



Strengthening rural and urban resilience to climate change and variability by the provision of water supply and sanitation in Chad

Part I: Project Information

GEF ID

10089

Project Type

FSP

Type of Trust Fund

LDCF

CBIT/NGI

CBIT **No**

NGI **No**

Project Title

Strengthening rural and urban resilience to climate change and variability by the provision of water supply and sanitation in Chad

Countries

Chad

Agency(ies)

AfDB

Other Executing Partner(s)

Ministry of Environment, Water and Fisheries

Executing Partner Type

Government

GEF Focal Area

Climate Change

Taxonomy

Climate Change, Focal Areas, Climate Change Adaptation

Sector

Mixed & Others

Rio Markers

Climate Change Mitigation

Climate Change Mitigation 0

Climate Change Adaptation

Climate Change Adaptation 2

Submission Date

10/5/2018

Expected Implementation Start

10/1/2022

Expected Completion Date

8/1/2024

Duration

48In Months

Agency Fee(\$)

826,500.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

| Objectives/Programs | Focal Area Outcomes | Trust Fund | GEF Amount(\$) | Co-Fin Amount(\$) |
|-------------------------------|---|-------------------|-----------------------|--------------------------|
| CCA-1 | Reduce the vulnerability of people, livelihoods, physical assets and natural systems to the adverse effects of climate change | LDC F | 7,399,000.00 | 13,284,238.00 |
| CCA-3 | Foster enabling conditions for effective and integrated climate change adaptation | LDC F | 1,301,000.00 | 3,299,712.00 |
| Total Project Cost(\$) | | | 8,700,000.00 | 16,583,950.00 |

B. Project description summary

Project Objective

Developing climate change resilience in the Chadian water sector by providing sustainable infrastructure and management tools to rural populations, and mainstreaming climate change risk and data at the national level

| Project Component | Financing Type | Expected Outcomes | Expected Outputs | Trust Fund | GEF Project Financing(\$) | Confirmed Co-Financing(\$) |
|--|----------------------|---|--|------------|---------------------------|----------------------------|
| Component 1: Mainstreaming Climate adaptation into the National water and sanitation masterplan (WSMP) | Technical Assistance | Outcome 1.1. Climate adaptation and resilience developed in the water sector from policy level through to capacity. | 1.1.1. Development and integration of gender sensitive climate change adaptation practices in the updating of the water and sanitation master plan 1.1.2. Development of gender sensitive technical guides for investments resilient to climate variability and change in the water and sanitation sector 1.1.3. Institutional capacity building to facilitate the integration of climate risks and gender into the water supply and sanitation sector | LDC F | 250,000.00 | 610,000.00 |

| Project Component | Financing Type | Expected Outcomes | Expected Outputs | Trust Fund | GEF Project Financing(\$) | Confirmed Co-Financing(\$) |
|---|----------------|---|--|------------|---------------------------|----------------------------|
| Component 2: Improved access to climate-resilient water supply and sanitation | Investment | Outcome 2.1: Increased reliability and improved quality of water supply | 2.1.1 Drinking water supply systems (including boreholes, reservoirs and solar energy distribution systems) built for 34 unserved communities. | LDC F | 7,605,000.00 | 13,284,238.00 |
| | | Outcome 2.2: Sustainable, climate-resilient and community-led water source protection | Output 2.2.1 Soil and water conservation (including reforestation activities) carried out on approximately 1,100 ha of degraded land associated with water resources | | | |
| | | | Output 2.2.2. Community awareness/capacity-building/support services for soil and water conservation/agroforestry provided | | | |

| Project Component | Financing Type | Expected Outcomes | Expected Outputs | Trust Fund | GEF Project Financing(\$) | Confirmed Co-Financing(\$) |
|--|----------------|---|--|------------|---------------------------|----------------------------|
| Component 3. Strengthening climate information and early warning systems | Investment | Outcome 3.1. Groundwater and surface water resources monitoring services provide information that can be used at the local level | <p>3.1.1. Needs-based upgrade of the Logone River basin surface and groundwater monitoring network (including Lai Water Analysis laboratory) and strategy undertaken.</p> <p>3.1.2. Early warning systems that take into account climate, groundwater, the environment and socio-economic information over different time scales developed, as required</p> <p>3.1.3. At least 20 personnel trained in the maintenance and repair of equipment, including effective techniques for interfacing with existing equipment</p> | LDC F | 615,000.00 | 1,200,000.00 |

| Project Component | Financing Type | Expected Outcomes | Expected Outputs | Trust Fund | GEF Project Financing(\$) | Confirmed Co-Financing(\$) |
|--|----------------------|--|--|------------|---------------------------|----------------------------|
| Component 4: Knowledge Management, Monitoring and Evaluation | Technical Assistance | Outcome 4.1. Capitalization and dissemination of best practices from project activities, capacity building initiatives and regulatory developments | Output 4.1.1. (i) Best practices on applicable technologies compiled for dissemination and replication by project partners (ii) Knowledge based monitoring and evaluation system in place and operational and (iii) M&E reports and briefs published | LDCF | 110,000.00 | 700,000.00 |
| Sub Total (\$) | | | | | 8,580,000.00 | 15,794,238.00 |

Project Management Cost (PMC)

| | | |
|-------------------------------|---------------------|----------------------|
| LDCF | 120,000.00 | 789,712.00 |
| Sub Total(\$) | 120,000.00 | 789,712.00 |
| Total Project Cost(\$) | 8,700,000.00 | 16,583,950.00 |

Please provide justification

C. Sources of Co-financing for the Project by name and by type

| Sources of Co-financing | Name of Co-financier | Type of Co-financing | Investment Mobilized | Amount(\$) |
|--------------------------------|-----------------------------|-----------------------------|-----------------------------|----------------------|
| Recipient Country Government | Government of Chad | In-kind | Recurrent expenditures | 2,800,000.00 |
| GEF Agency | AfDB (ADF) | Grant | Investment mobilized | 10,260,128.00 |
| GEF Agency | AfDB (RWSSI) | Grant | Investment mobilized | 3,523,822.00 |
| Total Co-Financing(\$) | | | | 16,583,950.00 |

Describe how any "Investment Mobilized" was identified

The investments mobilized originate from ADF and RWSSI co-financing which will make significant contributions to the adaptation benefits described in the objectives of the proposed project. Together, these represent a sub-set of co-financing that excludes recurrent expenditures. For the latter, it will be covered by co-financing from the Government of Chad.

D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

| Agency | Trust Fund | Country | Focal Area | Programming of Funds | Amount(\$) | Fee(\$) | Total(\$) |
|---------------------------|------------|---------|----------------|----------------------|--------------|------------|--------------|
| AfDB | LDC F | Chad | Climate Change | NA | 8,700,000 | 826,500 | 9,526,500.00 |
| Total Grant Resources(\$) | | | | | 8,700,000.00 | 826,500.00 | 9,526,500.00 |

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)
PPG Required **true**

PPG Amount (\$)
200,000

PPG Agency Fee (\$)
19,000

| Agency | Trust Fund | Country | Focal Area | Programmin g of Funds | Amount(\$) | Fee(\$) | Total(\$) |
|-------------------------|------------|---------|-----------------------|--------------------------|-------------------|------------------|-------------------|
| AfDB | LDC F | Chad | Climat e Change | NA | 200,000 | 19,000 | 219,000.00 |
| Total Project Costs(\$) | | | | | 200,000.00 | 19,000.00 | 219,000.00 |

Meta Information - LDCF

LDCF true
SCCF-B (Window B) on technology transfer false
SCCF-A (Window-A) on climate Change adaptation false

Is this project LDCF SCCF challenge program?
false

This Project involves at least one small island developing State(SIDS). false

This Project involves at least one fragile and conflict affected state. true

This Project will provide direct adaptation benefits to the private sector. false

This Project is explicitly related to the formulation and/or implementation of national adaptation plans (NAPs). false

This Project has an urban focus. true

This Project covers the following sector(s)[the total should be 100%]:*

| | |
|------------------------------|--------|
| Agriculture | 0.00% |
| Natural resources management | 10.00% |
| Climate information Services | 0.00% |
| Costal zone management | 0.00% |
| Water resources Management | 50.00% |
| Disaster risk Management | 25.00% |
| Other infrastructure | 15.00% |
| Health | 0.00% |
| Other (Please specify:) | 0.00% |
| Total | 100% |

This Project targets the following Climate change Exacerbated/introduced challenges:*

Sea level rise false

Change in mean temperature false

Increased Climatic Variability true

Natural hazards false

Land degradation true

Costal and/or Coral reef degradation false

GroundWater quality/quantity true

[To calculate the core indicators, please refer to Results Guidance](#)

Core Indicators - LDCF

| CORE INDICATOR 1 | Total | Male | Female | % for Women |
|------------------|-------|------|--------|-------------|
|------------------|-------|------|--------|-------------|

| | | | | |
|--------------------------------------|-----------|-----------|-----------|--------|
| Total number of direct beneficiaries | 2,154,696 | 1,077,698 | 1,076,998 | 49.98% |
|--------------------------------------|-----------|-----------|-----------|--------|

CORE INDICATOR 2

| | |
|--|----------|
| Area of land managed for climate resilience (ha) | 1,100.00 |
|--|----------|

CORE INDICATOR 3

| | |
|---|---|
| Total no. of policies/plans that will mainstream climate resilience | 2 |
|---|---|

| CORE INDICATOR 4 | | Male | Female | % for Women |
|------------------|--|------|--------|-------------|
|------------------|--|------|--------|-------------|

| | | | | |
|--------------------------------|----|----|----|--------|
| Total number of people trained | 60 | 45 | 15 | 25.00% |
|--------------------------------|----|----|----|--------|

OUTPUT 1.1.1

Physical and natural assets made more resilient to climate variability and change

Male

Female

| | | | |
|--|---------------------------------------|-------------------------------------|-------------------------------|
| Total number of direct beneficiaries from more resilient physical assets | 2,151,196 | 1,075,598 | 1,075,598 |
| Ha of agriculture land | Ha of urban landscape | Ha of rural landscape | No. of residential houses |
| | | 1,100.00 | 0 |
| No. of public buildings | No. of irrigation or water structures | No. of fishery or aquaculture ponds | No. of ports or landing sites |
| 0 | 0 | 0 | 0 |
| Km of road | Km of riverbank | Km of coast | Km of storm water drainage |
| Other | Other(unit) | Comments | |
| 0 | | | |

OUTPUT 1.1.2

Livelihoods and sources of income of vulnerable populations diversified and strengthened

| | | | |
|--|--------------|--------------|--------------|
| | | Male | Female |
| Total number of direct beneficiaries with diversified and strengthened livelihoods and sources of income | 3,500 | 2,100 | 1,400 |

Livelihoods and sources of incomes strengthened / introduced

| | | | |
|------------------------|------------------------------------|-------------------|----------------------------|
| Agriculture | Agro-Processing | Pastoralism/diary | Enhanced access to markets |
| false | false | false | false |
| Fisheries /aquaculture | Tourism /ecotourism | Cottage industry | Reduced supply chain |
| false | false | false | false |
| Beekeeping | Enhanced opportunity to employment | Other | Comments |
| false | false | true | Sanitation |

OUTPUT 1.1.3

New/improved climate information systems deployed to reduce vulnerability to climatic hazards/variability

| | | Male | Female |
|---|----------|----------|----------|
| Total number of direct beneficiaries from the new/improved climatic information systems | 0 | 0 | 0 |

Climate hazards addressed

| | | | |
|-----------------------|-----------------------|--------------------------|-------------------------|
| Flood false | Storm false | Heatwave false | Drought false |
|-----------------------|-----------------------|--------------------------|-------------------------|

| | |
|-----------------------|----------|
| Other false | Comments |
|-----------------------|----------|

Climate information system developed/strengthened

| | | | |
|--|--|--------------------------------------|-----------------------|
| Downscaled Climate model false | Weather/Hydromet station false | Early warning system false | Other false |
|--|--|--------------------------------------|-----------------------|

Comments

Climate related information collected

| | | | |
|-----------------------------|--------------------------|--------------------------------------|---------------------------------------|
| Temperature false | Rainfall false | Crop pest or disease false | Human disease vectors false |
|-----------------------------|--------------------------|--------------------------------------|---------------------------------------|

| | |
|--------------------------|--|
| Other true | Comments Installation of 6 piezometers, 100 rain gauges and 20 mm scales |
|--------------------------|--|

Mode of climate information dissemination

| | | | |
|-----------------------------------|---------------------------------|------------------------------------|-----------------------------|
| Mobile phone apps false | Community radio false | Extension services false | Televisions false |
|-----------------------------------|---------------------------------|------------------------------------|-----------------------------|

| | | |
|--------------------------|-----------------------|----------|
| Leaflets false | Other false | Comments |
|--------------------------|-----------------------|----------|

OUTPUT 1.1.4

Vulnerable natural ecosystems strengthened in response to climate change impacts

Types of natural ecosystem

| | | | |
|------------------------|------------------------------|-----------------------------|-----------------------------|
| Desert false | Coastal false | Mountainous false | Grassland false |
| Forest false | Inland water false | Other true | Comments Savannah |

OUTPUT 1.2.1

Incubators and accelerators introduced

| | | |
|--|----------|--------|
| | Male | Female |
| Total no. of entrepreneurs supported | 0 | |
| | Comments | |
| No. of incubators and accelerators supported | | |
| | Comments | |
| No. of adaptation technologies supported | | |

OUTPUT 1.2.2

Financial instruments or models to enhance climate resilience developed

Financial instruments or models

PPP models
false

Cooperatives
false

Microfinance
false

Risk insurance
false

Equity
false

Loan
false

Other
false

Comments

OUTPUT 2.1.1

Cross-sectoral policies and plans incorporate adaptation considerations

Will mainstream climate resilience

0

Of which no. of regional policies/plans

0

Of which no. of national policies/plan

1

Sectors

Agriculture
false

Fishery
false

Industry
false

Urban
false

Rural
false

Health
false

Water
true

Other
false

Comments

OUTPUT 2.1.2

Cross sectoral institutional partnerships established or expanded

No. of institutional partnerships established or strengthened

0

Comments

OUTPUT 2.1.3

Systems and frameworks established for continuous monitoring, reporting and review of adaptation

