended solutions and showed that further and more careful planning, training and supervision for the operation and maintenance of hydraulic structures and for water and soil conservation actions upstream of the structures was needed. A few projects contributed to diversify and promote climate-resilient agro-pastoral practices in rural Djibouti (JICA agropastoral projects, UNDP/GEF Agro-pastoral Shade Gardens project, the EU-FAO PICODE project implemented by the NGO Ecologie du Village Association in Adailou). These projects addressed water security for the sustainable development of agro-pastoral farms, community-level water management, and pilot actions manure composting, drought-adapted forage production, diversification of agricultural productions, and micro-finance products, but their impact was limited to the lack of capacity and framework to scale up successful experiences.

15. However, these projects' impact was insufficient to reverse land degradation trends due to their limited scope and restricted scale, the short duration of the support provided to local communities, and because they mainly focused on one or the other aspect of the problem, i.e. either improve the sustainability of the water supply (eg. PROMES, PRODERMO) or develop an agro-pastoral model based on integrated crop-livestock farming and demonstrate this to some farmers (eg. JICA and PICODE projects). Other factors for this mitigated success include the fact that i) groundwater recharge through constructed hydraulic structures was not planned at the scale of the whole watershed and was not based on a rigorous understanding of its dynamics, and the proper maintenance and responsible management of these structures could not be assured in the long term because beneficiaries had not been adequately involved in all stages of their design and development, and did not fully understand their action, and ii) sustainable and climate-smart agro-pastoralism could not be developed at scale because more significant and sustained effort based on tangible and convincing demonstrations, on learning-by-doing in a supervised environment, and through long term coaching, would be required to develop the autonomy of new farmers.

Baseline investment and co-financing expected for the 5-year project implementation period (2018-2022)

16. The Government of Djibouti recognises these shortcomings and will continue to invest over the next 5 years in new projects to address them. This is estimated at US\$ 26,820,000. An approximate US\$ 6 320 000 will be invested over the 5-year project period (2018-2022) in SLM practices from the following sources: in-kind contributions from MHUPE and MAWFHMR operational budgets, through PROGRESS and PRODERMO-FAII projects and through the MAWFHMR-FAO *Programme de Sécurisation des Systèmes Pastoraux* (PSSP) as part of the EU-funded Programme SHARE (Supporting Horn of Africa Resilience). Several interventions of these initiatives are relevant to the proposed project providing a general foundation and also additional support to SLM within the Cheikhetti watershed: for example coordination of EIA and with the Great Green Wall initiative, and restoration and afforestation activities by the MHUPE

to safeguard and restore ecosystem functions through water and soil conservation interventions, sustainable management of pasture and rangelands and animal husbandry in three rangeland sites in the GEF-6 project intervention area.

17. An approximate US\$ 20 500 000 will be invested over the 5-year project period (2018-2022) to increase resilience of agropastoral systems to climate change from the following sources: the MAWFHMR-FAO program under the 11th European Development Fund, the Djibouti component of the MAWFHMR-AfDB-IGAD Program for resilience to drought and development of livelihoods in the Horn of Africa (Phase II), and the MAWFHMR-FAO PSSP. Several interventions carried out as part of these projects / programmes are relevant to the proposed project as a foundation and include interventions for pastoral development mainly focusing on intensifying agricultural and pastoral activities through the production of fodder crops and garden development, promoting the use of drought-adapted species, introducing high performance crops and salinity-tolerant varieties, restocking herds and improving public veterinary extension services across the country (capacity building of over 70 animal health workers), and promoting alternative IGAs to diversify income sources (poultry, horticulture, dairy goat farms) mainly for women and youth in southeast Djibouti.

18. Other interventions or investments will also contribute as a foundation to the project in relation to capacity development for participatory water and land management. These include the Dikhil training center and the CEWERU in Dikhil. In 2012, recognizing that Djiboutians are not an agricultural people and require significant learning to engage in farming, and hoping to raise employment in the primary sector, the government opened a training center for agriculture, breeding and fishing activities in Damerjog, with associated centres in Dikhil and Obock, focusing respectively on horticulture and fishing. The Dikhil training center has been in operation for approximately one year. Both the Department of Agriculture and Prefecture of Dikhil expressed an interest in the further development of this school yet this will require agreements with the Ministry of National Education and Vocational Training to guarantee a certain level of autonomy of the institution. Infrastructure and some equipment of the Dikhil gardening school will contribute to the baseline investment. The Conflict Early Warning and Response Units (CEWERUs) are national networks of governmental and non-governmental stakeholders set up through the IGAD program “Conflict Early Warning and Response Mechanism” to contribute to the peaceful settlement of cross-border pastoralist disputes in the sub-region. A CEWERU was established in 2012 in the Dikhil Cluster where at times violent conflicts break out between nomads when water resources and pasture become scarce. This unit could support the negotiations to develop agreements on access rules to pastoral and rangeland resources in the pastures adjacent to the Cheikhetti Wadi.

19. **Under the baseline scenario.** These investments of the Government of Djibouti and its cooperation partners provide a strong foundation on which to build. However, these interventions are not sufficiently integrated and do not provide the necessary framework and guidance over time to enable a lasting reduction of land degradation drivers and restore ecosystem services throughout the watershed. Capacities within national and regional government agencies remain insufficient and are not adequately coordinated to adopt and implement an integrated and long term vision and strategy for the sustainable development of agro-pastoral ecosystems. While a number of promising initiatives are taking place that provide relief to vulnerable communities and build national capacity on SLM, the outcomes in many instances appear patchy. Insufficient capacity to develop a long-term and comprehensive vision and especially to correctly implement appropriate actions to rehabilitate productive and natural ecosystems thus leads to series of small scale, short term and sometimes ineffective interventions, often with emergency funds, providing short-term survival solutions.

20. **The long-term solution** to address these shortcomings is to develop an integrated watershed level approach to wadi management and adjacent pastures into a best-practice sustainable and integrated agro-pastoral model that aims at restoring the productive capacity of the soils while taking into account the restraints of water shortages and recharging limitation of drylands under increasing climate stress to provide food security and sustainable incomes to the rural poor. It also includes building adequate technical and institutional capacities in government agencies for adopting a long-term vision to identify and implement adequate solutions to the challenge of land degradation and effectively support rural communities to convert from extensive herding to sedentary or semi-sedentary agropastoralism. **However a number of barriers impede achieving this long term solution.** These are described below.

21. **Deficient governance frameworks and insufficient capacities** at different levels for planning, overseeing the implementation and implementing integrated approaches for sustainable land and water management and agropastoralism, and for adapting and replicating successful experiences, including

- *Scarce know-how of herders on SLM, pasture management and agropastoralism and LD drivers due to traditional/cultural values and perceptions:* Traditionally large herd sizes projected a picture of prosperity and prestige within communities and acted as a safety net for times of penury. Although the now dire state of rangeland resources is gradually convincing herders that a more intensive management approach must be sought, the bias towards large herds

rather than a small and healthy herd in a more sustainable production system remains common. Also, local communities (nomadic and sedentary) have long resisted the idea of changing the notion of open-access to natural resources such as by roaming livestock. But devolution of natural resource management to local communities can be a suitable solution that also provides opportunities for a range of livelihoods and sustainable development, which however requires community engagement and capacity development.

- Semi-sedentary herders have a low mastery of cultivation techniques (crop planting and surveillance, irrigation, fertilization, pest control), and *lack the knowledge, know-how, and models*, to adapt their practices on land that has lost its productive capacity and develop agropastoral farming to ensure their subsistence through agriculture and forage cropping and to sustainably manage scarce water resources.
- *Extension staff is limited* (each Sub-Directorate of the MAWFHMR has only one agricultural extension staff) and *lack training*. Donor projects provide facilities and materials for agricultural activities to farmers but do not generally engage in advanced agricultural extension activities.
- Experience in SLM and agropastoral farms is not necessarily recent but very limited, not adequately documented and not replicated at scale. *Inadequate knowledge management/dissemination on agropastoral and SLM experiences in Djibouti* hampers adaptation and replication of the incipient national experience on several facets of SLM and agropastoralism. The absence of systematic monitoring prevents capitalizing the few lessons learned that would guide users in the design of water mobilization and agropastoral/SLM projects and enable a replication at scale of successful practices. There are some examples that could be replicated such as the Djama Guedi's farm. This is a successful private agro-pastoral exploitation near Dikhil developed over 20 years to test and adapt various techniques for forage production, as well as vegetables and fruits that are now sold in urban markets. In 2010-2011, the farm production in a 6-month period amounted to a total of 28,200 kg of forage, fruits and vegetables over as little as 1.35 ha of cultivated area, and the production of 1080 litres of milk. This success relies on an appropriate integration of livestock and farming practices and the systematic application of a variety of SLM techniques to restore soil structure and nutrients and retain moisture provided by a micro-irrigation system fed by water pumped from the wadi's aquifer. It demonstrates that the arid lands of this region can be transformed into flourishing farms through adapted agropastoralism to improve considerably the quality of life of local communities who would engage in it. However, without adequate framework, resources and support to document and to promote good practices, the potential for scaling-up the experience is limited. Also, the *capacity of the wadi aquifer has not been assessed at watershed level nor monitored and might represent a limiting factor* should multiple farms or gardens develop in the same area.
- *Frequent low local ownership* of solutions/ infrastructures provided by government/donor projects leads to inadequate implementation, maintenance and degradation (e.g solar energy systems provided for community purposes).
- *Poorly informed and consensus-based agreements on the sustainable use of pastoral resources and capacity to assess pasture condition* by users themselves to agree on clearly defined access rights and responsibilities to support self-regulation by local communities. Such agreements previously ruled the use of pastures in Djibouti and were strictly enforced but were gradually abandoned because of resource degradation caused by increasing climate stress.
- *Absence of a comprehensive plan* at the national level *to integrate land and water management initiatives* led through various interventions to support the development of sustainable livelihoods and lack of consensus on the way forward and of a comprehensive model to guide implementation at scale of truly integrated and sustainable management of land and water. The Great Green Wall Initiative which addresses these concerns and links them with rural livelihoods covers only a fraction of the country area. The national and regional government agencies are not adopting an integrated and long term vision and strategy for the sustainable management of land and water and for the development of agro-pastoral ecosystems. The absence of coordinating bodies dedicated to water management at the watershed level further prevents the implementation of such plans.