No. of systems and frameworks

0

Comments

OUTPUT 2.1.4

Systems and frameworks established for continuous monitoring, reporting and review of adaptation

No. of systems and frameworks **0**

Comments

OUTPUT 2.2.1

No. of institutions with increased ability to access and/or manage climate finance

No. of institution(s)

Comments

OUTPUT 2.2.2

Institutional coordination mechanism created or strengthened to access and/or manage climate finance

No. of mechanism(s)

Comments

OUTPUT 2.2.3

Global/regional/national initiatives demonstrated and tested early concepts with high adaptation potential

No. of initiatives or
technologies

Comments

OUTPUT 2.2.4

Public investment mobilized

Amount of investment
(US\$)

Comments

OUTPUT 2.2.5

Private investment mobilized

Amount of investment
(US\$)

Comments

OUTPUT 2.3.1

No. of people trained regarding climate change impacts and appropriate adaptation responses

| | | | |
|--|----------|-----------|-------------|
| Total no. of people trained | 0 | Male 0 | Female 0 |
| Of which total no. of people at line ministries | 0 | Male | Female |
| Of which total no. of community/association | 0 | Male | Female |
| Of which total no. of extension service officers | 0 | Male | Female |
| Of which total no. of hydromet and disaster risk management agency staff | 0 | Male | Female |
| Of which total no. of small private business owners | 0 | Male | Female |
| Of which total no. school children, university students or teachers | 0 | Male | Female |
| Other | Comments | | |

OUTPUT 2.3.2

No. of people made aware of climate change impacts and appropriate adaptation responses

| | Male | Female |
|--|------|--------|
| No. of people with raised awareness | 0 | |
| Please describe how their awareness was raised | | |

OUTPUT 3.1.1

National climate policies and plans enabled including NAP processes by stronger climate information decision-support services

No. of national climate policies and plans 1

Comments

The integration of climate adaptation into the water and sanitation master plan (WSMP) is directly in line with priority 8 of the country's NAPA

OUTPUT 3.1.2

Systems and frameworks established for continuous monitoring, reporting and review of adaptation

No. of systems and frameworks 0

Comments

OUTPUT 3.1.3

Vulnerability assessments conducted

No. of assessments conducted 1

Comments

Outcome 3.1.1. - Assessment and diagnosis of the weather network; in line with NAPA priority 7

OUTPUT 3.2.1

No. of institutions with increased ability to access and/or manage climate finance

No. of institution(s) **0**

Comments

OUTPUT 3.2.2

Institutional coordination mechanism(s) created or strengthened to access and/or manage climate finance

No. of mechanism(s) **0**

Comments

OUTPUT 3.2.3

Global/regional/national initiative(s) demonstrated and tested early concepts with high adaptation potential

No. of initiative(s) or technology(ies) **0**

Comments

OUTPUT 3.3.1

No. of people trained regarding climate change impacts and appropriate adaptation responses

| | | | |
|---|-----------|-------------------|---------------------|
| Total no. of people trained | 60 | Male 45 | Female 15 |
| Of which total no. of people at line ministries | 29 | Male 22 | Female 7 |
| Of which total no. of community/association | 31 | Male 23 | Female 8 |
| | | Male | Female |

| | | | |
|--|----------|------|--------|
| Of which total no. of extension service officers | 0 | 0 | 0 |
| | | Male | Female |
| Of which total no. of hydromet and disaster risk management agency staff | 0 | 0 | 0 |
| | | Male | Female |
| Of which total no. of small private business owners | 0 | 0 | 0 |
| | | Male | Female |
| Of which total no. school children, university students or teachers | 0 | 0 | 0 |
| Other | Comments | | |

OUTPUT 3.3.2

No. of people made aware of climate change impacts and appropriate adaptation responses

| | | | |
|--|---|------|--------|
| | | Male | Female |
| No. of people with raised awareness | 0 | 0 | 0 |
| Please describe how their awareness was raised | | | |

Part II. Project Justification

1a. Project Description

1) *The global environmental and/or adaptation problems, root causes and barriers*

Located in central Africa, the Republic of Chad straddles the Sahel and extends far into the Sahara Desert to the North. Its geographic location makes it particularly prone to climate change, notably extreme weather events from severe drought to devastating floods. With over three quarters of its population found in rural areas and depending largely on agriculture and livestock, the Chadian population is particularly vulnerable to such changes. This vulnerability is further exacerbated by the lack of administrative structures able to respond to, let alone predict, such events.

The need for understanding and predicting such events is particularly pressing as there has been consistent decrease in annual rainfall in the past 50 years, as well as increased variability, both spatially and temporally. The median average rainfall in N'Djamena was over 600 mm between 1950 and 1967, but less than 450 mm between 1968 and 1985. The 100 mm isohyet was on average about 200 km north of Lake Chad between 1950 and 1967, but less than 50 km from the lake after 1968. This impacts the ground water recharge, but also production strategies and accelerates the degradation of natural resources. Persistent drought has accelerated desertification in the north, leading to displacement of agropastoral areas. Water scarcity is of particular importance ? there has been a noticeable decrease in flows in certain rivers, alongside the slowing groundwater recharge and erratic rain patterns. Women are mostly impacted by these climate change?s impact due to their social and reproductive role in the community. Indeed, they are responsible of providing the whole family with safe water and care for their members, mainly the children, the ill and the elders. Water scarcity thus entails time constraints for women since they have to travel to long distance to find water.

These trends are only going to worsen, as climate change accelerates. Climatic models predict annual average temperature rises of 2.4°C by 2050, erratic rainfall patterns, and more intense and frequent weather related disasters (including drought and flooding). Despite its large area and spread over three climatic zones, the whole of Chad is predicted to see its mean annual temperatures rise by 2.4 C in 2050, with annual hot days (over 35°C) increasing by 44.1 days (RCP 8.5, High Emission). In terms of rainfall, the mean annual predictions vary greatly among regions and models, from -15 to +9mm per month by the 2090s. The projections under CMIP5 models overall suggest an increase in precipitations throughout the next 80 years (RCP 8.5)[1]¹.

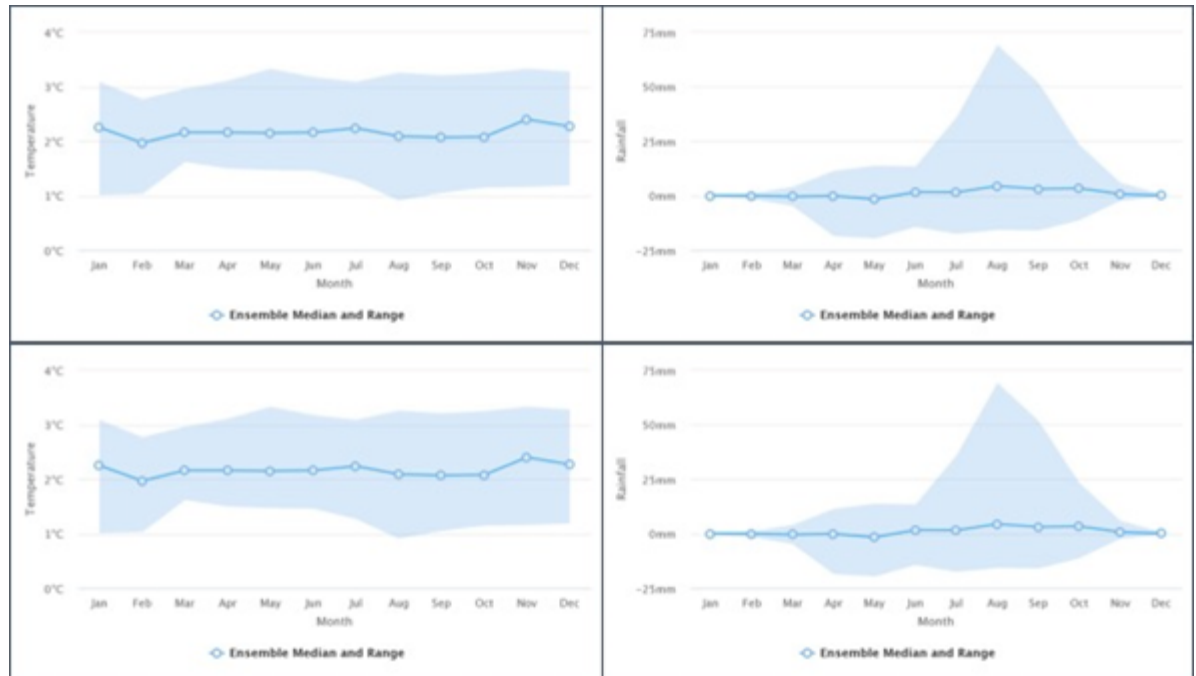


Figure 1: Projected Temperature (left) and Precipitation changes for Chad from 2040-2059 (Source: World Bank Group, 2020).

These changes may increase flood risk which already have grave impacts, but further leaving populations, agriculture, infrastructure, livestock and water supply and quality at risk. An increase in extreme events could also aggravate the endemic disease, further putting pressure on the populations, mostly women and the children. Finally, climate change will increase the anthropogenic pressure on freshwater systems, on which people rely not only for drinking, but also agricultural production, livestock farming and fishing.

Chad is particularly vulnerable to climate change, as evidenced by its ranking in the Global Adaptation Index (2017) (180th out of 181) and in the 2016 Climate Change Vulnerability Index (most vulnerable out of 186). The Global Adaptation Index takes into account exposure, sensitivity and ability to cope with climate-related risks^[2]. While exposure and sensitivity have remained fairly stable, its adaptive capacity rating has decreased over the last 25 years indicating the lack of social resources for sector-specific adaptation ? notably healthcare, drinking water and sanitation and electricity. This is particularly visible in the poorest population, which are largely concentrated in rural and peri-urban environment, reliance on natural resources are high and the overall access to services low. This vulnerability is all the more critical as existing administrative structures do not have the human and financial resources, capacities and means of action to respond. Irrespective of the projected frequency and intensity of floods and droughts, economic impacts are projected to increase even when the hazard remains constant because of increased exposure and vulnerability (Jimenez Cisneros et al. 2014). The main non-climate environmental pressures include population

growth, deforestation, overgrazing, poaching, erosion, waste pollution (litter), soil pollution, brushfires and ground and surface water pollution[3]³.

As mentioned above, access to water and sanitation is a particular challenge in Chad, and is an important contributor to morbidity and mortality, and a critical factor in the country's vulnerability to climate change. Drinking water access is estimated at 52% and that of sanitation at 18% in 2015, compared to 21% and 7% respectively in 2003, well below the sub-Saharan African average (Figure 2). The analysis of the current drinking water consumption shows that the population coverage rate is still quite low despite the growth observed during the 2000s. The difficulty of access to drinking water has widened gaps in education, employment and political life between men and women, to the disadvantage of women, over time and space. Drinking water consumption per capita per day is 40 litres in urban areas and 15 litres in rural areas. This inadequate access to improved water, sanitation and hygiene services generate economic costs. The most serious problems are those that particularly affect the poorest segments of the population, mostly in the rural and peri-urban areas. The economic costs of sanitation due to excess child mortality, health care related to the morbidity and increased access times to a safe defecation site have been estimated at 2.1% of GDP.

With Chad's water supply systems largely dependent of shallow groundwater, both climate change and pollution from anthropogenic sources, including human waste, it is necessary to focus on the access to water by rural populations in order to promote their future development. Climate change will only exacerbate this situation, through water stress and increasing the population's vulnerability to waterborne disease.

Under these conditions, some households continue to rely on non-potable water sources (ponds, temporary ponds, rivers and traditional wells). Overall, Chad's water supply systems are largely dependent of shallow groundwater, which is sensitive both to falling water levels and pollution. Climate change will only exacerbate this situation, through water stress and increasing the population's vulnerability to waterborne disease.

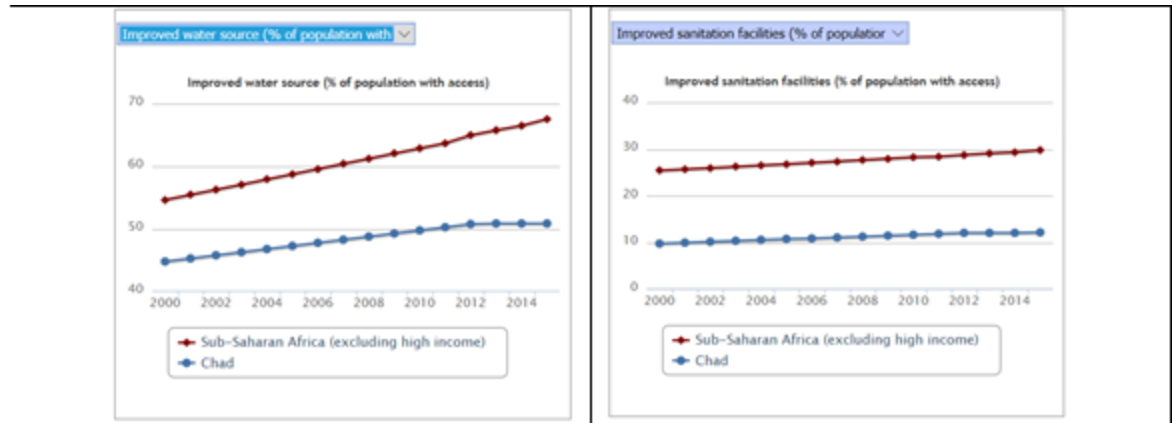


Figure 3: Access to basic water, sanitation and hygiene facilities in rural and urban areas of Chad (JMP 2019).

Environmental degradation, due to poor agricultural practices and high pressure on land resources, only compound these issues. compounded by environmental degradation, such as land degradation deforestation, soil erosion, and desertification. Deforestation and erosion increase surface runoff, further decreasing groundwater recharge and increasing flood risks. Desertification not only has economic impacts (decrease in arable land, silting of wells), but also health impacts, as the rise in respiratory diseases. Finally, erosion silts up rivers and water points, further exacerbating water stress and decreasing water quality. All of these processes are clearly visible and common in Chad, notably due to the increasing pressure on the agro-pastoral sector. This leads to population migration, increased pressure on land (and conflict) from both farming and grazing, and overall, a feedback loop which perpetuates the issues throughout the landscape.