22. **Inadequate watershed management to secure the availability of water** required to enable the restoration of ecosystem service, sustainable pastoralism, and poor management of scarce water resources including

- The availability of water is a pre-condition of all development activities – and indeed survival – especially in arid environments. Yet, there is limited experience in wadi management in Djibouti for the replenishment of aquifers or for irrigation purposes. In the absence of water management to reduce / manage water flow during flood events, infiltration and aquifer replenishment are extremely limited and water runs off and is eventually lost to evaporation. This is partly due to the *absence of a strategy/plan and of coordination* among government institutions concerned by LD (MHUPE and MAWFHMR and their regional delegations) to implement interventions integrating sustainable land and water management to support the development of livelihoods at landscape/watershed level – thus reducing the effectiveness of interventions.

- *The lack of information and inadequate knowledge management* on the hydrology, geology and soils of Djibouti wadis and the *limited experience in managing wadi water resources on the basis of sound hydrological data* on water recharge and extraction rates hampers the design of structures to manage water flow during flooding and increase the replenishment of aquifers and the *lack of adequate hydrological data* (precipitation, surface water flows, underground water tables, etc.) *prevents the estimation of the sustainable water uptake capacity from aquifers* to inform the design of agricultural/agropastoral projects. (A report from 2010 of a hydro-geophysical campaign conducted by Mauritanian Consulting Group (*Projet d'Appui à la mobilisation des eaux à usage domestique et agricole en milieu rural*) is one exception; using DC-current electrical resistivity sampling, the study sampled also 6 sites in the Dikhil region, 5 of which lie within the intervention area the Cheikhetti Wadi). The results are however very site-specific, reflect the particular geological profiles and potential water tables at a given point in time, but do not show the dynamics of the system over time).
- The lack of easily mobilized water resources for irrigation is further aggravated by the *non-mastery of appropriate irrigation techniques* and the *use of inappropriate pumping patterns* leading to salinization and degradation of soil properties. The lack of availability of water resources concentrates grazing and trampling pressure around water points and nearby pastures. Herds freely access water points without adequate management or control, leading to a degradation of land and natural pastures/meadows that grow there.

23. **Deficient support systems and resources to implement SLM plans at landscape/watershed level, including**

- A major barrier to the adoption of new agropastoral practices lies in the *lack of agricultural credits accessible to poor rural populations* with incentive interest rates that would allow them to acquire required inputs to develop their plot and which repayment terms would take into account the harvest period. There are available finances but are not channelled to populations in an integral approach. Also, interventions are designed without introducing the concept of risk management to cope with natural disasters such as intense and repeated drought stresses the need to introduce this approach, namely through savings.
- *Lack of access to agricultural inputs* for rural populations, especially in seedlings and seed varieties adapted to arid conditions and resistant to local pests and diseases, and in environmentally-safe crop protection products.
- Interventions with pastoralist communities in rural areas are designed *without introducing the concept of risk management to cope with natural disasters such as intense and repeated drought* which stresses the need to introduce this approach, namely through production of dry season fodder and silage reserves, and diversification of livelihood options. Rural communities *lack exposure to viable alternatives to traditional or current livelihoods*, such as through Government extension and livelihood development schemes.

Proposed alternative scenario and expected outcomes and components of the project

24. The proposed project will work towards the long-term solution and address the above-mentioned barriers in conjunction with and adding value to the baseline scenario interventions. The Project Objective is to develop an integrated model for the restoration of agropastoral ecosystems services in the watershed of the Cheikhetti Wadi to reduce land and water degradation, improve self-sufficiency in basic living needs of vulnerable rural communities and create conditions to enable its replication. It will work through three closely interlinked components: 1. Multi-level Governance framework and capacities for integrated watershed management and land use; 2. Land rehabilitation and aquifer replenishment management in Chekhetti Wadi watershed; and 3. SLM implemented in key areas in Cheikhetti Wadi watershed in accordance to the Watershed Management plan. These are described in the paragraphs 32 to 42 below.

25. The intervention strategy is to target the Wadi Cheikhetti watershed as a pilot landscape to develop an integrated agro-pastoral model that aims at restoring the productive capacity of the soils to provide food security and sustainable incomes to vulnerable communities, and to build adequate technical and institutional capacities at the national and regional levels to replicate or adapt this model. This project proposes to develop and scale-up an approach where, rather than being a major driver of land degradation, livestock will make a beneficial contribution to a sustainable resilient agriculture based on recycling crop and animal waste to enrich soil and feed animals. Local people's capacities will be effectively strengthened to adopt sustainable water and land management practices for allowing the development of multi-purpose gardens through integrated crop-livestock farming, improving farming techniques, and reducing unsustainable resource uses through a diversification of livelihood options.

26. The project will restore the ecosystem services of these drylands by improving water regulation of the wadi to maximise recharge of the aquifer, adopting low-volume (drip) irrigation systems to optimize use of water, providing better access to surface and underground water resources including through solar-powered pumps, increasing the retention of

moisture in the soil through appropriate cultivation methods, enhancing the organic content of the soil and restoring the nutrient cycle by the supply of compost made from manure of livestock and crop residues. Gardens will include the production of drought-tolerant trees, crops and forage plants, free of chemical fertilizers and pesticides, to meet subsistence, feedstock and fuelwood needs of rural households as well as to allow them to diversify sources of income.

27. The project beneficiaries will be recently sedentarized or semi-sedentary herders living within the Cheikhetti Wadi watershed, transhumant over small distances to nearby pastures, whose livestock is their only resource. Volunteer members of local communities will be trained and accompanied through the establishment of a vocational training center following a learning-by-doing approach where they will acquire the various skills needed to restore soil fertility, produce forage for their livestock, ensure their families' subsistence and diversify their sources of income.

Project intervention zone: the watershed of Wadi Cheikhetti in the region of Dikhil

28. The area of intervention proposed for this project extends over approximately 50,240 ha to cover the watershed of the Cheikhetti Wadi (here defined to include its northern extension the Sabir Wadi) from the Ethiopian border in the south to the entrance of the plain of Hanlé towards the north. The area includes quality rangelands on plateaus in its western portion that are part of the watershed. The dry river that floods during heavy rainfall events has its source just across the border in northern Ethiopia and merges with the Hanlé Wadi as it enters the plain of Hanlé. Please refer to the maps in Annexes 1a and b for an approximation of the watershed and intervention zone overlaid with terrain. (The exact intervention zone, and target communities/ populations, will be confirmed during PPG; the project will a priori not target areas outside the hydrological watershed, but this will also depend on the partly nomadic communities that need to be engaged, i.e. it is likely that some populations living mainly outside the Cheikhetti watershed will be involved in the project to achieve better management of the watershed.). At the same time, the project will in its planning and implementation and stakeholder engagement pay careful attention, including through occasional in-situ monitoring and interviews, not to cause any unintended negative impacts on neighbouring watersheds in terms of water or ecosystem quality and livelihoods.

29. The intervention area was selected based on criteria related to the vulnerability of the population and the potential for land rehabilitation to increase the chances of achieving positive results that will have an effective demonstration value (see Annex 3). This area offers a window of opportunity to put in place a complete integrated model now before degradation gets too advanced and prevents any chance of restoration of ecosystem services. In other words, it is a cost-effective place to invest as avoiding spirally aggravating land degradation is less costly than restoration.

30. The wadi and watershed are located in the Dikhil region which includes 35% of the Djiboutian population living outside of the city of Djibouti and is the second-most vulnerable and food insecure area in the country as illustrated by an extreme poverty rate of 77.6% and prevalence of food insecurity of 42%. The population size of the target area has been estimated between 14,780 and 15,532¹⁷ (see Annex 4) which represents approximately 15% of the population in the Dikhil region. There are 6 schools in the area and another one is planned within 2 years.

31. The proposed intervention area overlaps one of the five units (Unit 3) of the Great Green Wall layout in Djibouti, which was identified based on the availability of water and soil resources, and the presence of populations that can be mobilized. The area is composed of sedimentary plains, plateaus and mountains and mainly covered with steppe vegetation dominated by *Acacia mellifera* and *A. tortilis*, along with *Balanites* sp. Species such as *Salvadora persica*, *Balanites aegyptia* and *Terminalia* sp. that provided fodder, firewood, shade and helped to fix the soil and promote infiltration, previously colonized the banks of the wadi. They are now rarer and more remote. Rural communities raise goats, sheep and camels. This area has a high agricultural potential by the presence of valleys where large perimeters and agropastoral gardens were previously thriving, as witnessed by local people.

Brief description of expected components and outcomes

Component 1. Multi-level governance framework and capacities for integrated watershed management and land use

32. This Component will improve the governance structures and capacities for the management of land and water uses in the Cheikhetti Wadi watershed increase uptake of land uses aligned with water availability and ecosystem functions and provide the basis for scaling-up integrated SLM at the national level and in the face of climate change. This together with impact of Components 2 and 3 will restore soil productive capacity and vegetation and improved functionality and cover of agropastoral and rangeland ecosystems.

¹⁷ 2,689 to 2,824 households based on informal surveys and estimations for 2014 extrapolated from the 2009 census

33. To achieve this outcome, the project will set up a **knowledge platform and monitoring system** for monitoring results of Cheikhetti watershed plan (Comp. 2 & 3) to enable adaptation of practices for improvement of the quality and productivity within the Wadi and (ii) codifying management approaches to replicate to other wadis and watersheds in Djibouti. This would include a critical meta-analysis of successes and failures of sustainable water and land management projects to identify and promote best-practices for replication. The knowledge platform will be set up either under the MAWFHMR UNCCD NAP or the UNCCD focal point. As part of this knowledge management system and in order to guide the adaptation of practices for a continuous improvement of the SLM practices and quality and productivity of the different crops and livestock, a long-term monitoring system based on SLM indicators (e.g. NDVI, RUE) will be established to enable the monitoring and documentation of the production/harvest results across the wadi watershed. The database will be designed in collaboration with the field school's staff, CERD and other stakeholders involved in SLM, to be integrated into national databases on SLM. **Multi-level governance structures** are required to enhance participation, ownership, and long-term involvement of the local communities in the responsible management of the infrastructures developed with the project support. The project will thus support the establishment and capacity building of (i) a watershed-level multi-stakeholder management committee to act as a coordination, monitoring and decision making body for the oversight of the Cheikhetti Wadi Watershed Plan (CWWP) (see output 2.1) and for ensuring equitable access to land and water – this committee will include CRD and prefecture level representatives, local community representatives and other relevant stakeholders, and (ii) existing and new community-level committees that will be responsible for managing, regulating and monitoring access to specific water points (wells and pumps), including collecting user fees to support maintenance costs, following rules established through transparent and participatory processes. Guidance and training will be provided to other water committees in key watersheds based on this project experience. Support will be provided to establish and strengthen capacities of **rangeland community management groups** whose role will be to negotiate, formulate and enforce community rangeland/pasture management agreements, that reinstate rotational pasture use, deferred grazing and water and soil conservation measures, based on assessment of pasture condition.