Many of the root causes to the vulnerability of Chad to climate change are socio-economic. Almost half of the Chadian population lives below the poverty line, and over 80% in rural areas. This is reflected in the low standard of living of a large portion of the population, including high levels of inequality, poor living conditions, poor health, high infant mortality rate, lack of general education. In addition, poverty is compounded with a growing population: the population is set to double by 2050, which will undoubtedly increase tensions around scarce resources such as water. Environmental degradation is more pronounced in poorer areas, more rural areas, with strong reliance on natural resources and anthropogenic pressures (e.g. substantial agricultural practices), and solutions are limited by poverty.

In the face of all this, Chad does not have the institutional power nor adequate infrastructure to cope. While reconstruction efforts are well in place after the 2010 civil war, there is need to rethink some of the policies and strategies in order to strengthen capacities in face of climate change and adaptability. In particular, the water sector requires attention. Rural areas are most affected by high population rates and poverty, while urban centers are also unable to cope with growing populations and needs for adaptation. However, the urbanization rate in Chad is lower than the rest of the region and can be further reduced by strengthening rural livelihoods and environments. While urban centers will struggle to cope with growing populations and

needs for adaptation. the urbanization rate in Chad is lower than the rest of the region and can be further reduced by strengthening rural livelihoods and environments. Considering the large urban-rural gap in the water sector, and the economic and environmental ramifications of reducing these, the need to promote WASH services in the rural and peri-urban environments of Chad are pressing.

The majority of climate change models suggest an increase in extreme weather events and water related water disasters in the country; however, the hydrometeorological network in country is seriously lacking, unable to provide accurate and / or reliable information, notably in terms of vulnerability, resilience and adaptation. Without this information, it is difficult to implement appropriate adaptation levels. Furthermore, local human capacity is limited as well, needing more training but also access to information.

It is this context that is at the root of Chad's decreased ability to adapt rapidly to climatic variability, especially in terms of protecting and managing its water supply and quality. Ultimately, from this context, there are a certain number of political, institutional, financial, technological and information barriers that can be identified as key to overcome in order to increase Chad's resilience Table 1.

Table 1: Summary of barriers

| Barrier | Description |
|--|--|
| 1. Inadequate legal, policy and institutional framework for climate change in water resources programs (NAPA 2010) | Despite the creation of the NAPA, its integration into national policies and sectoral development remains challenging. The lack of technical expertise and sustainable systems to produce and exploit climate change information and risk makes the creation and the implementation of climate change resilient policies limited. This also corresponds to the NAPA priority 8: |
| 2. Weak knowledge base of climate impacts, risks and opportunities (NAPA Priority 4) | Communities in Chad are not informed on climate risks and as such have not integrated them into local development planning. There is little information gathered and disseminated on water stress and climate trends, as well as mitigation techniques. As such, there is little to no public awareness on the impacts of climate change, how to adapt and combat them, and how human activities can impact these. This is also Priority 4 of Chad's NAPA (2010) |

| | |
|--|---|
| 3. Limited adaptive capacity to cope with future climate events | The current meteorological and hydrological services do not gather nor disseminate sufficient or reliable information / forecasts, leaving communities and the economy unable to prepare for climate change. This is partly due to human resource and financial constraints on these services. This barrier was also identified and is seen in Chad's NAPA - Priority 10. |
| 4. Very low level of coordination of climate change adaptation initiatives | Efforts to coordinate climate change adaptation and mitigation measures and initiatives among various sectors are mostly punctual and reactive (instead of preemptive). While this is partially due to the lack of understanding of the issue (see barrier 1 and 2), there is also due to poor governance between national and local institutions. |
| 5. Vulnerability to climate change and gender inequality | While many of the impacts of climate change on water resources will be borne on women, they are not fully integrated in the decision making processes (e.g. adaptation planning). |

2) *The baseline scenario and any associated baseline projects*

In the baseline, a number of agencies and stakeholders have and continue to support efforts to improve water management systems, all in line with the 2017-2021 NDP. Such projects focus on issues relating to water supply, sanitation, water use and climate change resilience. Some of the most relevant and complementary projects to the proposed GEF funding are cited below:

- ? **Drinking Water Supply and Sanitation Programs in the Semi-Urban and Rural Areas of 11 Provinces (PAEPA SU MR), Phase 1 (2017-2022; extension requested for 2023).** Funded by the AfDB, this project's main objective is to improve the quality of life of the population, through their access to drinking water and sanitation services, as well as through job creation, notably for the youth and women. In particular, it looks to improve DWS and sanitation to achieve 95% and 50% coverage respectively and serve more than 6 million inhabitants. This project was set out to cover 11 provinces, However, due to funding restrictions, the approach was modified, in order to ensure a gradual coverage and starting with provinces with under 30% water access rates. As such, the retained areas were the semi-urban and rural populations of BET and the two Logones.

The project is divided into 3 components:

A ? Drinking water and sanitation development (81.6% of budget): Construction of boreholes, micro-irrigation systems, hand pumps, public latrines as well as the installation of piezometers. This infrastructure is coupled with IEC and water point and latrine management.

B ? Capacity building (3.24% of budget): Acquisition of materials for the General Directorate for Water and Sanitation (vehicles, computers, water quality control kits)

as well as training of extension workers and craftsmen. Additionally, it includes two national workshops, information dissemination and a donor round table.

C ? Climate change activities (7.34% of budget): Youth and women support including training and equipment in matters of quarry operation (youth), solid waste collection (youth), latrine management (women), water supply operation and user association).

As part of its funding, PAEPA-SU has been allocated funds by the Regional Water Supply and Sanitation Initiative (RWSSI). RWSSI is a focused regional response to Africa's rural water supply and sanitation crisis which is funded through contributions from the AfDB, bilateral/multilateral agencies, African governments and communities, and the RWSSI Trust Fund. RWSSI supports rural water and sanitation projects and programs with funding for investment operations, strengthening sector processes and systems, as well as through advocacy and knowledge building.

? **Integrated development of Communities in northern Chad (COM-NORD Project) 2018-2023.** This five-year project, valued at 24 million euros, is funded by the BMZ (21% funding), the EU and AFD. Its main objective is to reduce the vulnerabilities of the BET local populations, in particular in matters of nutrition. It aims to contribute to the achievement of three of the SDGs, notably Goal 2 (zero hunger), 5 (gender equality) and 6 (clean water and sanitation). The project targets urban and peri-urban areas, focusing on women, youth, and marginalized groups. The project will have a participatory and integrated approach, including interventions that focus on:

- o Stakeholder local planning
- o Implementation of priority services (notably water and sanitation);
- o Support for local socio-economic development
- o Community level health promotion
- o Consolidation of institutional framework, notably in terms of strengthening decentralized services and civil society organizations.

? **Improving access to drinking water in Chad (IDO) (AFD, IDO, Schlumberger and City of Paris).** This project focuses on the other target region: West and East Logones in the south; specifically. The main objective is to address the entire chain of elements to be put in place to convince village populations to take responsibility for their water points and therefore to ensure their long-term management. The interventions used include:

- o Public awareness raising on water pollution, and domestic and community hygiene;
- o The creation (or revival) of Water Point Management Committees (with monitoring);
- o Implementing borehole drilling management within communities, as well as domestic and community sanitation management;
- o Supporting the creation of community/village economic activities through the funds managed by the WPMC.

In addition, there are a number of projects and stakeholders involved in the overall mainstreaming of climate change adaptation and awareness, in particular

? **Chad National Adaptation Plan Advancement Project (2018-2022).** This UNDP/GEF project is centered around the integration of climate change adaptation into the medium to long term planning and budgeting of priority sectors: agriculture, livestock, fisheries and water resources. Alongside the UNDP and GEF funding, cofinancement is being provided through the Government of Chad, the Global Climate Change Alliance Project, and the Hydromet Project. It is centered around two main outcomes:

- o Outcome 1: An integrated information system, including a reliable database of climate and socioeconomic data, supports the integration of adaptation into policy and decision-making processes ? this outcome includes assessing and increasing the current hydro-meteorological network, developing an integrated database, undertaking a medium- and long- term climate change study, and increasing O&M capacity for the hydro-meteorological network.
- o Outcome 2: Institutional capacities are strengthened in key sectors and regions to facilitate the integration of climate change adaptation into planning and budgeting ? this outcome focuses on the provision of climate change risk and resilience information and training to sensitive sectors, sector-specific vulnerability assessments and strategies, and mainstreaming and monitoring climate change adaptation and resilience measures in various sectors.

This project focuses on the national, regional and sectoral level institutions, though investments are to be made in the Sahelian and Sudanian regions.

3) *The proposed alternative scenario with a brief description of expected outcomes and components of the project*

This GEF project will contribute to the development of a climate-resilient water sector in Chad, from policy level to local populations. At a local level, it will increase the resilience of the local communities in face of long-term climate change and associated hazards by reducing vulnerability, increasing adaptability and improving the transfer of adaptation technologies (Component 2 and 4). At a national level, it will help collect climate related data (Component 3) and its integration into policy and training (Component 1 and 3). Specifically, it will help integrate risk reduction measures that deal with effects of the modification of hydrological regime and desertification such as:

- ? Short and medium term measuring and forecasting;
- ? Integrating long-term forecasting into policy
- ? Integrating climate change concerns into investment decision making, resource sharing, soil management and conservation decisions.

There have been some wording changes in the project framework since the PIF, which were the result of stakeholder consultations and review. The changed wording in this document is therefore a result of this process, and offers clearer, more realistic, more actionable and targeted phrasing in line with stakeholders needs and concerns as well as the proposed budget. It does not change the overall objectives or purpose of the components or project. The present framework was discussed and validated at the final stakeholder workshop, and supported by the Chadian government, and are presented in the table below.

The project is centered around 4 main components; component 1 centers around the integration of climate change adaptation in water policy at the national level, with component 2 promoting the application of these on the ground in underserved areas (providing of infrastructure, capacity training in soil conservation, and climate change awareness raising). Component 3 and 4 center around knowledge; specifically, the strengthening of the water and weather monitoring network, which will feed directly into improving national and local level adaptation (Early warning system) (component 3),

and project M&E and knowledge sharing, to ensure a continuously improving and climate resilient water management in Chad.

| Topic | Main change from PIF |
|---|--|
| Revised outcomes and outputs | <p>There have been some wording changes ? some result from concerns raised during the inception workshop, including component 3, outcomes 2.1, 3.1, and 4.1 and outputs (2.2.1). These concerns were taken into account and further discussed during the stakeholder consultations. In addition, certain turns of phrase were edited for clarity and consistency. These are detailed by component below.</p> |
| <p>Component 1: Mainstreaming Climate adaptation into the National water and sanitation masterplan (NWSM)</p> | <p>The outputs of this component were split in order to better detail them and reflect the necessary activities needed for each. As such, the wording was changed, explicated, in order to provide better detail and reflect anticipated results.</p> <p>Previous wording: Outcome 1.1 Climate resilient water and sanitation masterplan prepared and adaptive capacity built Output 1.1.1 (i) Water and sanitation masterplan updated to mainstream climate change adaptation (ii) technical guidelines[2] for climate proofing investments in the water and sanitation sector prepared</p> <p>New outcome/output wording: Outcome 1.1. Climate adaptation and resilience developed in the water sector from policy level through to capacity. Output 1.1.1. Climate change adaptation practices developed and integrated into the updated Water and Sanitation Masterplan Output 1.1.2. Technical guides for climate variability and change resilient investments developed for the water and sanitation sector Output 1.1.3. Improved institutional capacity to facilitate the integration of climate risks into the water supply and sanitation sector</p> |

| | |
|---|---|
| <p>Component 2: Improved access to climate- resilient water supply and sanitation</p> | <p>The wording in this component has been altered for clarity, but also to reflect updated targets (e.g. 34 rather than 30 communities).</p> <p>Previous wording:</p> <p>Outcome 2.1 Increased reliability and improved quality of water supply (considering climate change induced risks in targeted areas</p> <p>Output 2.1.1 Production well prospecting, scheme design and construction of safe water supply systems (comprising solar powered production boreholes, reservoirs and distribution systems) for 30 unserved areas.</p> <p>Outcome 2.2 Soil and water conservation practices undertaken by farmers/youth at selected project sites for improved source protection</p> <p>Output 2.2.1 Soil and water conservation /reforestation of an estimated 1100 ha of degraded land associated with water sources (assistance to farmer/youth groups to apply forestry practices within communal and private woodlots)</p> <p>Output 2.2.2 Community awareness/capacity building/support services for soil and water conservation/agro forestry/etc.</p> <p>New outcome/output wording:</p> <p>Outcome 2.1 Increased reliability and improved quality of water supply</p> <p>2.1.1 Drinking water supply systems (including boreholes, reservoirs and solar energy distribution systems) built for 34 unserved communities.</p> <p>Outcome 2.2: Sustainable, climate-resilient and community-led water source protection</p> <p>Output 2.2.1 Soil and water conservation (including reforestation activities) carried out on approximately 1,100 ha of degraded land associated with water resources</p> <p>Output 2.2.2. Community awareness/capacity-building/support services for soil and water conservation/agroforestry/etc provided</p> |
|---|---|

| | |
|---|--|
| <p>Component 3: Strengthening climate information and early warning systems</p> | <p>This component is the one that undersaw the most change due to stakeholder concerns, budget restrictions, as well as the development of parallel projects. It provides more targetted and realistic outputs based on the proposed budget, notably under Output 3.1.1.</p> <p>Previous outcomes/outputs: Outcome 3.1 Water Resources monitoring (including ground water and water quality) services issue timely and actionable weather, climate water quality and hydrogeological information at local levels and reduce the impact of climate risks on lives and livelihoods and improve the resilience of water supply investments in the project towns. Output 3.1.1 (i) Expansion of weather and climate observing network (installation of 10+ meteorological monitoring stations with telemetry, archiving and data processing facilities) (ii) Expansion of ground water monitoring network (design and installation of 10+ GW monitoring stations with sampling piezometers) includes acquisition of remote sensed imagery (iii) Laboratory equipped for improved water quality monitoring (iv) development of strategy for O & M and scaling up the climate, GW and WQ information systems Output 3.1.2 Tailored sector-specific early warning products that link climate, ground water, environment, socio-economic information on a range of timescales developed, based on identified user needs Output 3.1.3 Training of at least 20 officers to maintain and repair equipment, including cost-effective technologies to interface with existing equipment/software</p> <p>New outcomes/outputs: Outcome 3.1. Groundwater and surface water resources monitoring services provide information that can be used at the local level 3.1.1. Needs-based upgrade of the Logone River basin surface and groundwater monitoring network (including Lai Water Analysis laboratory) and strategy undertaken. 3.1.2. Early warning systems that take into account climate, groundwater, the environment and socio-economic information over different time scales developed, as required 3.1.3. At least 20 personnel trained in the maintenance and repair of equipment, including effective techniques for interfacing with existing equipment</p> |
| <p>Component 4: Knowledge Management, Monitoring and Evaluation</p> | <p>The wording in this component was only slightly modified for clarity.</p> <p>Previous outcomes/outputs Outcome 4.1 Lessons learned and best practices from project activities, capacity development initiatives and policy changes dissiminated Output 4.1.1 (i) Compilation of best practices on applicable technologies for dissemination and replication by project partners with project support (ii) Knowledge based M & E system in place and operational and (iii) M & E reports and briefs prepared</p> <p>New outcomes/outputs: Outcome 4.1 Capitalization and dissemination of best practices from project activities, capacity building initiatives and regulatory developments Output 4.1.1. (i) Best practices on applicable technologies compiled for dissemination and replication by project partners (ii) Knowledge based monitoring and evaluation system in place and operational and (iii) M&E reports and briefs published</p> |

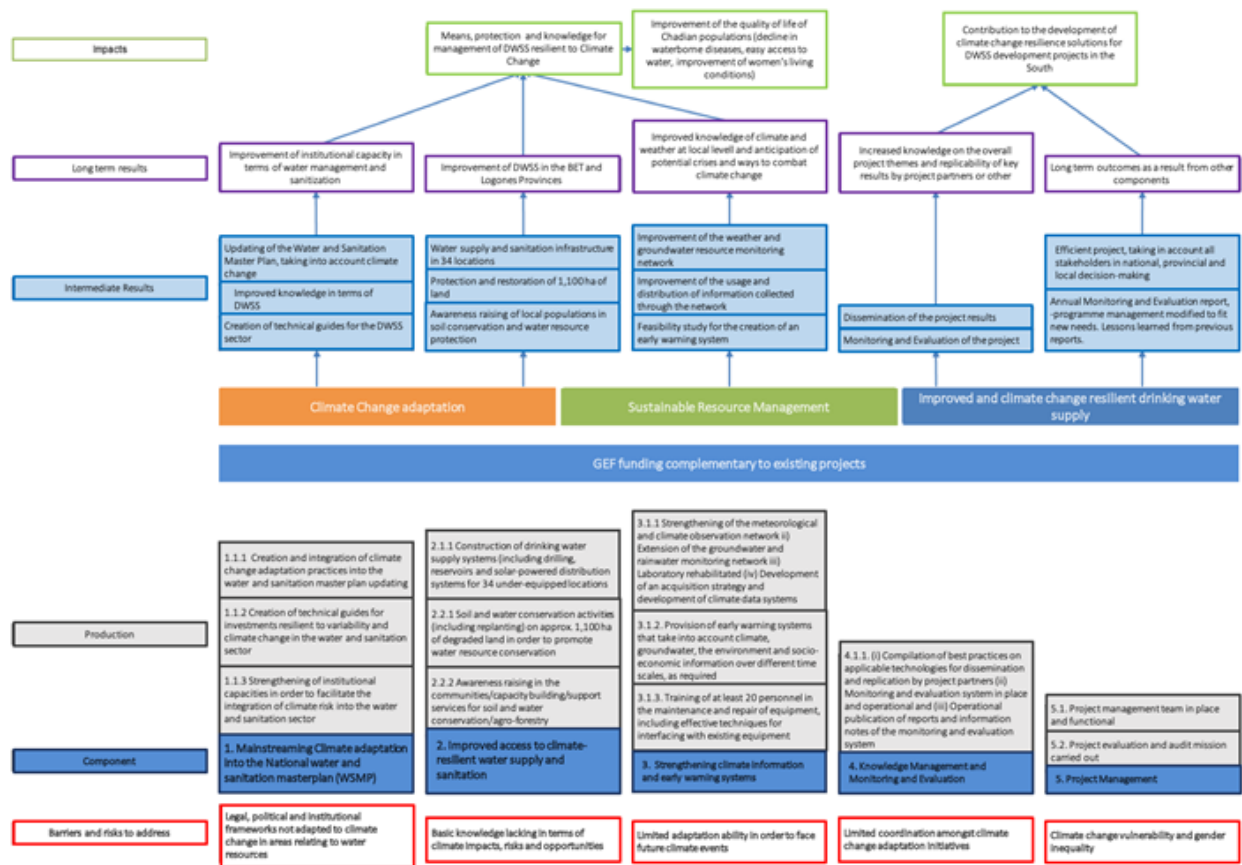


Figure 3: Proposed project's theory of change

The project is centered around 4 main components; component 1 centers around the integration of climate change adaptation in water policy at the national level, with component 2 promoting the application of these on the ground in underserved areas (providing of infrastructure, capacity training in soil conservation, and climate change awareness raising). Component 3 and 4 center around knowledge; specifically, the strengthening of the water and weather monitoring network, which will feed directly into improving national and local level adaptation (Early warning system) (component 3), and project M&E and knowledge sharing, to ensure a continuously improving and climate resilient water management in Chad.

Component 1: Integration of climate change adaptation into Chad's Water and Sanitation Master Plan (WSMP)

This component aims to develop an updated Master Plan which includes climate change resilience, as well as capacity development. GEF/FPMA will be used to support the mainstreaming of climate change adaptation: from policy to the project cycle, when updating Chad's National Water and Sanitation Master Plan. This is a prerequisite for smart climate

investments. Taking climate change into account at the beginning of the project cycle would prevent decisions of an irreversible nature from being taken. This implies integrating into the reflection from the initial phases of the project to the programming, implementation and operation, the risks, issues and decision-making criteria related to the impacts of the CC.

This component is key as the sustainability and recognition at a national level of the activities and outputs under Components 2-4. It will help enshrine in national policy the efforts seen at a local level in component 2, as well as increase capacity of national level stakeholders in terms of climate change adaptation in the water sector.

Outcome 1.1 Climate adaptation and resilience developed in the water sector from policy level through to capacity.

The further activities and outputs will depend on the updating of the WSMP, as it will provide the guidelines on how to respond to climate change adaptation (e.g. sites, technical criteria, investment strategy). In parallel there is a need to ensure institutional capacity building in the water and sanitation sector. This will be provided through the development of technical guidelines to assist project teams in climate risk management in the context of DWSS investment projects, as well as training of 40 water professionals. These steps will require an in-depth analysis and diagnosis of the sector in order to provide relevant and targeted information and solutions, as well as the development of indicators and monitoring scheme.

Component 2: Improved access to climate resilient water supply and sanitation

Supply and demand of water in Chad is variable based on temperature, which in turn effects rainfall patterns, evapotranspiration, and surface and groundwater quantity. As such, there is a need to consider the best DWS solutions for each site. Such decisions will be influenced by climate-smart policy framework (see Component 1) and accurate and updated data (see Component 3).

Outcome 2.1 ? Increased reliability and improved quality of water supply

This project targets 34 underserved areas, and the allocated funds will allow to move forward with the identified DWS installation, from choice of project owner, through tendering, design, construction and works.

Outcome 2.2 ? Sustainable, climate-resilient and community-led water source protection

In parallel with the installation of infrastructure, it is crucial to instill soil and water conservation practices in order to ensure the durability of the supply and quality of the water, as well as a sense of ownership by the communities served. As such, the project will use participatory planning and management in the 34 locations to achieve this goal. In order to ensure that the most appropriate techniques and measures are used, characteristics (e.g. physical, socio-economic) of each location will be analyzed in order to choose the best

techniques within a shortlist of 12 pre-identified soil conservation measures (all detailed in the ProDoc, under 4.4.2), and detailed strategies including costs, expected effects, modalities and justification produced for each location. These strategies will be implemented, focusing on the involvement of women and young people.

In parallel, there will be a broader awareness raising campaign launched, outlining the benefits of these interventions in order to ensure the full support of the larger population (beyond direct beneficiaries).

Component 3: Strengthening climate information and early warning systems

The production of rural populations of Chad is tightly correlated with the variability of rainfall, groundwater quality and runoff. While a seasonal forecasting system is in place (controlled by ABN-AGRHYMET-ACMAD), it does not provide temporal rainfall distribution. To better understand the status and threats posed to the quality of the aquifer and groundwater, there is a need for an improved weather, groundwater and water quality monitoring system, including an early warning of the onset of damage to the resource, notably on a local level.

Outcome 3.1 ? Groundwater and surface water resources monitoring services provide information that can be used at the local level

In order to achieve this outcome, there is a need to understand the needs and gaps in terms of quantitative (e.g. groundwater levels) and qualitative data (e.g. water quality), but also in terms of dissemination of these data. A thorough analysis of this will lead to a strategy on how to acquire and centralize such information, but also manage, edit, publish and share it.

Specific sites ? the Logone River and Lai Water Analysis Laboratory ? will be provided with equipment (e.g. 6 piezometers, 100 rain gauges), and training (with follow-up) provided.

The definition of the early warning system will be subject to a feasibility study (including costs and cost recover), and support provided for its establishment. In parallel, a capacity gap analysis will define the type of training/hiring needed, as well as office equipment (incl. cars, tools) that are needed to support such a system (at least 20 officers to be trained).

Component 4: Knowledge management, monitoring and evaluation

Outcome 4.1 ? Capitalization and dissemination of best practices from project activities, capacity building initiatives and regulatory developments

The knowledge and lessons learned can be used to further inform water access issues in other areas of Chad. By ensuring an effective and reliable gender sensitive monitoring and evaluation scheme,

such information can be captured and used in the long run, and properly evaluated the true impact of the project in terms of climate change adaptation, gender transformation and livelihood improvement. As such, an ongoing compilation of best practices on applicable technologies and gender transformation will be collected for dissemination and replication by project partners throughout the duration of the project. The M&E system will be defined at the start of the project and incorporate the monitoring of the dissemination of information.

4) *alignment with GEF focal area and/or Impact Program strategies*

The project responds to the climate change adaptation for GEF/LDCF programming strategy. Its objectives and interventions are directly in line with the three objectives of the Climate Change Adaptation Fund (CCAF) 2018-2022.

? *Objective 1: Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation* - the project will provide increase capacity of the hydrometeorological system, allowing for effective, targeted and early warning climate information. Specific improvement includes:

- o Monitoring and evaluation strategies and adaptive management
- o Supply of piezometers and rain gauges
- o Improving information and dissemination of information on water quality
- o Capacity building by training personnel at local and national levels.

? *Objective 2: Adaptation to general climate change and resilience to systemic impacts* - the project focuses both on improving safe water and sanitation access and awareness raising on such issues in vulnerable communities in disaster prone area, as well as promotes water source protection and degradation reduction measures.

? *Objective 3: Create the conditions for effective and integrated adaptation to climate change* ? the project both helps reinforce institutional capacity, notably by updating the WSMP to combat climate change, but also includes training and awareness-raising on climate resilient WASH measures at national and local levels.

5) *incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing*

The value added by this project is of scale. While the project directly provides localized benefits ? i.e. DWSS, climate training, water data ? it is also additional to a number of baseline projects, ensuring national-level benefits. This is seen through the geographic and technical complementarity of the project with the PAEPA SU MR project, the COM-Nord project and IDO project for DWSS, and the UNDP/GEF project for the national level institutional work and water and weather network.

The project will also support knowledge management that is vital to scaling up. The incremental cost reasoning and the expected contributions from the baseline, the GEF financing and co-financing for each component is described in the table below.

Table 2: Incremental project cost reasoning

| Current scenario | Scenario with GEF financing |
|--|-----------------------------|
| 1. Mainstreaming Climate adaptation into the National water and sanitation masterplan (WSMP) | |

| Current scenario | Scenario with GEF financing |
|---|---|
| <p>The WSMP 2003-2020 is coming to an end, a new version of the document will be updated, however this version may not fully integrate adaptation measures to climate variability.</p> <p>While climate impacts are not the main barrier to the development objectives of the water and sanitation sector in Chad, a lack of consideration of them will lead to an unsustainable water sector. Water abstraction, treatment and distribution infrastructure, as well as the availability and quality of water resources, are extremely vulnerable to the effects of climate change. These impacts will have consequences on the design, construction, location and operation of infrastructure. Insufficient attention to these elements during the project preparation phases will increase long-term costs, reduce their performance and increase the likelihood that such investments will not bring the expected benefits.</p> <p>Similarly, Chad's institutional capacity on water management may not be sufficiently strengthened and water management problems among existing stakeholders may persist.</p> <p>The newly developed NAP program, funded by the UNDP and GEF, looks into integrating climate change adaptation into key national and regional policies, but without honing in specifically on the water sector.</p> <p>Having a set focus on the water sector is vital as it is at the root of a number of socio-economic problems and complementary to key sectors for the Chadian Government and local populations: health, agriculture, fisheries, to name a few. In particular, the lack of documentation on investments that are resilient to climate variability will hinder the development of the new DWS and therefore the development of suitable DWSS facilities.</p> | <p>Under Component 1, GEF/LDCP will be used to support the mainstreaming of climate change adaptation: from policy to the project cycle, when updating Chad's National Water and Sanitation Master Plan.</p> <p>Furthermore, the development of technical guides for investments resilient to climate variability and change in the water and sanitation sector will be an asset for the updating of the WSMP and for the effectiveness of water managers, who will find complete and practical documentation.</p> <p>Finally, institutional capacity building to facilitate the integration of climate risks in the water supply and sanitation sector included in the GEF financing (training of 40 water professionals) will enable efficient water management at national and local levels.</p> |
| Co-financing: \$710,000 | GEF Funding: \$250,000 |
| 2. Improved access to climate- resilient water supply and sanitation | |