34. Through this component, and as part of a **capacity programme**, the project will support the establishment of a multi-thematic **farmer field school in Dikhil** where herders, semi-sedentary herders, farmers, relevant CSOs and other stakeholders will develop skills and knowledge on various agricultural and agroforestry topics for the adoption of sustainable and climate-adapted agropastoralism and farming practices. The training will be provided through theoretical instruction, on-site field demonstration and trainings, supervised learning-by-doing and provision of customized advice through visits to the farmer once she/he is established in her/his own field. The school will strongly rely on demonstration of innovative climate-adapted techniques and, to this purpose, will work in collaboration with existing private farms established near Dikhil (Mr Djama Guedi's and collaborators' farms) that have proven successful in the implementation of a variety of SLM techniques. The establishment of the school will involve negotiating the expansion of its scope of activities, building new premises, rehabilitating infrastructure and acquiring equipment essential for the operation of the training center, seeking to use, to the extent possible, facilities and equipment of Dikhil extension center (which has not been in operation for some years), conducting participatory research on test plots, collaborating with local private farms and cooperatives, recruiting staff/ trainers, formalizing agreement with Djama Guedi's farm, and promoting courses in Dikhil communities. Appropriate SLM techniques and climate adapted species/varieties for demonstration and training will be identified and documented, and a curriculum in agropastoralism, rural energy and microfinance will be developed, including the preparation of related courses and educational material. Trainings will be provided. Agropastoralism topics could include: fences (preferably stone fences) to reduce predation; site preparation, mulching and stone lining, green manure and catch crops, to reduce evaporation and erosion; restoration of the soil productive capacity, preparation and use of organic amendments, including compost from crop residues and manure, green manure, setting up animal enclosures to enable manure collection; solar pumps and low-cost gravity micro-irrigation; agroforestry including production of nursery plants, windbreaks composed of multiple use climate adapted species (*Moringa*), plantations of fuelwood, fruit trees, fodder tree species, and species such *Acacia senegalensis* for the production of gum arabic; seed collection and treatment/conservation; pesticide-free control of pests and diseases; preparation of dry-season fodder reserves and other risk management measures; sustainable pasture/rangeland management and rotational grazing systems; capacity development for basic veterinary care. The farmer field school will evolve over time to adapt to emerging needs of the farmers families and environmental conditions. The training program will include strengthening local communities members' capacity to improve and diversify livelihoods and raising awareness of beneficiaries of savings, microcredit and microenterprise management. The field school training will also serve as a vehicle through which to develop farm plans (output 2.2 with most appropriate production options. It will also include intensive training of staff of MHUPE and MAWFHMR and their provincial delegations.

35. As part of the capacity development component, the project will support the identification and adoption of effective **coordination** processes/mechanisms relating to planning and implementing sustainable land and water management

between MHUPE and MAWFHMR and among their provincial delegations. The project will support the development of a **Replication Strategy and Action Plan** to scale-up and mainstream integrated management approaches in the Chekhetti wadi watershed at national level based on national consultation workshops on the future of water resources as well as of livestock, rangelands and agro-pastoralism in Djibouti, supported by international expert input. The Strategy and Action Plan will also integrate considerations to inter-watershed relationships, both in nearby watersheds in the Dikhil region and in other regions of Djibouti.

Component 2. Land rehabilitation and aquifer replenishment Management in Chekhetti Wadi watershed

36. This Component will improve the spatial planning and management of land and water use over 50,240 hectares through alignment of individual and community agropastoral plans and improved water management structures. This will enable surface and shallow aquifer water to be mobilized for the sustainable development of agro-pastoral farms and the maintenance of ecosystem function to support livelihoods

37. To achieve this outcome, the project will develop a **sustainable watershed management and land use plan for Cheikhetti Wadi**, based on assessments of water and land resources in the watershed through a desktop study and complementary hydrological, geological and soil surveys, to design the appropriate structures (buried or semi-buried thresholds/sills, floodways, etc.) to optimize replenishment of the aquifer and identify optimal siting for the development of community farms. Such surveys and the characterization of the wadi watershed are essential as the cost of implementing a sustainable water management system is much lower than that of repairing the damage caused by improper planning and implementation. Flood flows, which occur every few years during high rainfall events, are an inevitable natural feature of the wadi that can be damaging and hazardous. However, with careful management and appropriate engineering structures, it is possible to reduce their destructive impact and take advantage of this water influx to increase the recharge of aquifers. Attention will be given to ensure sufficient water allocation to all the sections of the catchment as well as to the different users (rainfed agriculture and rangelands, irrigated areas, drinking water). These studies will be conducted with the support of the CERD and Water Directorate and the Directorate for the Great Works under the MAWFHMR. Before undertaking any work, an assessment of the potential environmental impact of the watershed management on the surrounding lands and resources, including rangelands and the Plain of Hanlé will be conducted in accordance with national legal regulations, including extensive consultation with concerned stakeholders, including local communities. Based on a review of existing knowledge (maps, databases), additional field surveys as required, and consultations with herders, appropriate areas for extensive grazing/rangelands within the project intervention zone will be delineated and mapped. The project will support rangeland management committees to negotiate **rangeland management agreements** reinstating rotational pasture use and water and soil conservation measures across rangeland mainly located on the western side of the Cheikhetti Wadi. The watershed management / land use plan for the Cheikhetti Wadi will integrate the planning of these elements of the landscape, i.e. structures to optimize replenishment of the aquifer, agropastoral areas for developing gardens and farms, and rangelands. The integrated plan will be discussed and validated through consultations with all concerned stakeholders and included in Dikhil Regional Development Plan to allow coordinating and harmonizing surface water mobilization and SLM interventions at the regional scale.

38. With the support of agricultural extension services and farm training school, each household or group of households will get support to develop **individual and community agropastoral farms/garden plans** in accordance to the integrated plan and to (i) optimise irrigation and structures according to water availability and replenishment capacity in a given site and as identified in the CWWP (as a basis for Output 1.3) (ii) align land use production accordingly and following guidance provided during the field school training (this will provide a basis for output 3.3) to address the subsistence, fodder and fuelwood needs of households and to diversify their sources of income. The project will support the construction and rehabilitation of **water management structures** such as sills, shallow wells and, if required, boreholes across the wadi and aligned with the CWWP . These would first be validated through an EIA process and with local communities participation and with the well water committees input (see Output 1.4). The project will support negotiations with local communities through their management committees to develop agreements regarding their contributions to the various labor-intensive construction works and compensation through the World Food Program “Food for Assets”. Such agreements will clearly state the expected contributions of communities, deadlines, payment terms and be formalized. Labor involving local communities will be planned according to the terms of the agreements and coordinated until their achievement. Major works requiring the use of machinery will be carried out through contracts with national enterprises through cofunding.

39. The project will integrate small-scale water quality monitoring and improvement measures in conjunction with the SLM and water management interventions as far as possible, complementing actions in Djibouti of the WHO. While

project funds will not allow substantial investments such as on expensive infrastructure, water quality measures by the project can comprise water quality sampling and especially behaviour-based improvements, such as by separating water access and use by humans and livestock, which can be integrated in local community capacity development; or by adapting well constructions. The possibility to showcase a piping system and/or a simple water purification system (e.g. placing water-filled plastic bottles into the sun for exposure to UV) can also be assessed during PPG.

Component 3. SLM implemented in key areas in Cheikhetti Wadi watershed in accordance to the Watershed Management plan

40. This Component will deliver support local community members in the rural areas of the Cheikhetti Wadi watershed to adopt climate-resilient agropastoralism and livelihood activities that improve basic living needs whilst reducing the pressure on limited water and land resources. To achieve this the project will establish a **finance platform** to optimise the flow of resources to land and water uses established in individual farm plans according to the CWWP. This system would align the use of financial resources to ecosystem conditions and facilitate access to microcredit to men and women in rural communities for implementing land uses that generate income from sustainable uses of land and water such as the development of agropastoral farms and income generating activities. This platform would allow linking available and emerging resources to individual farm plans, namely i) existing microcredit; ii) donor resources and (iii) government programmes and budget. Project support will include capacity development to access to microcredit.

41. For **implementing the watershed management plan**, support will be provided to beneficiaries for the implementation of individual and community agropastoral farms and gardens that integrate best-practice climate-resilient and sustainable agropastoral techniques, including integrated crop-livestock farming, to meet household subsistence needs and, eventually, to meet local market needs, with resources accessed from finance platforms. The school will provide medium to long-term on-site guidance to community and individual beneficiaries once established in their plot to help them apply the concepts learned during training and solve other problems that may arise. To support the implementation of individual and community plans, the project will also examine mechanisms or processes allowing to secure herders' and farmers' access to land and water resources, to secure their significant investments in their plot, especially in terms of labor. Special attention will be given to secure women's right of access to those resources. Through the rangeland committees, the project will ensure the dissemination of the negotiated **sustainable rangeland management agreements** that reinstate rotational pasture use and monitor adherence by the semi-nomadic herders using rangelands in the Cheikhetti Wadi watershed and application of water and soil conservation measures as part of these agreements.

42. The project will support the identification of realistic options of **alternative livelihoods** that i) meet local community members' interests, especially those of women and youth, 2) are likely to have an effective impact to reduce non-sustainable land and resource use and energy options, and 3) meet the criteria of feasibility studies. The options could include: poultry farming; value chain development such as for coal and fodder from and invasive *Prosopis* (available on site) and Gum Arabic from *Acacia senegalensis* (to cultivate in community plots); production and marketing of energy-efficient cook stoves; construction of biodigesters for household biogas production; repair services for solar equipment; seed collection and treatment for conservation. Various models of energy-efficient cook stoves and biodigesters will be identified and tested for feasibility, effectiveness and acceptability, and selected models will be promoted through extension services and users throughout the intervention zone. To support the development of agropastoral farms and alternative livelihoods, the project will support the establishment of **tree nurseries, a centralised seed bank and community-based seed production scheme** to provide native seeds and seedlings for individual and community plots to meet household food, fodder and fuelwood needs, as windbreaks, and to diversify their sources of income through new value chains such as gum Arabic from *Acacia senegalensis*. To achieve more effective land restoration in degraded lands with depleted seed banks during the project's lifetime and especially over the longer term, the project will set up, furnish and operationalise one or several seed banks dedicated to native pastoral and tree species for enrichment seeding/planting. This will entail the geo-referenced collection together with local people of native seeds and/or plants from suitable areas, the multiplication of these seeds and plants in sufficient quantities and their distribution for use in ecosystem and biodiversity restoration by the project and government agencies. In the design and establishment of the trees nurseries, as well as on the plant dissemination, outreach and planting schemes, IAS safeguards will be applied throughout, to prevent the promotion/introduction by the project of an invasive species. This most notably includes the screening of the species inventories of all nurseries for IAS. Short term livelihood potential does not justify the promotion of a potential IAS through the project.

Incremental/additional cost reasoning and global environmental benefits.

43. GEF funding will contribute in an incremental manner to address several key environmental challenges and related barriers to sustainable land management in Djibouti, through a particular focus on one of the country's key watersheds, the Cheikhetti Wadi feeding the plain of Hanlé which holds the country's greatest underdeveloped agricultural potential. In that region, the project will generate global environmental benefits by returning critical ecosystem functions to severely degraded pastoral landscapes, including most notably by improving/restoring 1) plant productivity over 50,240 ha of rangelands, ii) flood water regulation to increase aquifer replenishment, and iii) soil productive capacity in agricultural/agropastoral perimeters. The project will thereby improve the outlook for sustainable and resilient rural community livelihoods. Improving vegetation cover in rangelands will also allow favour carbon sequestration as well as the resurgence of rangeland plant biodiversity, a good portion of which is endemic in the Horn of Africa biodiversity hotspot. Stabilising and restoring degraded lands and soils on the wadi riverbanks more widely will in the long term return a more complete set of habitats and ecosystem service flows to the benefit of local communities and wildlife while enhancing soil carbon sequestration capacity. More widely, the project is set to become a ground-truthed model case for integrated sustainable land and water management and will develop a knowledge platform to promote best practice interventions in Djibouti more widely. The incremental reasoning is summarized below:

Current Practices	Alternative Scenario	Global benefits
<p><u>Water and land governance and capacities</u></p> <ul style="list-style-type: none"> • Insufficient restoration of soil productive capacity as water and soil conservation efforts are rarely integrated and recharge of aquifers and soil retention in localized area • Management structure do not have full participation of local level stakeholders • A limited number of rural communities benefit from short term capacity development, however inadequate to develop their autonomy in the adoption of agropastoral farming and sustainable land management practices <p><u>Water Management</u></p> <ul style="list-style-type: none"> • Control of wadi floods is limited and not coupled with efforts to restore soil fertility on wadi banks, where uncontrolled wadi floods keep eroding riverbanks and fertile soils. • Irrigated perimeters for the cultivation of tree crops have very limited success for lack of ownership/ poor techniques to restore soil fertility • water from boreholes is often inappropriate due to high salt contents. • Deep wells are constructed, but without adequate management and structures rapidly deteriorate due to lack of ownership and maintenance. <p><u>Land use</u></p> <ul style="list-style-type: none"> • Herders keep their dwindling herds near water points causing further overgrazing • Restocking herds through veterinary services does not consider ecosystem carrying capacity or planning adequate fodder production. • A small portion of individual gardens is allocated to fodder cultivation • Agropastoral farms are developed on restricted areas for limited impact at landscape level • Degradation of pastures and rangelands reduces available forage which further accentuates the land degradation-poverty cycle, reduces quality of life and food safety, and leads to emigration of uneducated young people seeking jobs in urban areas 	<p><u>Water/land governance and capacities</u></p> <ul style="list-style-type: none"> • Knowledge platform and monitoring system set up for monitoring • critical meta-analysis of successes and failures of sustainable water and land management projects • Cheikhetti Wadi Wadi watershed multi-stakeholder management committee • Well water management committees in Cheikhetti strengthened and expanded; • Guidance and training to other water committees in key watersheds based on this project experience • Rangeland management groups reinstated in western Chekhetti wadi watershed to negotiate and <p><u>Water Management</u></p> <ul style="list-style-type: none"> • Capacity programme for herders, semi-sedentary herders, farmers, and other stakeholders for the adoption of sustainable • Capacity programme intensive training og staff of MHUPE and MAWFHMR and their provincial delegations • Sustainable watershed management / land use plan for the Chekhetti Wadi (CWWP) according to water availability • Individual and community agropastoral farm plans developed in accordance to the integrated plan • Water management structures rehabilitated such as sills and shallow wells across the <p><u>Land use</u></p> <ul style="list-style-type: none"> • Finance platform to increases resources to implement individual farm plans • Livelihood program developed and implemented. • Tree nurseries are established to provide seedlings for individual and community plots to meet household food, fodder and fuelwood needs. 	<ul style="list-style-type: none"> • Improved integrated management of land and water over 50,240 ha maintains and improves flow of agro-ecosystem services to sustain food production and livelihoods and enhances ecosystem resilience and adaptive capacity. • Restoration of ecosystem services such as carbon sequestration, water regulation and soil protection over approximately 50,240 ha • Improved vegetative cover as measured by NDVI¹ and RUE² • Increased soil productive capacity through enhanced soil properties, nutrients, seed reservoirs, and capacity to capture and hold scarce water resources, for food production and the economy • Reduced soil vulnerability to water and wind erosion • Improved ecosystem (improved air quality and carbon sequestration capacity in ground cover & soil) • Increased food security and safety

Innovation, potential for scaling up and sustainability

44. Innovation and potential for scaling up: The project will bring together proven and new elements in its on-the-ground interventions and add value through specific national-level elements. *Innovation* on the ground includes integrated planning of land and water management at the scale of a watershed, and the assessments of (the Cheikhetti) watershed flows to design plans for flood control, replenishment of the aquifer and water extraction for agricultural and rural community use. The use of geophysical data and piezoelectrical monitoring in the actual management of water resources (as opposed to just borehole placement) is a significant innovation in Djibouti. The *potential for upscaling* is large, especially in the zones of Djibouti with agricultural potential that may merit and attract watershed-level investments. The project will provide for replication of successful and innovative interventions through a combination of approaches. A basis will be the establishment of a knowledge platform to bring together the results of the multitude of SLM and water resource studies and interventions in Djibouti, most notably from the last decade(s); it will also document the present project, with its new approaches and processes, main results and lessons learned, through the development of training materials for the field school. Guidance and tools developed during the project implementation will be shared once technically validated. Project coordinator or staff in charge of communication will ensure that this information is made available to the various stakeholder groups in order to support better dissemination and adoption of optimal approaches for agropastoral development. Another key element is the establishment of a field school for building the capacities of agropastoral and pasture / rangeland management actors including government, rural communities and private actors – field schools being a proven and internationally recommended element in efforts for disseminating and upscaling good practices – which will be further assisted through the involvement of the existing successful agro-pastoral farm of Djama Guedi. To boost the spread of successful project outcomes and best practices, the project will engage local media and local government communication channels to raise awareness and disseminate key outcomes. The project will moreover support a system of cross-learning with representatives from other watersheds / communities in the region, through semestrial guided on-site visits once project successes become visible. To achieve the greatest-possible upscaling of best practices emerging from this project and predecessor projects, a Replication Strategy and Action plan will be developed and implemented. The Strategy and Action Plan will also integrate considerations to inter-watershed relationships, both in nearby watersheds in the Dikhil region and in other regions of Djibouti.

45. Sustainability: *Environmental sustainability* is the primary objective of the project as it is focused on restoration of land productive capacity through increase of aquifer recharge, revegetation, water and soil conservation, establishment of management measures to reduce unsustainable land use and development of alternative options to improve local communities' livelihoods. The enhanced management of groundwater/ aquifer recharge areas and the development of agricultural plots on the wadi terraces will enhance rainwater recharge over the whole area as well as through the bed of the wadi which will maintain favorable conditions to support the productivity of agropastoral activities and contribute to the environmental sustainability of the project. Also water extraction will be informed by studies to ensure they are sustainable. *Institutional sustainability* of government and prefecture agencies involved in agropastoral development levels will be improved through direct training and the operationalisation of an agropastoralism field school in Dikhil. Institutional sustainability for sustainable land management will be also improved through the development of an integrated watershed/ landscape restoration and management plan for intensive and climate-resistant revegetation of the Cheikhetti watershed in Dikhil, and by strengthening the framework for monitoring pasture condition and identifying degraded pastures, and for planning processes to rehabilitate ecosystem services at landscape level. Watershed (groundwater/ piezometric level) monitoring is expected to continue post-project under the auspices of the Water Directorate at the MAWFHMR and will inform future water resource management including through the Cheikhetti Watershed Committee that will be established early on in the project. The Watershed Committee once successfully established and operationalised by the project will continue to be accompanied by the MAWFHMR - a first in rural areas for Djibouti, because for now only the water levels in the capital area are regularly monitored. *Financial sustainability* will be improved through a reduction of the sustainable management costs for enforcing environmental and rangeland rules by involving local and transhumant communities in the development and enforcement of mutual agreements for land and resource use; to achieve the required ownership local communities activities will be engaged from the beginning in the design of project activities. *Social sustainability* will be encouraged through the adoption of a participatory decision-making approach for planning and implementing pasture rotational use agreements, and the development of income-generating activities that will contribute to alleviate the pressures on resources and habitats due to detrimental or unsustainable activities that are associated with poverty, unemployment and lack of alternatives.