| Current scenario | Scenario with GEF financing |
|---|--|
| <p>Access to safe drinking water and sanitation is very limited in Chad. With a national average of under 40%, and under 30% for rural and peri-urban areas, there is a clear need to focus on the WASH sector in order to boost the development and resilience of the population.</p> <p>There is currently a concerted effort to improve both water infrastructure and management. In the East and West Logones, a densely populated area of southern Chad, and BET region in the North, where water access is under 20%, PAEPA SU-MR is providing climate-resilient WASH infrastructure to a number of rural and peri-urban locations. Similarly, the COM-Nord project is furthering the building and managing of urban areas in the BET regions, while the IDO project is improving the community based management of WASH infrastructure in the Logones regions.</p> <p>Despite these efforts, there are still a number of locations both in rural and peri-urban settings, that will not benefit from such projects leaving areas still unequipped, both in terms of infrastructure and knowledge.</p> <p>Alongside the need for infrastructure and increased capacity in terms of management, it is vital to ensure that the local populations are equipped with the knowledge and the tools to sustainably manage their water resources. Stakeholders will not be aware of soil conservation and will therefore allow degradation to continue, either by contributing to it (overgrazing, deforestation...) or by doing nothing (not fighting against desertification).</p> | <p>Under component 2, 34 drinking climate resilient water supply systems will be built for unserved Logones and BET communities (including boreholes, reservoirs and solar energy distribution systems) in rural and peri-urban areas not yet covered by the baseline projects identified (such as PAEPA SU-MR and COM-Nord).</p> <p>In addition to the infrastructure, the GEF funding under component 2 will provide training and awareness of communities. Community awareness, capacity building and support services for soil and water conservation will enable, in addition to rehabilitated land, sustainable management of groundwater resources, especially in the face of climate change, and an increased sense of ownership for local communities.</p> <p>At least 1,100ha of degraded land will be rehabilitated under this scheme, providing protection to water resources around it, from which rural and peri-urban communities will benefit.</p> |
| Co-financing: \$22,690,000 | GEF Funding: \$7,605,000 |
| 3. Strengthening climate information and early warning systems | |

| Current scenario | Scenario with GEF financing |
|---|---|
| <p>The current weather and climate observation network has several gaps that are not currently being filled by other projects. Existing laboratories are under-equipped and measurement networks are not sufficiently developed. Furthermore, data acquisition, interpretation and dissemination strategies do not allow for comprehensive monitoring of surface or groundwater.</p> <p>As with DWSS infrastructure, the network needs to be expanded and the area to cover is vast. Also, capacity building is necessary in order to ensure the proper maintenance and upkeep of the network.</p> <p>Efforts are already in place thanks to other projects, such as the UNDP/GEF National Action Plan which is rolling out equipment in the Sahelian and Sudanian zone and providing training. However, such efforts will not be able to fill all the gaps at a national level.</p> <p>Without this information, it is impossible to effectively monitor water resources, and difficult to understand qualitatively how they are reacting to climate change. Providing information to local populations relating to extreme weather events will also remain impossible, putting at risk local populations in areas which will be seeing increased extreme rainfall events and droughts under Climate Change.</p> | <p>Component 3 will reinforce the efforts to strengthen the meteorological and climate observation network, as well as the groundwater and rainwater monitoring network. It will fill in gaps left by other projects, such as providing such equipment in the BET region and rehabilitating the Lai water quality laboratory (areas not covered by the UNDP/GEF NAP project).</p> <p>Data from this set-up will be used to provide an early warning systems that take into account climate, groundwater, the environment and socio-economic information over different time scales, as required.</p> <p>In addition to the equipment, the GEP funding will provide training for at least 20 officers in equipment maintenance and repair, including effective techniques for interfacing with existing equipment. This is a vital aspect in order to ensure the sustainability of the network, as well as complementarity with other parts of the national network (as under the UNDP/GEF NAP).</p> |
| Co-financing: \$2,200,000 | GEF Funding: \$615,000 |
| 4. Knowledge management, monitoring and evaluation | |

| Current scenario | Scenario with GEF financing |
|--|--|
| <p>Without investment in monitoring of the impacts of the investments under the three first components of this project, the lessons learned from the project will not be fully understood and adaptive management that maximizes the impacts of the project will not be realized. Furthermore, baseline projects will have their own M&E and lessons learned strategies, which will not necessarily be comprehensively disseminated.</p> <p>Without investment in communication and knowledge management, the lessons learned from components 1, 2 and 3 (and by extension, from the other baseline projects), will be limited to the area targeted by the project (i.e. lack of scaling up of project).</p> | <p>Component 4 will ensure that the successes and potential failures of the project are well documented and understood, supporting a strengthening of sustainable management of water resources in Chad.</p> <p>Furthermore, the GEF activities are coming as a complement to other baseline projects; through consultations (for lessons learned) and complementarity of actions, this component will also assure that lessons learned are shared not only within the target regions, but also at a national scale on a shared platform, through a variety of knowledge management and communication tools.</p> |
| Co-financing: \$800,000 | GEF Funding: \$110,000 |

In addition, the GEF project will cover a small portion of project management (\$120,000; \$1,400,000 provided by co-financing), by topping up the PAEPA SU MR PMU resources, and ensuring that the project evaluation and auditing is carried out. It should be noted that less than 2% of the requested funding is allocated to project management, ensuring that most of the GEF funds go directly to implementation and additionality, as per the guidelines. This is further evidenced in the table below which outlines the costs associated to the baseline project as well as the GEF funding requested

Cost-effectiveness

The notion of cost-effectiveness is crucial for this project, considering the large gaps that Chad faces in terms of climate change vulnerability, notably when considering the water sector. The gaps that need to be addressed are both at the national and local levels, which further heighten the importance of ensuring that the finite resources affected to each be the most effective as possible.

The current project allows for a multipronged approach, helping fill the gaps in rural areas in terms of infrastructure (component 2 and 3) as well as complementing the creation of a strong national framework necessary for sustainability and upscaling (component 1 and 4). Simultaneously, it provides reasonable targets, activities and outputs for the allocated budget, which - for some - have been scaled back from the original PIF. This was done through consultations with stakeholders as well as taking into consideration the development and implementation of other projects since the formulation of the PIF. For instance, component 3 ? the expansion of the weather and water monitoring network ? was scaled down due to the infrastructure?s high unit costs and the presence of other projects (e.g. Chad NAP). Similarly, an additional 4 sites were added to component 2 ? development of WASH infrastructure in rural communities ? considering its effective additionality to other baseline projects (e.g. PAEPU MR PU, Com NORD, IDO).

The largest costs come from the creation of the 34 drinking water systems in target rural areas. As mentioned above, it was deemed that these structures? complementarity with other baseline projects providing similar infrastructure in the same regions would provide the widest range of benefits for the

local community in terms of local resilience ? provision of a sustainable DWS offers a number of economic, social and health benefits for the widest range of people.

Crucially, the three first components each include training which should help the sustainability and effectiveness of the investment into other activities and outputs. For instance, in component 1, stakeholders in the water sector, both private and public sector, will be trained in climate resilience and mainstreaming, in order to ensure that the policy related outputs (Output 1.1.1) are enacted on. Similarly, the rural communities who utilize the DWS will be trained in soil and water conservation efforts in order to ensure that their water sources are better managed, allowing to benefit in a sustainable manner from the DWS created under Output 2.1.1. This approach is rounded off by the whole of component 4 which is centered around ensuring that the lessons learned under the other three components are documented and spread to other projects and geographic areas.

Finally, the project avoids inflated costs linked to the administration of the project ? less than 2% of the total budget is going to project management; this was done by making use of the administrative structures of the PAEPU-MR-PU project. Rather than creating a new PMU ? which would incur both a time and financial cost, the project simply tops up the resources of the existing PMU. Similarly, the proposed projects geographic complementarity and synchrony with the PAEPU-MR-PU activities allows to capitalize on the PMU's experience, as well as the recent feasibility studies and other assessments conducted under this project.

6) *global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF)*

The project will help promote the incorporation of climate change risk and adaptation within the water sector in Chad, by providing infrastructure, awareness raising and training at the local level and national level. Among the projected benefits:

- ? Within the project area, at least 1,100 ha of land will be restored or under climate-resilient management. This will directly restore the productivity and resilience of the land in the face of climate change, which in turn will promote the food and economic security of the local populations. It will also ensure protection of the groundwater sources, permitting better recharge rates and protection against increasing water stress and anthropogenic pollution.
- ? The provision of safe drinking water and sanitation. Over 2.1 million people will benefit from improved climate resilient water supply infrastructure in the semi-arid regions, improved livelihoods and reduced vulnerability to climatic hazards due to new or enhanced early warning systems. The direct benefits from here are multiple - time savings from closer and cleaner water supply and waste disposal, especially for women and children; health benefits through the reduction of waterborne diseases; education benefits as absenteeism will decrease from water related chores or sanitation.
- ? By promoting the integration of climate change risk into the new WSMP, the national water sector will be primed to implement actions promoting climate change adaptation and resilience. This will foster conditions for effective and

integrated climate change adaptation at a national level, both in the private and public sector, notably through the training of at least 40 water professionals.

? The strengthening of the climate, meteorological and water resource networks will provide necessary data both at a national and local level to better monitor and manage water resources and water related disasters, increasing water security at both levels. The development in infrastructure and technology is coupled with increased capacity with at least 20 personnel trained in maintenance, repair and cost-effective technologies in order to promote the resilience and sustainability of the network. This particular effort is complementary with those of the NAP, which is also increasing the meteorological and climate network in the Sudanian and Sahel region, therefore fortifying the network at a national level, and promoting conditions for integrated and effective climate change adaptation.

? The early warning system will provide the local populations a better understanding and awareness of climate related disasters, such as droughts, flooding and extreme weather events. In light of the projected increase in all of these events due to climate change, communities will be better prepared to avoid infrastructure and human life loss.

? Finally, the project, through its knowledge management and M&?, will promote the upscaling of these efforts, ensuring effective knowledge and technology transfer on local, regional and national scales.

Within this framework, the program provides various capacity building trainings in collaboration with the Ministry of Environment and the deconcentrated services. These mechanisms will contribute to the management of drinking water supply and sanitation services.

Through the water monitoring and management system, it is essential to have a chance to cope with climate hazards. In the case of PAEPA SU MR, the project has planned the realization of piezometers all along the depression of Faya to allow the Directorate of Water Resources to ensure regular monitoring of the water table. The Water Resources Directorate is supposed to monitor the water table and alert if possible.

People in the SU MR PAEPA action area rely heavily on infrastructure systems to provide drinking and irrigation water.

Climate hazards can impact water supply infrastructure in the following ways: i) failed systems; ii) : Reduced sources of drinking water due to increased frequency of droughts. Indeed, in times of drought, water supply infrastructure can be strained due to the mismatch between supply (less surface and groundwater available due to drought or decreased water quality) and demand, which increases adaptation strategies have been adopted to reduce or eliminate the impacts of climate change on water supply infrastructure.

Through IEC actions, the SU MR WAPP will establish a framework for action at the action area level that promotes resilience by developing a modern and rigorously enforced water supply code of conduct.

Adaptation strategies include (i) the use of assessment and monitoring tools, (ii) the establishment of institutional control and management arrangements, and (iii) risk assessment and adaptation and mitigation measures. The use of risk assessment approaches such as the ISO 31000 risk management standard or the PIEVC protocol, as well as monitoring tools such as mapping, or water demand management (e.g., piezometer siting), contribute to the design or retrofit of water supply infrastructure in a changing climate.

Finally, given the critical nature of the water supply infrastructure, the implementation of a solar-powered infrastructure for a pump station is a proactive strategy to adapt to climate change and ensure that the facility continues to operate efficiently and sustainably.

Access to water and sanitation is one of the main challenges for Chadian households. Not only are access rates among the lowest in the world, but progress has been marginal in recent years. There are many reasons for this, both on the supply side, such as the disorganized institutional framework and the lack of budgetary resources devoted to this sector, and on the demand side, such as the lack of initiatives by user groups. This note reviews these main constraints to propose a series of recommendations, which aim to orient the sector's actors towards concrete actions for both the short and medium term and to lead the country towards the ambitious objectives of Sustainable Development, including Sustainable Development Goal N° 6: "Ensure access to water and sanitation for all and ensure sustainable management of water resources". This goal aims to ensure universal access to safe drinking water at an affordable cost by 2030. While safe drinking water and sanitation are taken for granted for much of the world's population, many do not. More than 40 percent of the world's population lacks water, a figure that is expected to increase as a result of climate change. If left unchecked, at least a quarter of the world's population is expected to face recurring water shortages by 2050.

Achieving this goal requires a different path, including strengthening international cooperation, protecting wetlands and rivers, and sharing water treatment technologies.

Chad is a Sahelian country facing multiple water-related challenges. The scarcity of rainfall in recent decades, climate change and the presence of bedrock areas on about 25% of the surface area, constitute major problems in the mobilization of water resources. Indeed, despite the achievements made in the field of water, the access rate is still low. At the national level, the rate of access to drinking water is estimated at 61.5% for a population served of about 9,036,000 inhabitants out of an estimated total of 4,650,152 people in 2017. Population growth (3.5%/year) also increases demand and reduces the rate

of access to drinking water. This is why this program is designed to increase the rate of access to drinking water and improve the effectiveness of public interventions and those of the country's partners (Ministry of Water and Sanitation; 2017, NDP 2017-2021).

In order to meet these two challenges, the Government of Chad, with the support of its technical and financial partners, is committed to gradually financing the drinking water supply and sanitation sub-sector in semi-urban and rural areas, starting with the areas where the rates of access to drinking water supply and sanitation are among the lowest in the country.

Thus, the Government preferred to start with the regions deprived of access to drinking water and/or relying on poor quality water sources (marigots, traditional wells, rainfall, etc.) where the current rates of access to drinking water in 2017 are very low. These are: Borkou (19%, population: 120,104), Ennedi (8%, population: 77,795), Tibesti (5%, population: 32,704), Logone Oriental (27%, population: 1,026,242) and Logone Occidental (16%, population: 907,338) regions .