2. Stakeholders. Will project design include the participation of relevant stakeholders from civil society organizations (yes /no) and indigenous peoples (yes /no)? See table below for key stakeholders

Stakeholder	Potential roles in project design/preparation
Public sector	
Directorate for Environment and Sustainable Development (DESD) / Ministry of Housing, Urban Planning and Environment (MHUPE)	<ul style="list-style-type: none"> ▪ The Ministry of Housing, Urban Planning and Environment is, among other things, responsible for preparing and implementing government policy through the design of a regional development plan jointly with relevant ministries; to ensure the preservation of biodiversity and land, to coordinate and monitor all actions in support of the environment, to contribute to water protection and management, and to propose regional strategies for regional development. The ministry has the national mandate over conservation and sustainable management of natural resources. The ministry will intervene in the GEF-6 project through its Directorates for Environment and Sustainable Development (DESD, especially its sub-directorates Great Green Wall, Pollution and Environmental Assessment and Sustainable Development), Spatial Planning, Urban Development and Housing and the Office for programming and monitoring projects. ▪ As the implementing agency of the project, the DESD will be accountable for the project results, will designate a National Project Director among its members and chair the Steering Committee, and will allocate appropriate work premises for the project management team, including water and electricity. ▪ The DESD will contribute to project monitoring and evaluation, and will be responsible for technical and financial reporting to UNDP.
Ministry of Agriculture, Water, Fisheries, Husbandry and Marine Resources (MAWFHMR)	<ul style="list-style-type: none"> ▪ The ministry is responsible for the Government's policies in the areas of food security, for the promotion and development of animal and plant production, and improvement of vegetation cover. It sets up assistance measures for production, and promotion of agricultural and farming activities; oversees veterinary and food control and determines health standards of the national production. ▪ Together with the Ministry of Housing, Urban Planning and Environment, the ministry supports the implementation of the programs to fight against desertification, and is responsible for water supply in the rural areas, installation and maintenance of water pump systems in villages, as well as the construction of wells. ▪ MAWFHMR will therefore play a critical role in the design and implementation of SLM interventions and extension outreach and be a key target for capacity training, like also the DESD.
Agriculture and Forests Directorate / MAWFHMR	<ul style="list-style-type: none"> ▪ The department's missions are to promote agriculture to improve food self-sufficiency of the country, improving food security and mitigating the effects of drought on the nomadic population. It leads the implementation of the National Action Plan to Fight Desertification (NAP), in collaboration with the Ministry of Environment
Water Directorate / MAWFHMR	<ul style="list-style-type: none"> ▪ The Water Directorate is primarily responsible for water resources management. Tasks include the definition and implementation of the National Water Policy, assessment of water resources, monitoring and control of the exploitation of water resources, the instruction of the statements, requests of authorizations and concessions on withdrawals and discharges in cooperation with the Commissioners of the Republic, development of water resources including the drilling of boreholes, and administration of the National Water Fund. ▪ The Water Directorate is responsible for (i) creating new water points; (ii) maintenance of pumping stations; and (iii) support to participatory management of rural water points as well as urban neighborhoods not serviced by the network. ▪ Regional Commissioners are responsible for guarding and fuel supply of pumping stations in the rural areas of their respective districts. ▪ Will be involved in the project for planning and conducting water studies and management interventions.
Great Works Directorate / MAWFHMR	<ul style="list-style-type: none"> ▪ Directorate of Great Works is responsible for planning and conducting all works related to surface water mobilization, including the establishment of ponds and recharge dams ▪ Will be involved in planning water management interventions in the project site.
Agriculture and Livestock Directorate / MAWFHMR	<ul style="list-style-type: none"> ▪ The Department of Agriculture, Animal Husbandry and Veterinary Services deals with matters relating to the organization and development of crop production, animal production and health, and veterinary and food controls. It also has a key supporting role in the fight against desertification, ▪ The five sub-directorates have administrative branches in the regions to conduct activities and monitoring for the MAWFHMR in cooperation with the governors of the regions.
Ministry of National Education and Vocational Training / General Directorate of Technical Education and Vocational Training	<ul style="list-style-type: none"> ▪ In 2012, recognizing that Djiboutians are not an agricultural people and must learn almost everything in this context, and expecting to raise employment in the primary sector, the Ministry of National Education and Vocational Training opened a training center for agriculture, breeding and fishing activities in Damerjog under the General Directorate of Technical Education and Vocational Training, with associated centres in Dikhil and Obock, focusing respectively on horticulture and fishing.

Stakeholder	Potential roles in project design/preparation
Dikhil Training Centre for Horticulture	<ul style="list-style-type: none"> Set up in 2012, operational since 2015, it is expected to develop a training programme on gardening The project will engage the centre to strengthen its activities and widen its scope to include SLM and related activities
Support services for the decentralized management of water points	<ul style="list-style-type: none"> Responsible for raising awareness of rural people to the rational management of water and for the establishment of water points management committees Will contribute to the establishment of new water points management committees and to the assessment of capacity building needs of existing committees
Dikhil Prefecture Councils	<ul style="list-style-type: none"> The prefecture is the first counterpart at the regional level and has a direct link with local stakeholders; Will be informed of the project development and objectives and invited to participate in baseline surveys and workshops to identify priorities/ strategies for interventions, to participate in identification and planning of interventions at the local level, including the selection of intervention sites at the local and community levels. It will also benefit with the regional agricultural and environmental delegations benefit from training on SLM.
Local communities in the pasture/rangeland areas of the Cheikhetti watershed	
Users of natural resources within local communities, herders	<ul style="list-style-type: none"> The project will work in a region where different ethnic groups mingle, mainly from subgroups of the Somali and Afar tribes. Key stakeholders and beneficiaries: Project beneficiaries will be recently sedentarized or semi-sedentary herders living within the Cheikhetti Wadi watershed, transhumant over small distances to nearby pastures, whose livestock is their only resource. Active participation in the identification and development of green IGAs to the benefit of local communities; Members (representatives) of the teams during field missions; Participation in defining local communities' role in water and land resources monitoring programs, in discussing local communities' involvement in pasture and rangeland restoration and water and soil conservation (WSC) works in the context of WFP "Food for Assets" agreements Participation in the assessment of the baseline for the GEF LD Tracking Tool and of the impact of the project interventions
Local communities leaders / including okals, religious leaders, and representatives of elders, women and youth	
Dikhil Regional Development Councils	<ul style="list-style-type: none"> Regional councils are elected and therefore the legitimate representatives of the interests of local communities - recently established as part of the decentralization process; The Regional Council of the Dikhil region has established 5 Commissions corresponding to the areas of competence of the Region, including the Environment, Territorial Planning, the Domains, Urban Development and Housing; Will be informed of the project development and objectives and invited to participate in baseline surveys and workshops to identify priorities / strategies for interventions, to participate in identification and planning of interventions at the local level, including the selection of intervention sites at the local and community levels
Community-based organizations, such as the Water management committees	<ul style="list-style-type: none"> Water management committees were created through various projects. Their role of is the maintenance of boreholes equipped with solar energy and water management. Participation in defining CBOs' role in surveillance programs related to rangeland management and in the management of water points; Contribution to community mobilization for the identification of IGAs and level of participation to restoration works.
Academia	
Djibouti University/ Faculty of Sciences / Ministry of Higher Education and Research	<ul style="list-style-type: none"> The University of Djibouti is responsible for offering training programmes, including in courses related to energy. It has recently established an engineering department, and is expected to expand its limited training and research capabilities. Contribution to the identification of priorities for the development of programs / training modules in biodiversity conservation, adaptive management of PAs, rangeland and forest management, and for their integration into the university curriculum; Participation in the assessment of the baseline for the GEF LD Tracking Tool, of the rangelands and pasture condition, and of the impact of the project interventions.
National Scientific Research Institution: Centre for Studies and Scientific Research of Djibouti (CERD) / Ministry of Higher Education and Research	<ul style="list-style-type: none"> CERD is a public scientific institution that includes 6 institutes, namely Earth Sciences and Life Sciences. The Institute of Life Sciences addresses issues including soil sciences and plant production and protection. The Institute of Earth Sciences addresses the issues of geology, hydrogeology, geochemistry and renewable energy. The CERD is the national scientific partner in the field of hydrology and hydrogeology. It leads the geophysical and hydrogeological studies as part of projects financed by donors including to understand groundwater recharge processes. It also has a hydro-chemistry laboratory performing the physico-chemical analysis of water. Participation in the design and conduct of long term monitoring programs of water and soil resources, land,

Stakeholder	Potential roles in project design/preparation
	<p>pasture and rangeland condition and related environmental parameters.</p> <ul style="list-style-type: none"> Participation in the assessment of the baseline for the GEF LD Tracking Tool and in the planning of project interventions.
Civil Society / Private Sector / Other	
IGAD <i>Conflict Early Warning and Response Mechanism (CEWARN)</i> and their national offshoot <i>Conflict Early Warning and Response Units (CEWERU)</i>	<p>CEWERUs are national networks of governmental and non-governmental stakeholders set up through the IGAD CEWARN programme, to contribute to the peaceful settlement of cross-border pastoralist disputes in the sub-region. A CEWERU and an attached Local Peace Committee were established in 2012 in Dikhil, a region in which at times violent conflicts break out between nomads when water resources and pasture become scarce.</p> <p>The CEWERU and the Peace Committee in Dikhil are expected to play an important role in negotiations regarding access rules to pastoral and rangeland resources in the pastures adjacent to the Cheikhetti Wadi.</p>
Further NGOs, CBOs, etc.	<ul style="list-style-type: none"> The following further NGOs and CBOs have already been identified to play a role in project development and implementation: Djibouti Nature; Paix et Lait; Caravane du Développement de Gobaad; Union Nationale des Femmes de Djibouti with their regional antenna; Local water management committees established through prior projects especially PRODERMO and PROMES. NGOs and CBOs will be engaged in the project design during the coming development stage, and help define intervention priorities and project baseline and impact targets (including through the completion of the GEF LD Tracking Tool. They will also contribute to the development and implementation of an awareness and communication strategy.
Private farmers Agricultural and agro-pastoral cooperatives and networks	<ul style="list-style-type: none"> This will engage inter alia the Dikhil Agro-Pastoral Cooperative, the Network of Agricultural Cooperatives in Dikhil, and local level cooperatives with members in the project intervention area such as the Agricultural Cooperatives of Mouloud and Hanlé. The collaboration of cooperatives of the region and of successful private farmers in particular, will be sought to contribute to the development of the field school and training programs and to participate in the training activities Cooperatives distribute agricultural inputs supported by the government or donors, buy and distribute agricultural inputs, dig and rehabilitate shallow wells Will be informed of the project objectives and invited to participate in baseline surveys and workshops to identify strategies to restore land productive capacity
Media (print and radio media)	<ul style="list-style-type: none"> Invited to contribute to the dissemination of main events related to project preparation Contribution to develop a communication and awareness strategy for the project

3. *Gender Equality and Women's Empowerment.* Are issues on [gender equality](#) and women's empowerment taken into account? (yes /no).

46. The analysis of the gender situation in Djibouti highlights the inequalities between men and women in terms of living conditions, status in the family and in society, capacity and participation in development. Illiteracy is higher among women (78%) than men (58%) and women are more affected by unemployment (71%) than men (56%), which results from a combination of historical, social and religious factors. In the project intervention area, as in most traditional rural societies in Djibouti, men are responsible for land preparation, plowing and digging operations, irrigation of crops, harvesting and transport of products to market, and contribute to fetching water. Men are affected by desertification because they can no longer sell the animals resulting in lower revenues. They are affected as their families by malnutrition. Much emigration is observed, especially for young men. Together, men and women are responsible for the sale of surplus, if any.

47. In addition to daily domestic activities of child care and meal preparation, women are responsible for collecting water, which is every day, 2 to 3 trips requiring one to three hours per trip and transporting 20 liters of water on their back. In Djibouti rural areas, the burden of fetching water is assumed by an adult woman in 68% of households. Women also provide for the collection of fuelwood at the rate of one bundle (1m x 0.40 x 0.40) every 2 to 3 days for a family. This task is assigned mostly to adult women in nearly 70% of households. Women carry out other tasks that do not require substantial strength, i.e. gardening (planting, transplanting and harvesting, seed production), caretaking and maintenance of goats and small animals, milking animals. They ensure the cutting and transportation of fodder, especially as feed supplement for pregnant females, which becomes even more important because of the drought. They form the committee for the school garden whose production is used to supply the canteen. They make the Toukoul houses, shelters and mats from the doum palm leaves. They are also involved in craft activities such as making ornamental objects and jewelry. Women's perception of the impacts of drought and desertification are related to the fact that animals lack water and the

subsequent decrease in milk production leads to nutrition problems for children. Also, collecting wood requires walking more than six hours every other day from Wadi Cheikhetti and four hours from Wadi Sabir whereas wood was previously available near the wadi. Women are rarely consulted and integrated into development projects which are nevertheless likely to improve production and their living conditions and reduce their workload. Furthermore, they are subject to systematic discrimination in their access to resources needed for socio-economic development. The little credit, extension, input and seed supply services generally meet the needs of male heads of households.

48. The project will strive to address such gaps and will take into account the gender issue by collecting socio-economic sex-disaggregated data in baseline surveys, and by adopting gender-sensitive indicators to monitor the project specific impact on women. The project will seek to strengthen women's participation in project i) by adopting a specific communication approach that specifically target women to ensure that messages reach them and that their concerns and priorities are heard and addressed; ii) by consulting them to find ways to facilitate their participation in activities and reconcile it with their domestic chores; iii) by involving them in every local planning and implementation stage regarding the location and development of agropastoral farms, choice of crops, identification of IGAs adapted to them and meeting their needs, and every aspect likely to reduce their daily burden including wood and water collection, iv) by involving them in the design, dissemination and marketing of energy-efficient cook stoves, v) by developing training programs targeting women's specific activities and fostering their involvement in new activities such as composting and seed collection; vi) by making locally managed credit facilities accessible to them for their specific activities; viii) by ensuring they have an equitable access to the WFP "Food for Assets" for relevant activities. The project will pay special attention to ensuring that women have equitable access rights to resources and land, especially so for female-headed households. The project will at national level engage the National Union of Women of Djibouti to assure good visibility and leverage.

4. Risks. Risks that might prevent the project objectives from being achieved are identified on a preliminary basis and will be further developed during project design. Project potential risks and mitigation measures are described below.

Potential risks and category	Mitigation measures
<p><u>INSTITUTIONAL</u> Medium A lack of capacity and effective coordination between the two key ministries and their agencies involved in SLM hampers the development and implementation of a long term vision for the development of sustainable agropastoralism and the establishment of a vocational school to support its expansion and replication in the country</p>	<p>Several institutional actors are involved in SLM in Djibouti. The project will be developed and implemented in close collaboration with these key players operating in this field in the country, and especially in the region of the project intervention site, to agree on and promote a long-term and comprehensive vision for the sustainable development of agropastoralism in the project site and for scaling-up this approach in other areas once proven successful and sustainable. In addition to a joint participation to the project development and implementation, namely through the Project Steering Committee, a detailed MoU will specify each ministry's role, responsibilities and contributions in each activity and output of the project, in line with respective mandates. The project will recruit an international expert on a part-time basis to provide international benchmarking, technical and implementation guidance and training.</p>
<p><u>SOCIAL</u> Low Local communities resist change regarding the value of livestock as a social indicator and adopting intensive rather than extensive livestock farming</p>	<p>Communities themselves realize their precarious situation and have shown openness to other solutions, including the reduction of herd size, and will be supported in their reflections through information and awareness activities. The solution proposed in the current project focuses primarily on sedentary agropastoralism but also integrates a sustainable use of the quality rangelands extending to the west of Cheikhetti Wadi (but sill inside the watershed), which will allow a gradual transformation of the activity, at least during part of the year. Local communities will be involved in all decision-making processes leading to the formulation of agreements on access to pastoral resources</p>
<p><u>ENVIRONMENTAL</u> Medium Sustained drought linked to climate change reduces livelihood options and intensifies unsustainable use of rangelands and pastures and causing irreversible habitat degradation through overgrazing adding to the stress caused by the effects of climate change.</p>	<p>The objective of the project is to restore the productive capacity of land within the watershed of an important wadi through the development and implementation of a model for the sustainable development and management of agropastoral farms and of rangelands/pastures and alleviate current and future local pressures on land linked to deforestation and overgrazing. Specific studies in hydrology and hydrogeology will be carried out in order to assess the water resources to ensure their sustainable use and management. This should help increase land resilience to the effects of global climate change. Also, the establishment of a long-term monitoring system of land restoration in the area will enable the adoption of an adaptive management approach that will contribute to take into account the effects of climate change. And in any case, all project interventions must fully reflect the expected extreme climatic conditions wherefore any interventions that don't meet these requirements are maladaptive.</p>
<p><u>FINANCIAL</u> Medium The absence of reliable financial flows to the support system for agropastoral</p>	<p>The project will provide training to beneficiaries and raise their awareness on the concept of savings, microcredit and microenterprise management and will support them in the processes for opening and managing savings accounts with community financial</p>

Potential risks and category	Mitigation measures
development undermines the effectiveness of agropastoral development and sustainable rangeland management beyond the duration of the project intervention	institutions. A system facilitating access to microcredit to men and women in rural communities will be established to support the development of agropastoral farms and of alternative income generating activities that contribute to reducing unsustainable uses of land and resources.

5. **Coordination.** The project builds on, and will use relevant lessons/best practices from the following projects:

Initiative and Objective	Coordination with project
<i>Closing the Gaps in Great Green Wall: Linking sectors and stakeholders for increased synergy and scaling-up / GEF - UNEP - IUCN 2018-2021</i> (regional project implemented in 11 countries) to support greater implementation of SLM policies in the Great Green Wall (GGW) Sahel countries.	Since the GEF-6 project intervention site coincide with one of the five units of the GGW outline in Djibouti, close coordination will be sought for all components, namely as regards scaling up SLM good practices. Expected outcomes of the GGW people-centred approach to land management are i) a common set of indicators for GGW countries to inform planning and policy-making, ii) establishment of national mechanisms to engage civil society in GGW and SLM; iii) promoting appropriate investment partnerships to scale up SLM good practices, incl. training workshops, guidelines for improved private sector engagement, recognition of the role of local land managers and improvement of local planning processes.
Surface Water Mobilization and Sustainable Land Management Program (<i>PROGRESS</i>) 2016 to 2021 and <i>PRODERMO-FAI</i> .	The GEF-6 project will integrate lessons learned and best practices from these projects which implementation was initiated in a first phase in areas that coincide with the GEF-6 project target site. WSC interventions in the pastures extending westward from the Cheikhetti Wadi will be planned in close collaboration with both teams. The GEF-6 project will support the water management committees established through the previous and new phases of these projects.
<i>Program for resilience to drought and development of livelihoods in the Horn of Africa</i> AfDB/IGAD/WFHM. Phase II, 2018-2020). Pastoralists & agropastoralists in southeast SE Djibouti	Both project adopt similar approaches on several aspects (integrated watershed development plan, sustainable water use informed by technical and environmental studies, intensification of pastoral activities, production of fodder crops, alternative IGAs for women and youth), and will shared lessons learned, namely on relevant IGA experiences, water mobilization, fodder production, and animal health.
<i>Supporting rural community adaptation to climate change in mountainous regions of Djibouti project</i> , GEF-LDCF / UNDP / EU / IGAD (2014-2018).	The GEF-6 project will build on this project's achievements related to improved water management to reduce flooding and erosion, irrigation and reforestation, establishment of regional pastoral centres to build capacities of pastoralists on soil conservation, seed production, veterinary medicine and animal hygiene; tree seedling nurseries; and establishment of Catchment and Water Point Management Committees.
<i>Development of Agro-Pastoral Farming System in Rural Communities of Djibouti as an Adaptation Strategy to Climate Change</i> , UNDP/GEF/ MHEU2013-2018.	The GEF-6 project will build on achievements related to sustainable access to water resources in the face of climate change, diversified and climate-resilient agro-pastoral production system, and securing access to finance for climate resilient agro-pastoral enterprise development, through best practices, lessons learned and training materials.
<i>Appui aux coopératives agropastorales djiboutiennes</i> , EU-funded, implemented 2015-2018 by Djibouti's <i>Association Paix et Lait</i> and NGO <i>Action contre la Faim</i> .	Although intervention sites do not coincide, the GEF-6 project will make contact with this project during its last year of implementation to share best practices and lessons related to fodder cultivation including trees that serve several purposes, drip irrigation systems, and training material on livestock management, veterinary care, breeding methods, solar irrigation systems, and fertilisation techniques.
FAO 2014-2020 Country Programming Framework under the 11 th European Development Fund	Under the upcoming FAO Programming Framework under the 11 th EDF, the project will work jointly with the FAO country team and relevant stakeholders to identify collaboration and synergies on priority areas of resilience and disaster risk management to cope with drought and climate change, on improving productivity of an agropastoral farm, on integrated water management for agriculture and livestock activities, on fodder production from Prosopis, and on climate-adapted crops.
World Food Program (WFP) / Cash/Food Assistance for Assets Programme in Djibouti	Under the Cash/Food Assistance for Assets Programme in Djibouti and in line with WFP's Strategic Plan, the project, the WFP and relevant stakeholders will collaborate to identify eligible activities on the basis of the GEF-6 project's planned activities/ results and priority beneficiaries in the selected intervention sites and plan WFP's contributions towards goals of the project.