Approximately 70% of the populations in these provinces practice open defecation (ODD). These people may have enormous difficulty obtaining drinking water and water for their livestock. It is said that "Water is life". Providing drinking water to a population is already reducing the health risks to which these beneficiaries are exposed if they do not have access to quality drinking water. According to several studies, thousands of people, especially children, die every year from diseases caused by water that is not fit for human consumption. Chad, having taken the weight of this need, has developed a Water and Sanitation Master Plan to provide a supply of drinking water and sanitation to the Chadian population. This feat has led to progress in the execution of water supply projects.

Thus, hydraulic boreholes, water towers or water storage infrastructures as well as standpipes allowing the withdrawal of water necessary for drinking, preparing, cooking food or any other domestic use.

Drinking water must be irreproachable at all levels, especially from a hygienic point of view. This is a matter of public health. This is to avoid health risks related to the presence of infectious agents, toxic chemicals or radiological hazards. Thus, children no longer have to die from suspected cholera, acute watery diarrhea, bloody diarrhea, acute flaccid paralysis, acute respiratory infections, neonatal tetanus, suspected malaria, etc. These are the benefits that the construction of water supply infrastructure addresses.

Since the great drought of 1972/73, the Sahel has been confronted with selective mortality of woody plants with spatio-temporal variations in the level of herbaceous forage.

CES/DRS measures have several aims: (i) improved water management, (ii) increased productivity of agricultural, forestry and pastoral areas and (iii) sustainable management in environmental, social and economic terms. The objectives at the level of the beneficiaries are an improvement of food security thanks to a securing, increase and diversification of the production, which allows them to better subsist

during the lean season. Income is more diversified and increases, which has an impact on poverty reduction. On the social level, they aim to improve the organization and capacities of rural populations as well as to promote rational use and prevent conflicts over natural resources. They contribute to the raising of water tables and facilitate access to water for the population and livestock. Environmentally, they improve the ecology of developed areas by protecting land from erosion, increasing fertility and preserving biodiversity. Thus, SWC/RSD measures stabilize people's livelihoods, reduce their vulnerability to external shocks such as climate change, and contribute to building resilience. These are the benefits of soil and water conservation.

|

Groundwater monitoring and groundwater data acquisition are prerequisites for any effective management of groundwater resources, both in terms of quality and availability of the resource itself. Well-designed monitoring systems are capable of providing vital information about the aquifer.

The exploitable reserves at the national level are considerable; they are between 260 billion and 550 billion m³ of water for relatively low drawdowns of the piezometric surface

Before building a water catchment, in-depth hydrogeological studies are carried out.

In rural areas, in 2000, they were estimated at 20 liters/inhabitant/day, whereas consumption in urban areas can rise to 80 liters/inhabitant/day and 35 liters/inhabitant/day in semi-urban areas. Drinking water needs were estimated in 2000 at 80 million m³, mainly from groundwater.

The evaluation of groundwater is carried out since 2012 by the ResEAU project funded by the Swiss Cooperation.

7) innovativeness, sustainability and potential for scaling up.

As outlined at the PIF stage, the main innovation and potential for scaling up lies in the basic approach of this project ? notably creating a replicable model for mainstreaming climate change risk and vulnerability in arid areas to be used at a national level. This is facilitated through an innovative multifaceted approach, notably institutional change (Component 1), a dual approach in target areas of infrastructure provision (e.g. drinking water access) and awareness raising (Component 2), and the development of a reliable and targeted water and climate monitoring and early warning system using technology, capacity building and awareness raising (Component 3). Furthermore, certain elements of the project (e.g. infrastructure development) is already tried and tested, ensuring that some of the scaling up

potential is practically foolproof. Other elements ? as the conservation techniques and training ? will benefit from an in-depth gap analysis, strategy development and M&E program, ensuring a thorough and practical documentation which can be referred to for further deployment in the provinces.

The sustainability of the project is crucial and depends on the ability of the project to strengthen institutions and ensure its investment and ownership, during and after the project, in order to maintain the DWSS systems as well as the Hydromet systems. While financial sustainability will depend on government budgets, other safeguards have been put into place:

- ? Strengthening institutional capacity: institutional capacity will need to be looked at on multiple levels ? local up to national, communities, private sector, CSOs, etc. WASH training will be done at the local and national levels. Importantly, youth participation will be encouraged to further ensure sustainability.
- ? Systems strengthening with sustainable funding for post-construction support: Part of the project design involves differentiated tiers tariff studies as the creation and collection of tariffs was raised as a concern. This is crucial as these tariffs will directly benefit local communities and the maintenance of their infrastructure.
- ? Strengthening the representation of water user interests in watersheds and local management platforms: CSOs will be encouraged and promotes to participate in the resource protection plan development.
- ? Strengthening civil society organizations? participation: Local communities will be involved in site selection, WASH committee establishment, key monitoring and operational data collection, and equipment safety.
- ? Strengthening the management, monitoring of private sector assets and supply chains for rural DWS: Sub-project memoranda of understanding will be signed to ensure asset management.
- ? Strengthening the operation and maintenance of meteorological, groundwater and water quality monitoring systems: such systems require technical and precise maintenance and associated workforce. As such a long-term strategy for the operation and management of these information systems will be developed.

[1] World Bank Group. Chad ? Climate Change Projections. *Climate Change Knowledge Portal*. Date accessed: 03/2020.
<https://climateknowledgeportal.worldbank.org/country/chad/climate-data-projections>

[2] Source:<https://gain.nd.edu/> consulted on 25/04/19

[3] <http://adaptation-undp.org/projects/community-based-climate-risks-management-chad>, accessed July 7, 2017

1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

The intervention areas are located in the north of Chad, in the Borku, Ennedi, Tibetsi province, and two provinces in the South: Western Logona and Eastern Logones. The project's specific intervention sites were identified by the Government of Chad during the previous phase of PAEPA SU MR. Thus, all the mandatory studies prior to implementation - in particular the technical feasibility studies (e.g. network plans) and environmental and social impact studies ? have already been carried out. The requested GEF funds come to complement investments already made.

Project Map

The project's intervention sites were identified by the Government of Chad during the previous phase of PAEPA SU MR. These sites were chosen through a consultative process, and all of the technical feasibility studies (e.g. network plans) and associated environmental and social impact studies have already been carried out.

The map identifies the location of each of the locations where GEF funding will be allocated, notably for the DWS systems, details for which are given in Table 1.

The sites are located in 5 provinces which currently present the lowest drinking water access in the country: Eastern Logone (27%); Western Logone (16%); Borkou (19%); Ennedi West (8%); Tibesti (5%) (Department of Drinking Water Supply, 2017).

The entire population of these districts are considered as beneficiaries; using the INSEED projections based on the 2009 Demographic and Household survey, this amounts to approximately 2,164,183 in 2017- 50.7% of these beneficiaries are women.

Descriptions of each of these provinces can be found below, starting by the three provinces in the North of Chad, and followed by those in the South.

Borku Province

Geography: The Borku Province has an area of 236,000 km² and covers 18.38% of the national territory.

Climate: This province is known for its extreme climatic conditions: there can be no annual rainfall, low humidity and very high temperatures.

Water resources: Only the important groundwater resources of Borku allow to engage in agricultural practices: there are no rainfed crops. Irrigated agriculture thanks to the groundwater resources of the Borkou depression, allows it to satisfy the food needs of local populations and export market gardening products, grapes, olives, figs, dates, to other provinces. Access to drinking water in the majority of villages is a worrying issue, with only 16% of the population served.

Socio-economic aspects: The Province has almost no infrastructure (schools; water, sanitation, etc.). The Province exports agricultural products to domestic markets and neighbouring countries.

Ennedi West

Geography: The Province of Ennedi West is subdivided into two Departments: Fada (capital cities: Fada) and Mourtdcha (capital city of Kala't). This Province has an area of 34,824 km² and an estimated population of 69,000 inhabitants in seven sub-prefectures.

Rainfall and vegetation: Low rainfall (0 to 100mm per year) increases desertification. The vegetation is sparse but the existence of several oases in its northern part, where water is available on the surface and underground, allows the exploitation of crops (date palm and market gardening).

Socio-economy: The Province of Ennedi West is a breeding area where all species of domestic animals except pigs are raised. Insufficient water and grazing conditions lead pastoralists to move to the Archei area (the fauna reserve in Fada/Arch'i or those still in the works, such as Ouadi Chile and Aga Dib?) and Torboul. This displacement puts pressure on resources. The Province has some infrastructure, in particular for the DWS (water towers and boreholes).

Tibesti Province

Geography: The Tibesti Province is one of the largest in the country with an area of about 200,000 km² or 1/6 of the national area. It borders two countries: Libya in the north and Niger in the west. The population of the Province is estimated at more than 41,000 inhabitants.

Climate: The climate is classified as arid desert in the whole Province. Rainfall is very low or non-existent.

Water resources: Tibesti Province has important water resources and irrigable land estimated at 284,103 ha.

Socio-economic aspects: Agricultural practices are centred around oases that provide spring water. The Province is also favourable to cultivating crops which thrive in Mediterranean and tropical climates. The main types of crops, traditionally irrigated through *chadouf*, are market gardening, arboriculture and cereal cultivation. Tibesti Province has important mineral resources (gold, uranium, oil), but also therapeutic water sources renowned for curing certain diseases.

Western Logone

Geography: The Province of the Western Logone is located in the south of the country, it borders Cameroon and is divided into 4 Departments: Dodge, Lake Wey, Gu?ni and Ngourkosso. It has 21 Sub-Prefectures.

Climate: The province is characterized by relative humidity and has a Sudanese climate. Precipitation varies from 900 to 1200 mm/year and is spread over two seasons:

? rainy season from May to October characterized by heavy rainfall;

? dry season from November to the end of April.

Vegetation: It is mainly composed of savannah or wooded savannah. Most of them include classified forest formations (D?li, Koutou).

Eastern Logone

Geography: Located in southern Chad, the Province of Eastern Logone covers an area of 28,035 km² and has a density of 33 inhabitants/km², with 51.28% of women and 80% of young people. It is composed of 6 departments, 23 sub-prefectures, 23 municipalities, 42 cantons and 1324 villages.

Climate: The Province of Logone Oriental has a transitional climate between Sudano-Sahelian and Sudano-Guinean characterized by an average rainfall ranging between 800 and more than 1200 mm (for the department of Nya-Pend?) and temperatures between 26°C and 31°C. The Province is characterized by a rainy season of 5 to 6 months (between May and October) and a dry season of 6 to 7 months.

Socio-economic aspects: At the border, the main food crop is cassava. Further north, millet and sorghum are the main sources of subsistence. Commercial cotton and groundnut crops are concentrated around the city of Doba.^[1] Oil fields have been exploited via a 1,070 km-long pipeline commissioned in 2003 that connects the region to the Cameroonian coast at Kribi. However, access to safe drinking water and sanitation facilities remains insufficient. In addition, there are low literacy rates, waterborne diseases, land conflicts and conflicts between farmers and herders.

Intervention sites of the project – Location of the 34 identified villages in which DWS systems will be built

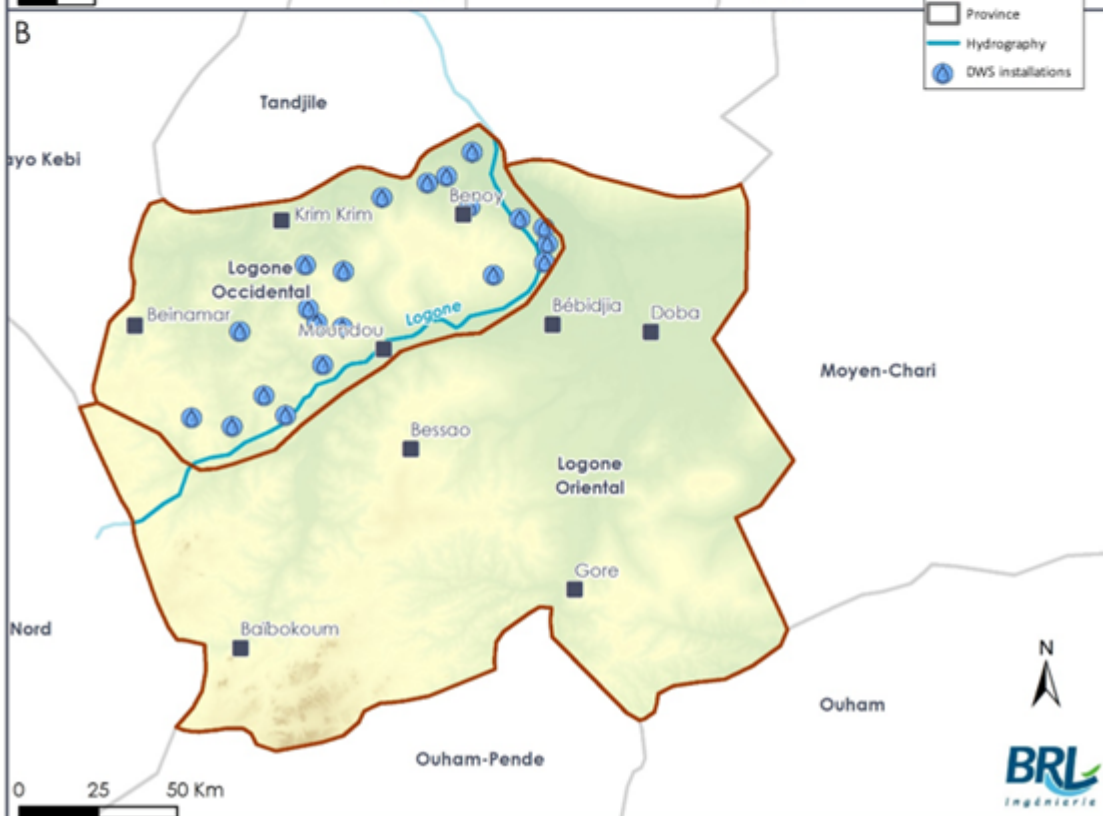
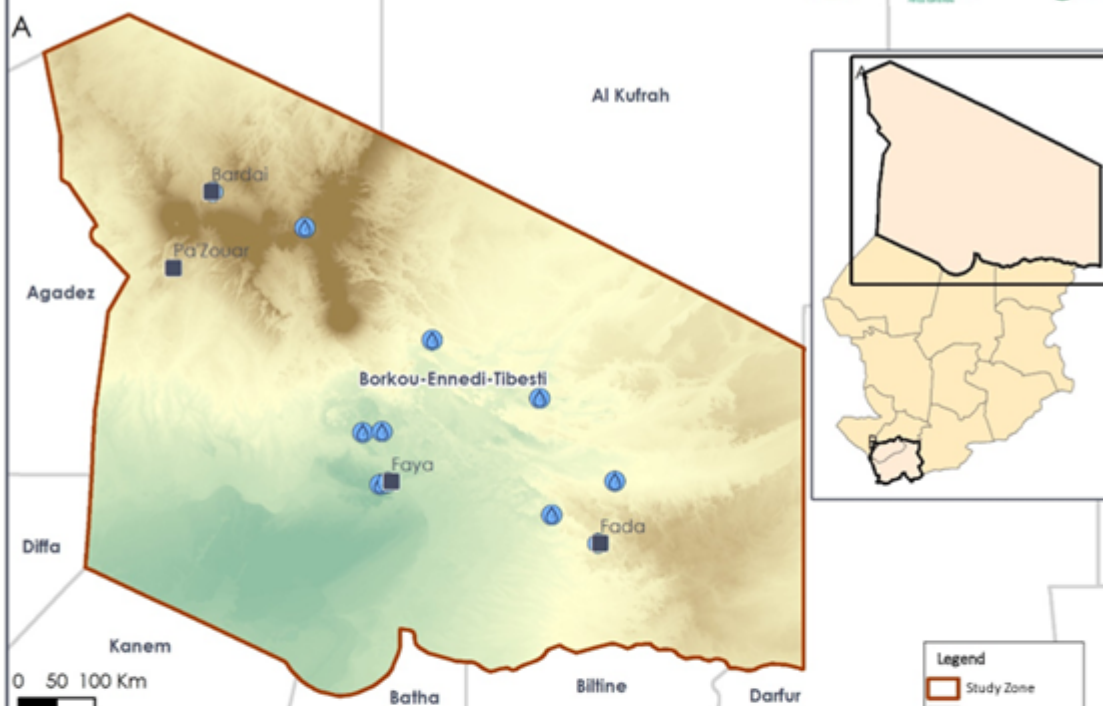