6. **Consistency with National Priorities.** The project is consistent with National strategies and plans or reports and assessments under relevant conventions? (yes). It will contribute to the implementation of the following:

49. Vision Djibouti 2035 and Strategy for Accelerated Growth and Promotion of Employment (SCAPE) 2015-2019. Vision Djibouti 2035 was adopted by the Council of Ministers in 2014. SCAPE is its first strategic articulation and built around five strategic axes. The Government identifies actions to which the GEF-6 LD project will contribute directly, most notably on Spatial Planning and Sustainable Development and plans to rehabilitate and develop small agricultural and livestock areas of family size in all regions to contribute to eradicate poverty, food insecurity and unemployment. The GEF-6 project responds directly to the sustainable development strategy based on the three pillars of renewable energy, sustainable management of water / food security and climate change adaptation / risk management. According to the SCAPE, the Government will pay special attention to the fight against desertification through the plantation of 100,000 trees, a target to which the project will contribute directly.

50. Master Plan 2009–2018 of the Ministry of Agriculture, Husbandry and the Sea in charge of Fisheries Resources. The Master Plan's mission is to ensure increased food production to achieve food security and ensure a better contribution of the primary sector to the national economy. By developing agropastoral farms where the cultivation of quality forage meets livestock needs, the project addresses barriers to livestock sector development, and by restoring the productive capacity of soils and introducing drip-irrigation and adapted cultivation techniques, the GEF-6 LD project helps to remove obstacles to crop production. The project contributes to several objectives including: i) Fighting poverty by improving incomes and living conditions of the rural population, ii) Stemming rural exodus, iii) Developing arable land, expanding irrigated areas and promoting livestock activities to allow increasing local agricultural production, and iv) Strengthening structures capacity for planning and monitoring of development programs and dissemination of information. The project is in line with the Government's policy to develop lands with an agricultural potential wherever the potential of water resources is adequate and to encourage the use of drip irrigation systems.

51. The National Agriculture and Food Security Investment Programme (PNIASA 2014-2019) is the strategy paper for the rural sector. The activities proposed under the GEF-6 LD project address all four programs of the PNIASA: (i) sustainable food security in the regional context, (ii) water resource mobilization for agricultural development; (iii) support to vulnerable groups; and (iv) the promotion of new sources of growth and export support. Djibouti has no national strategic document for the livestock sub-sector. The GEF-6 LD project will also support the achievement of one strategic objective of the Humanitarian Response Plan for 2016¹⁸ which is to strengthen resilience of drought-affected people, by re-establishing their livelihoods. Building the resilience of the most vulnerable Djiboutians will contribute to break the negative cycle of increased vulnerability linked to the recurrent droughts.

52. National Action Plan to Combat Desertification (2000)¹⁹. The Djibouti NAP has not yet been updated and aligned with the 10-year strategic plan of the Convention (2008–2018). Yet, some interventions put forward in the NAP for the region of Dikhil are still relevant and are part of the GEF-6 LD project, such as the integrated development of Hanlé including Chekaïto (or Cheikhetti) through silvopastoral development, income-generating activities such as poultry farming, and production and dissemination of energy-efficient cook stoves. The NAP foresees a national reforestation program through the integration of trees in gardens, and establishment of tree nurseries, both being planned in the project.

53. A related initiative, the Great Green Wall (GGW) is a pan-African proposal to “green” the continent from west to east in order to counter desertification. It aims at tackling poverty and the degradation of soils through an integrated ecosystem management approach, and focuses on a 15 km wide strip of land through the Sahel-Saharan region from Dakar to Djibouti. The GEF-6 project will contribute to this strategy i) as the Cheikhetti watershed and adjacent pastures largely overlap one of the five units (Unit 3) of the Great Green Wall layout in Djibouti, and ii) as it directly contributes to the objectives of conserving, restoring and enhancing biodiversity and soil; meeting domestic needs and increasing revenue through the promotion of IGAs; improving carbon sequestration capacities in the ground cover and soil; and improving the living conditions of local communities.

54. Through the reforestation and land restoration of the Cheikhetti watershed and adjacent pastures and rangelands, the project is aligned with and contributes to the Bonn Challenge, which is a global initiative launched in 2011 to restore 150 million hectares of the world's degraded and deforested lands by 2020. The Bonn Challenge follows the forest landscape restoration approach, i.e. restoring ecological integrity while improving human well-being through multi-functional landscapes. The Bonn Challenge is a practical means of realizing many existing international commitments, including the

¹⁸ OCHA. 2015. Humanitarian Response Plan January 2016 – December 2016.

¹⁹ Ministère de l'Agriculture, de l'Élevage et de la Mer / Comité Directeur National Pour la Lutte Contre la Désertification. 2000. Programme d'Action National de Lutte Contre la Désertification.

CBD Aichi Target 15, the UNFCCC REDD+ goal, and the Rio+20 land degradation neutral goal. The interventions in the GEF-6 project are also in line with the main lines of the National Action Plan for the Environment (PANE) that include rehabilitating degraded ecosystems and the implementation of local community awareness programs on best practices for natural resource conservation.

7. Knowledge Management.

55. The project will set up a national SLM knowledge platform to bring together the results (successes and failures) of past and ongoing SLM interventions, to provide decision-makers and project managers with enhanced technical guidance. Results from the actual project will be disseminated within and beyond the project intervention zones through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and any other network that could be beneficial to the project implementation in terms of teachings. The project will identify, analyse, and share lessons that could facilitate the design and implementation of similar interventions. Lastly, mutual exchange of information will be maintained between this project and other projects of a similar focus.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

(Please attach the Operational Focal Point endorsement letter(s) with this template. For SGP, use this SGP OFP endorsement letter).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Dini Abdallah Omar	Secretary General GEF-OPF	Ministry of Housing, Urban Planning and Environment	23 July 2016

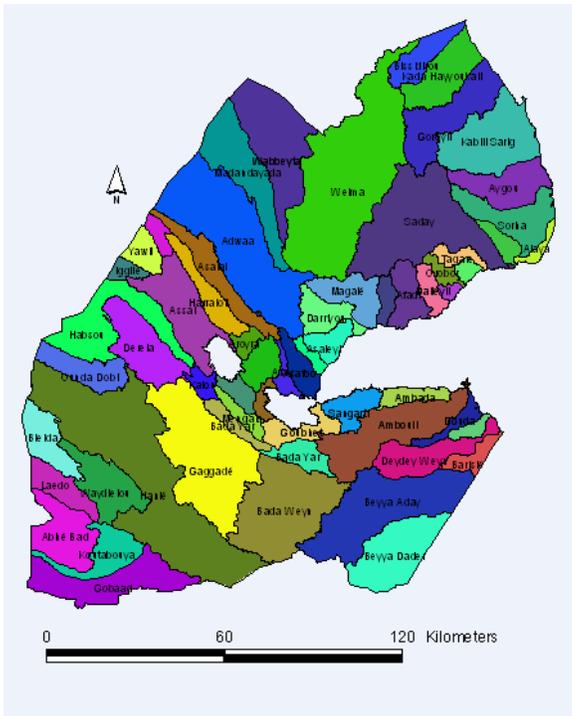
B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for project identification and preparation under GEF-6.

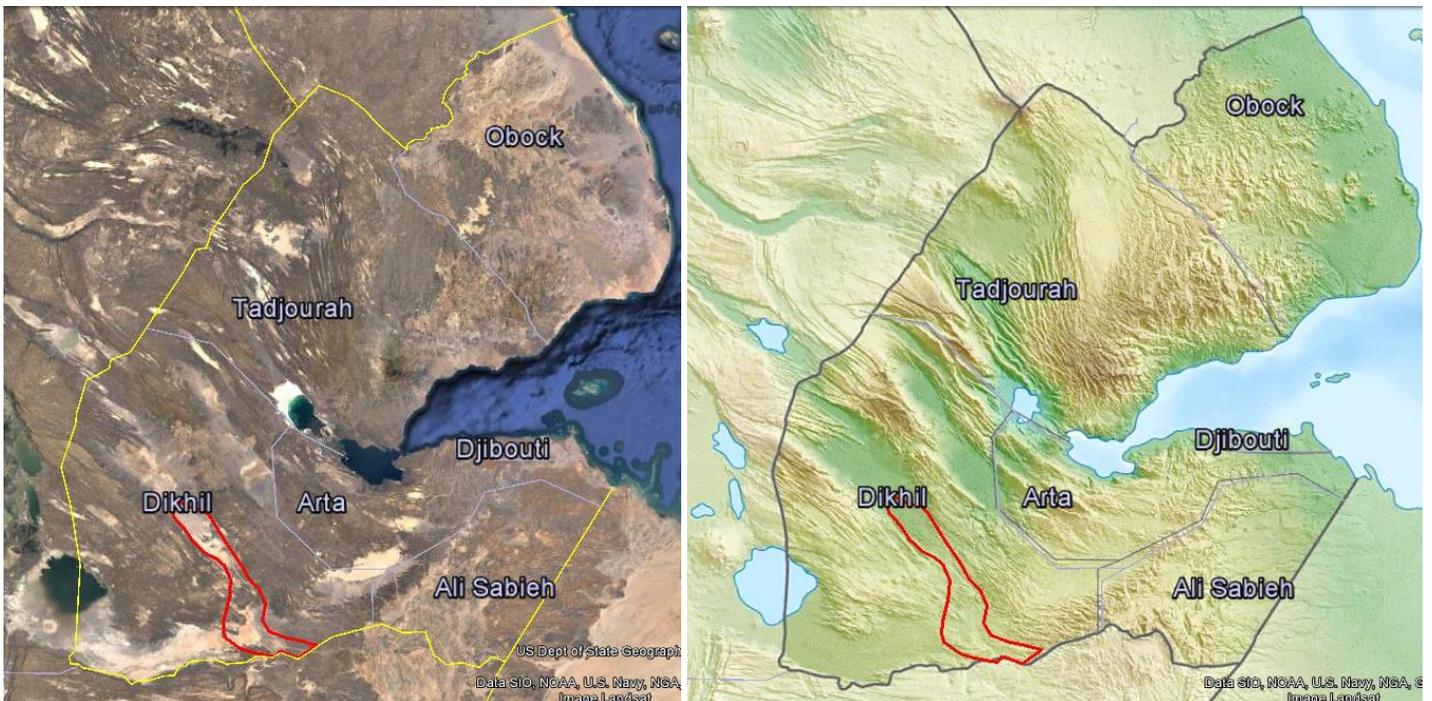
Agency Coordinator, Agency name	Signature	Date (MM/dd/yyyy)	Project Contact Person Telephone, Email
Adriana Dinu, UNDP-GEF Executive Coordinator		10/14/2016	Yves de Soye UNDP-GEF Regional Technical Advisor, EBD +33 682 75 89 44, yves.desoye@undp.org

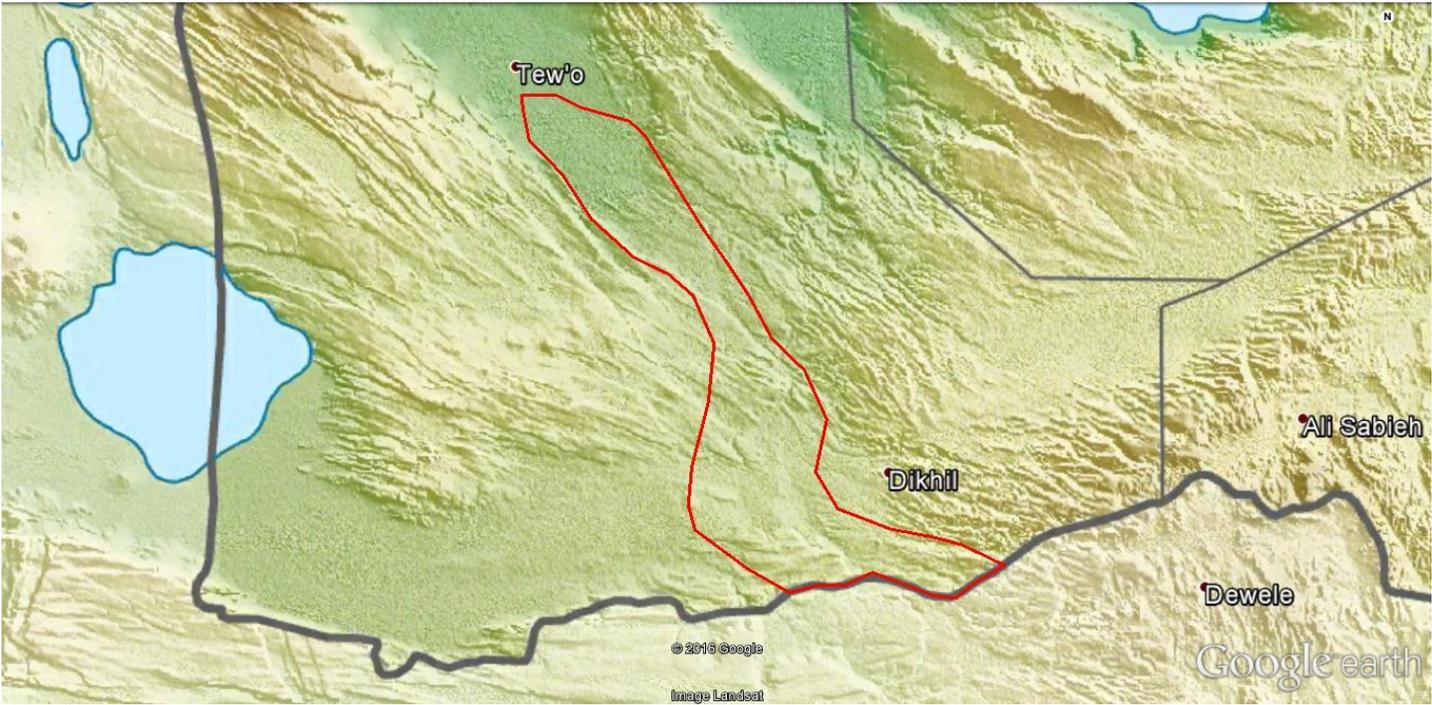
Annexes

Annex 1a. Watersheds of Djibouti. In this map the watersheds Cheikhetti and Hanlé are merged into one (see dark olive green colour at the lower left).



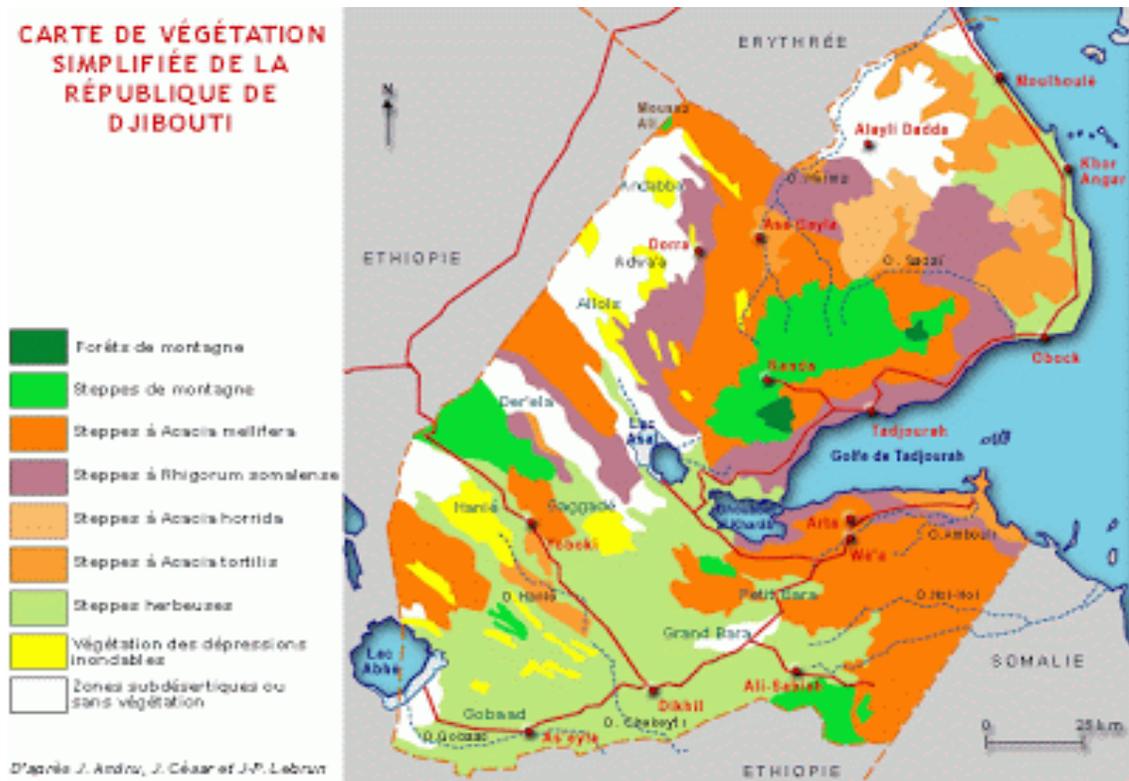
Annex 1b. Map series showing the approximate project area together with terrain, covering the Cheikhetti Wadi watershed from the Ethiopian border (yellow line, south) to the entrance of the plain of Hanlé and including quality rangelands on plateaus extending to the west of Cheikhetti Wadi (but sill inside the watershed). Specially prepared using Google Earth and topographical and satellite imagery overlays.







Annex 2. Djibouti's vegetation map



Annex 3. Criteria for identification of potential intervention sites

Criteria for identification of potential intervention sites	Rationale
Population size / number of households	Cost-efficiency
Vulnerability of rural populations as indicated by rate of food insecurity and poverty indicators	Target beneficiaries / national and global priorities
Areas most affected by land degradation and exposed to drought based on precipitation levels	National and global priorities
Potential for the development of agropastoralism (adequate water and soil resources) and for value chain development (access to existing markets)	Potential for global and national benefits, relevance to the focal area, demonstrative value of results
Willingness of local communities to invest in new agriculture and livestock practices	Participatory
Potential for women's active participation in the project development and implementation	GEF gender criteria
Development investments / plans that have some relevance to the GEF-6 project interventions	Cofinance / Complementarity / Synergies
Accessibility (practicable roads in every season)	Cost-efficiency, realistic implementation

Annex 4. Estimation of the population size in the settlements of the target intervention area

Wadi	Locality	Nb households		Nb diesel pumps (survey)	Nb drilled wells/ solar pumps	School
		survey	census ²⁰			
Wadi Cheikhetti (Dikhil prefecture)	Bondara	nd	335	nd	nd	
	Abou Youssouf	41	45	-	1 well / 1 s.p.	-
	Masguidlou	40	68	1	2 wells, 20m and 70-80 m	-
	Kontali	80	186	1	-	1
	Abaitou	nd	92	nd		1
	Cheikhetti-1	75	57	2	-	-
	Cheikhetti-2	120	116	3	-	1
					+ > 10 ²¹	
	Sub-total	783	899	at least 17		
Wadi Sabir (continuing Cheikhetti wadi) (Yoboki sub-	Asbari	80	nd	nd	-	-
	Sheik Sabir + Sabloulou	160	279	nd	-	-
	Doulebahi (recently settled)	10	nd	nd	-	-
	Gourabous	400	300	nd	1 well / 1 s.p.	1
	Gallamo	nd	235	1	2 wells / 1 s.p.	1
	Koudikoma	nd	nd	1	2 wells / 2 s.p.	1 planned
	Lilliya Bouri	nd	nd	nd	1 well / 1 s.p.	1
		Sub-total	885	904		
	Total²²	2689	2824			6 + 1

²⁰ Estimation for 2014 based on the census of 2009

²¹ Unused due to fuel shortage or lack of water

²² Totals based on the values provided by the informal field survey conducted during the mission and on estimations for 2014 based on the census of 2009 – using data from the other source whenever data is missing