Table 1: Main characteristics of the DWS funded by the GEF

| Areas serviced | Province | Water tower capacity (m3) | Pumping station | Network linear (m) | Fountain Terminals | Sanitation (latrines) | Piezometers |
|---|----------------|---------------------------|-----------------|--------------------|--------------------|--|-------------|
| Dodinda 1 and 2 | Western Logone | 100 | 1 | 2045 | 14 | 60 (distributed in throughout Western Logone intervention area) | |
| Lolo | Western Logone | 50 | 1 | 3489 | 7 | | |
| Kana and Neighborhoods | Western Logone | 100 | 1 | 3044 | 10 | | |
| Kana Mad? | Western Logone | 30 | 1 | 1637 | 3 | | |
| Deli | Western Logone | 100 | 1 | 5472 | 14 | | |
| Goundeye 1 and 2, Barbo, Kere | Western Logone | 50 | 1 | 4047 | 6 | | |
| Doman 1 and 2 | Western Logone | 30 | 1 | 2498 | 4 | | |
| Dono, Begreu, Mainani, Bagtchama | Western Logone | 30 | 1 | 2657 | 4 | | |
| Mendoubadou | Western Logone | 50 | 1 | 2767 | 8 | | |
| Massa 2-3-4 | Western Logone | 50 | 1 | 2233 | 7 | | |
| Doiti and Bendedo | Western Logone | 30 | 1 | 2159 | 6 | | |
| Bao | Western Logone | 50 | 1 | 4254 | 7 | | |
| Andji | Western Logone | 100 | 1 | 3553 | 11 | | |
| Beri, Baikoro, Namti | Western Logone | 50 | 1 | 2766 | 6 | | |

| | | | | | | | |
|---|----------------|-----|---|------|----|---|---|
| Moussoum 1 and 2, Ngara Moussoum | Western Logone | 50 | 1 | 4802 | 6 | | |
| Saar Gogne | Western Logone | 50 | 1 | 2831 | 6 | | |
| Central Sawa, Sawa gogo, Beala, Guelmare, Dosaw, Guelkoura | Western Logone | 50 | 1 | 3224 | 8 | | |
| Pius 1 and 2 | Western Logone | 100 | 1 | 3403 | 11 | | |
| Bekiri | Western Logone | 100 | 1 | 2318 | 8 | | |
| Ndouh 1 and 2 | Western Logone | 100 | 1 | 3094 | 11 | | |
| Nama | Western Logone | 50 | 1 | 3606 | 6 | | |
| Amoul | Borku | 50 | 1 | 3645 | 7 | 2 | |
| Koukourou, Faya | Borku | 30 | 1 | 2591 | 4 | 3 | 2 |
| Kirdimi | Borku | 50 | 1 | 2940 | 6 | 1 | |
| Yarda | Borku | 50 | 1 | 1595 | 6 | 2 | |
| Yebibou | Borku | 40 | 1 | 2086 | 5 | 1 | |
| Aumchaloba Goume | Borku | 30 | 1 | 2048 | 3 | | |
| Bardai | Tibesti | 50 | 1 | 3257 | 6 | 3 | 2 |
| Zoumri | Tibesti | 50 | 1 | 3300 | 5 | 2 | |
| Onianga Saker | Ennedi West | 30 | 1 | 1981 | 4 | 1 | |
| Fada | Ennedi West | 100 | 1 | 2443 | 11 | 3 | 2 |

| | | | | | | |
|--------------|----------------|----|---|------|---|---|
| Weyi | Ennedi West | 30 | 1 | 1060 | 3 | 1 |
| Gouro | Ennedi West | 50 | 1 | 2093 | 6 | |
| Teby | Ennedi West | 30 | 1 | 1388 | 3 | 1 |

[1] Republic of Chad, "Technical consultation for the validation of 2017/2018 forecast production and 2016/2017 ex-post cereal and food balances and 2017/2018 forecast production in the CILSS and West African countries" (Bammako (Mali), November 2017).

[1] Republic of Chad, "Technical consultation for the validation of 2017/2018 forecast production and 2016/2017 ex-post cereal and food balances and 2017/2018 forecast production in the CILSS and West African countries" (Bammako (Mali), November 2017).

1c. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Civil Society Organizations Yes

Indigenous Peoples and Local Communities Yes

Private Sector Entities Yes

If none of the above, please explain why:

Please provide the Stakeholder Engagement Plan or equivalent assessment.

During the Project Preparation phase, inception, monitoring and validation workshops were organised in order to ensure the full participation of stakeholders in the design and preparation of the project. In parallel, local stakeholders were consulted in on-site focus groups in the Logones provinces, in order to present and discuss objectives, activities and local needs/interest in the project; these discussion groups were at times sub-divided in order to gather more targeted information from vulnerable groups (e.g. women). Further bilateral discussions with key stakeholders were also held in order to fully understand the baseline.

The project is undertaken in close collaboration with a wide range of stakeholders, including local communities, provincial and national agencies and ministries, civil society organizations, national and international organizations of the Chadian state. This collaboration is effective following Phase I of PAEPA SU MR, and is constantly being strengthened through individual consultations.

The PPG launch, monitoring and validation workshops were organized to ensure the active participation of all stakeholders in the design and preparation of the project, which is essential to enable national stakeholders to take ownership of the projects.

Local stakeholders also participated in the design of the project by organizing on-site focus groups to discuss the project's objectives and activities and assess their interest in the project. The project management team will ensure that this direct involvement of national and local stakeholders continues throughout the implementation phase of the project. To facilitate ongoing engagement, a Memorandum of Understanding will be signed between MEWF and each governmental and/or non-governmental institution that will substantially participate in the implementation of the project.

The civil society stakeholders affected and concerned by the project are: traditional authorities (neighbourhood chief, village or township chief), religious authorities (priests, imam and pastors), national and international NGOs and women's associations or cooperatives, and producers' associations in the project intervention zone.

- ? Engagement or mobilization will aim to provide stakeholders directly affected by the project, including local communities, and interested stakeholders with access to information that is timely, relevant, understandable, culturally appropriate, and free from manipulation, interference, coercion, and intimidation.
- ? Stakeholder participation will include: stakeholder identification and analysis; stakeholder engagement planning; information disclosure; consultation and

participation; complaint management mechanism and ongoing reporting to relevant stakeholders.

The participation of local, national and international non-governmental organizations (NGOs) will be important for the implementation of SEP throughout the life cycle of the project. These may include organizations working directly in the agriculture and environment sector, as well as in other related sectors.

All the workshops and events that will be organized throughout the project will ensure a great mobilization of the concerned stakeholders and will ensure their visibility through the communication materials that will be distributed and also the press releases of the workshops as well as the press articles that will appear after the workshops and events scheduled within the framework of the project.

More information can be found in the attached document.

[1] CSOs include non-profit, non-state actors such as community-based organizations (CBOs), water users' associations (WUAs) and various non-governmental organizations (NGOs).

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement

Select what role civil society will play in the project:

Consulted only; No

Member of Advisory Body; Contractor; Yes

Co-financier;

Member of project steering committee or equivalent decision-making body; Yes

Executor or co-executor;

Other (Please explain)

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

Please see Annex I for a complete gender analysis, with the summary provided below.

The Chad Constitution and laws clearly outlaw gender discrimination. Furthermore, the 2017 National Gender Policy outlines the Chad government's strategy to ensure that gender inequality and violence be eradicated by 2030, as well as ensure the inclusion of women in decision making-processes and natural resource management.

The gender policy outlines the following strategic orientations:

- systematically integrate the gender dimension into systems at all levels: planning, budgeting, implementation, monitoring and evaluation of development strategies, policies and programmes;
- develop a communication strategy for changing mentalities and behaviours;
- promote equal and equitable access to basic social services and decision-making spheres.

Furthermore, it provides for the creation of three monitoring mechanisms to help it track its progress. Despite these effort, there is still large gender disparities in the country (ranked 158 out of 160 for Gender Inequality Index ? 2017).

Indeed, the gender disaggregated statistics for Chad illustrate this point: education enrollment is higher for boys than for girls, from primary (62% vs 40.7%) all the way through secondary (11% to 3.5%) and tertiary (1.4% to 0.3%). Literacy rates for girls is less than half that of men (23.2% versus 55.7%). There are still clearly gendered division of household responsibility, with women expected to take care of children and domestic chores (including water related chores). Furthermore, in terms of access to land and property, customary practices are still rife and male-oriented. These realities mean that women have less opportunities to participate in income generating activities. For instance, while they participate in agricultural activities and often farm plots (owned by their families), their yield is usually for subsistence purposes rather than for sale. This situation is particularly visible in rural

settings, and with up to 40% of the Chadian population being rural women, this leaves a large portion of the population underserved and underrepresented.

The projects target areas fully illustrate this. While the main economic activities are different in the two target provinces (pastoralism in BET and agriculture in the Logones), in both areas, women and children (mainly girls) are tasked with finding water for domestic consumption, which in some areas can take up to six hours of their time daily. This results in lower-schooling rates (especially for girls), less time to participate in other socio-economic activities, and also lower representation in decision making bodies.

The project recognizes that reducing gender inequalities and empowering women to participate more fully in society is essential to reduce poverty and achieve the project's objectives. Inherently, the majority of direct beneficiaries in terms of time-saving and increased economic opportunities will be women as water-related tasks are mainly borne by women and children. To capitalize on this freed time, the project will look into realistic and adapted alternative livelihood options in line with the climate resilience objective; 40% of the 3,500 water and sanitation jobs created through this project will be for women. Furthermore, women's participation in decision-making processes and water resource management will be promoted through the participation in training programs (e.g. soil conservation) and water user associations, for instance. It must be noted that there are provisions in the budget and activities for studies to properly assess the options and approaches most likely to work in each specified intervention locations. This will ensure that a rather than using a blanket approach, awareness and training strategies are specifically catered for particular settings and socio-economic environments.

While the project results framework does not include any gender-sensitive indicators, there is provision for including gender-sensitive indicators in the Monitoring and Evaluation Plan. These indicators will not only look at direct beneficiaries but also track the results of the interventions geared towards women empowerment ? for instance participation in training programs, percentage women on water user associations. This will allow to ensure the continuing involvement of women in the water and sanitation sector outside of the temporal scope of the project and can be used to inform future interventions as well as used to track Chad's progress towards gender equality.

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?

Yes

Closing gender gaps in access to and control over natural resources; Yes

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women Yes

Does the project's results framework or logical framework include gender-sensitive indicators?

TBD

4. Private sector engagement

Elaborate on the private sector's engagement in the project, if any.

The large infrastructure component of the project will require full participation of the private sector, not only in terms of supplies and construction of drinking water supply and sanitation infrastructure, but also in terms of the dissemination of best practice guidelines. The objective will be to improve the effective participation of small and medium-sized private sector enterprises (SMEs) in the provision of rural water supply services. This will be aided through the formalization of the relationship between beneficiary communities and the private sector (e.g. Memorandum of Understanding). Furthermore, the private sector will be considered in the development of the institutional capacity building analysis and diagnostic and be eligible for the capacity training in terms of climate resilience (Component 1).

5. Risks to Achieving Project Objectives

Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):

A risk analysis was conducted during the PGG mission, based on consultations with stakeholders. In addition, mainly of the larger scale risks (e.g. external risks) were identified and are provided for in the PAEPA programme. These have been fully incorporated into the GEF component and will also be evaluated at the start of implementation, in order to learn from experience and improve the systems in place. The results are presented in the matrix below.

| Risk and rating | Assessment | Mitigation measure |
|--|------------|---|
| External risks | | |
| Economic and political climate of Chad | High | <p>The lack of transparency and efficiency of public finance management is an ongoing issue. This is only compounded by the low level of trust in the system and corruption allegations. These particular risks have been evaluated in the PAEPA programme.</p> <p>In addition, the GEF component will benefit from the lessons learned and knowledge built from this baseline project.</p> <p>In particular, such risks, previous mitigation efforts and efficiency will be evaluated at the start of the project.</p> |

| | | |
|---|----------|--|
| Procedural/implementation delays due to multiple levels of validation | Moderate | <p>The project will largely benefit from lessons learned from the PAEPA-SU implementation and the PMU will have in place a specific mechanism for validation which will be adapted to include the additional</p> <p>This risk in particular has been heightened due to the Covid-19 pandemic.</p> |
| Technical and operational risks | | |
| High vulnerability to extreme weather events and their associated impacts. Although the project contributes to reducing vulnerability to climate variability, extreme weather events could hinder the progress of the project in all its components, including by limiting access to rural areas. | Moderate | The project will use mapping resources to analyse climate-related vulnerabilities and conduct targeted risk screening for vulnerable sectors of activity to identify risk mitigation options. |
| Reluctance of local institutions to change the status quo and promote the water harvesting sector, which could help to reduce pressures on groundwater | Low | The project will organize ongoing consultation and engagement of stakeholders. It will strengthen user associations and local community groups to empower them to organize water rationing and distribution rules. Choices of sites, sustainable soil and water conservation techniques will be participatory. |
| Availability of insufficient groundwater resources | Low | Past assessments confirm that sufficient groundwater resources are available in and around the project's cities and rural areas. |
| Limited capacity of local and national institutions | Low | The government's capacity is not likely to represent a risk to the project because its political will is strong. Although capacity is limited, efforts will be made to develop the capacity of key institutions to fully participate in the implementation of the project. |

| | | |
|--|---------------|--|
| Slow roll-out of the installation of the DWSS and hydro-meteorological network | Low to Medium | <p>The sites are already chosen, and feasibility studies have been undertaken. Specific risks were evaluated under the PAEPA programme.</p> <p>This will allow for a quick roll-out of the next phases, in particular thanks to support of the PAEPA programme and PMU.</p> <p>However, due to the Covid-19 pandemic, there may be certain bottlenecks related to the procurement of equipment but also the availability of contractors. These are further addressed below</p> |
|--|---------------|--|

COVID-19

|

The rise of the Covid-19 2020 pandemic has raised a new series of risks and opportunities for project; as such, a **Covid-19 action framework** has been devised in order to respond to the new risks but also opportunities arising.

|

Analysis of risks

As an overall approach, the project will ensure that all national guidelines related to the Covid-19 pandemic are adhered to. An additional set of mitigation measures are found below responding to the main risks identified.

|

| Risks | Mitigation measures |
|--|---|
| International and regional consultants, organisations or contractors are not able to travel to Chad in order to undertake key studies/assessments, capacity building activities, and/or infrastructure works | <p>Various possibilities according to the situation:</p> <ul style="list-style-type: none"> - Postpone activities to a later date in the project, when travel is less restricted / more certain - Focus on local expert recruitment ? either working alone, or working in pair with international experts: the local experts carry out the field work, guided by and with the input of international experts at a distance, thereby building capacity of local experts in the process |
| Increased delays for building materials and equipment due to international restrictions and/or increased demand in DWSS supplies | <p>As the feasibility studies and associated plans are already in place, the project management will prioritize the assessment of the supply chain at the start of the project.</p> <p>In addition, thanks to the complementarity with the PAEPA-SU project (incl. same PMU), there will be prior knowledge of the current bottlenecks and barriers in the sector.</p> |

| | |
|--|--|
| Sanitary and health protocols make travel within country and group meetings difficult to organise (e.g. stakeholder consultation and training) | <p>The project will implement adaptive management, and the stakeholder engagement plan will be adjusted, as necessary, to reflect the impacts of COVID-19. Also, many of the project activities and consultations are anticipated to take place in outdoor environments.</p> <p>According to the situation, additional measures could include:</p> <ul style="list-style-type: none"> - Postpone activities to a later date in project, when restrictions are lifted - For national level work (e.g. component 1 and 3), focus on virtual workshops, email communications, etc. - For workshops in communities, find local facilitators and limit group sizes; provide additional sanitary protocols. |
| Changes in co-financing due to changed government/project partner priorities | Co-financing commitments have been confirmed as part of the project development process |

Analysis of opportunities:

The Covid-19 crisis also highlights the importance of reducing the risk of future zoonotic and infectious disease outbreaks. This project in particular includes interventions that will directly contribute to the reduction of this risk within the Chadian context:

- Promotion of IWRM principles, from policy to local level;
- Strengthening of the water sector, in particular in terms of resilience and adaptation from climate change;
- Support of sustainable use and protection of water resources at the community level ? this includes restoration of ecosystems and ecosystem services;

It is key to note that the overall project, particularly component 2 through the provision of DWSS in underserved communities, will directly benefit the fight against Covid-19 and any future zoonotic and infectious disease. Not only will it provide these communities with infrastructure that can dramatically improve the communities health and sanitation, but the awareness raising and communication campaigns can include elements relating to basic hygiene, including hand-washing and sanitation.

6. Institutional Arrangement and Coordination

Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

The project's implementing agency is the African Development Bank (AfDB). The Executing agency is the Ministry of Environment, Water Resources and Fisheries (MEWF), and more specifically the Technical Directorate General in charge of the following technical departments: Drinking Water Supply, Sanitation and Pastoral Hydraulics.

The PMU will work under this Directorate and will be the existing PAEPA SU MR team to ensure smooth transition and consistency with the baseline projects; it is composed of 9 people, covering all the necessary expertise (e.g. water resources, sanitation, gender, environment?). It will be overseen by the existing Technical Monitoring Committee/Steering Committee (TMC). The use of this existing PMU not only ensures that only minimal GEF funds be allocated to project management (<2%), but also that there is a seamless coordination with baseline projects (notably in terms of the geographic complementarity between the PAEPA SU MR WASH infrastructure and the GEF funded activities).

The PMU will rely on two Monitoring and Support Units (one for the north and one for the south) which will be there direct link with the WSUs. The MSU will also work closely and rely Provincial and Local Action Offices for the implementation of activities on the ground. The set-up is illustrated in the schematic below (Figure 4).

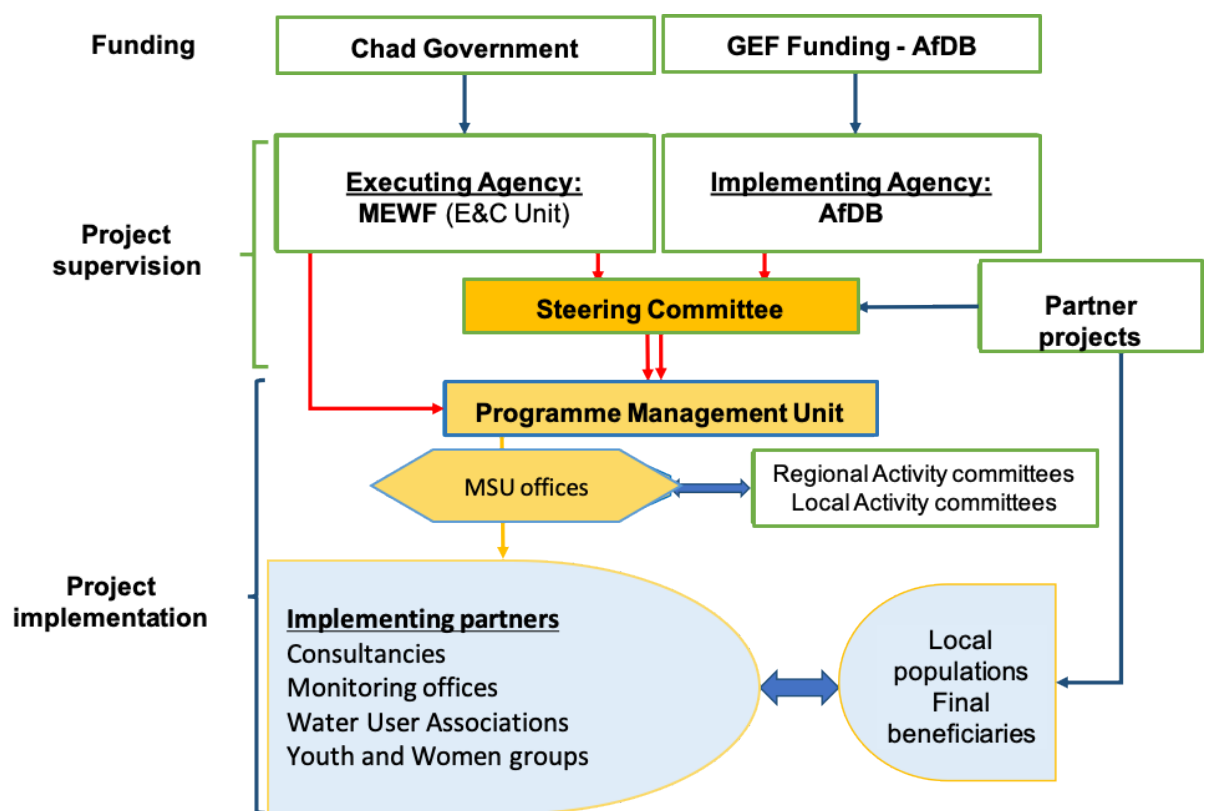


Figure 2: Proposed institutional set-up

The proposed institutional set-up is only one of the ways in which the proposed project is to seamlessly fit with the current baseline projects (i.e. using current structures and teams). Indeed, this is evidenced through the low costs associated to the program support (USD 120,000, or less than 2% of the entire requested funds).

During the identification, preparation and evaluation missions, a consultative process was adopted through meetings and discussions with the Chadian authorities, the TFPs, but especially the management

committees, water users' associations, women's associations, youth associations, CCLS and the private sector in the project's area of action.

Indeed, the implementation of the selected works and activities will allow: (i) the decrease in the prevalence of waterborne diseases especially for children under 5 years of age, from 23.6% in 2017 to 3% in 2030; (ii) the profit margin/operating revenue¹ of the mini-castles increases from 34.08% in 2018 to 54.88% in 2030; (iii) five (05) youth cooperatives and five (05) women's cooperatives are operational; (iv) the time saved on the usual chore of fetching water is devoted to IGAs; (v) the incomes of young people and women are improved by at least 50%; (vi) the gross enrollment rate for girls increases from 88% in 2018 to 98% in 2030; and (vii) at least 80% of the beneficiaries adopt new and positive behaviors in environmental protection, hygiene and sanitation, and climate change adaptation.

|

At the regional level, the existing Regional Action Committee (RAC) was to be strengthened and expanded to include the local elected officials involved in monitoring the project activities. The RAC will be chaired by the governors of the targeted regions and will meet once a quarter. At the level of the prefectural capitals, the Local Action Committee (LAC), expanded to include local elected officials, administrative authorities, regional delegates of the MEEP, presidents of water users' associations (AUEs)/farmers, representatives of CCAGs, youth representatives and women's associations and groups, will be responsible for monitoring activities.

|

A Program Management Unit (PAEPA CS Team reappointed) under the supervision of the DGM, will work closely with the new MEEP Project Implementation Unit on administrative matters. The Bank mission plans to support the establishment of this new unit. The PMU composed of: a coordinator; an administrative, accounting and financial manager; a procurement expert; an accountant, a monitoring and evaluation expert and a management support staff of the operational PAEPA-CS project; will be strengthened with the recruitment of an environmentalist, a sanitation expert and a gender expert. The three Curricula Vitae (CV) per position (environmentalist, gender and sanitation) will be transmitted to the Bank in order to request its opinion on their qualification and experience.

The follow-up of the works and activities will be ensured at the regional level by two (02) antennas and two (02) CCLS. The PMU will ensure the coordination of the two antennas, one of which will be for each pole of activity. The heads of the antennas will work in close collaboration with the deconcentrated services. The experts of the PMU/ PAEPA SU MR will be civil servants of the ministries, who will be assigned according to their field of competence.

Program activities will be monitored at the central level by the Technical Monitoring Committee/Steering Committee (TMC) already in place. The STC is a permanent structure that ensures the steering of all programs and projects in the rural development sector. The STC will have to approve the activity programs, the annual budget, the annual reports and will have to ensure the good progress of the project activities.

7. Consistency with National Priorities

Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

The project is country-led and as such takes into consideration national strategies and plans. In particular, the project is part of the 2017-2021 National Development Plan, which also lays the foundations for Chad's 2030 Goals.

In terms of internationally recognized goals and commitments, it will contribute to the achievement Goal 6 of the SDGs, through measures such as the protection and restoration of water-related ecosystems, as well as looking to improve water quality by reducing water pollution and scarcity. Specifically, it will help reach the drinking water access target of 95% by 2030 (from 52%) and sanitation services access from 16% to 50% in 2040.

Additionally, the project is in line with the INDC of Chad, as it targets some of the recognized target areas (BET), and includes measures to improve production techniques, as well as improving climate change risk dissemination and management. Furthermore, the measures proposed by the project are directly in line with those proposed in Chad's National Action Plan for Adaptation to Climate Change:

Table 5: Alignment of key measures with Chad's NAPA

| Measure (Project Component) | NAPA priority |
|---|--|
| Integration of climate change adaptation into the updated Master Plan for Water and Sanitation (Component 1) | NAPA 8 Project: National Observatory on Climate Change Adaptation Policies |
| Strengthening the capacity of the hydrometeorological system to provide more effective and targeted climate information, including early warnings. Also includes improving the water quality management network (Component 3) | NAPA 7 Project: Improving the quality of seasonal forecasts for precipitation and surface water flow and their integration into a comprehensive vulnerability strategy |
| Improve monitoring and evaluation and adaptive management (Component 3) | NAPA 4 project: Improving information, education and communication for climate adaptation |
| Improved access to safe water supply and sanitation for vulnerable communities in disaster-prone areas and increased community awareness of the health impacts of climate change (Component 2 / Component 4) | NAPA 10 project: reducing people's vulnerability to climate change / risk management |
| Reducing watershed degradation and projecting water sources (Component 2) | NAPA 5 project: Construction of soil protection and preservation infrastructure for the development of agricultural activities |

The project also comes to strengthen the current NAP (UNDP/GEF), which also incorporates 5 of the priority areas from the 2010 NAPA. These include:

- ? Priority Action 4 on information, education and communication on climate change adaptation;
- ? Priority Action 6 on improving intercommunity grazing areas;
- ? Priority Action 7, on improving the forecasting of seasonal rains and surface water flows;
- ? Priority Action 8 on the creation of an observatory of climate change adaptation policies, and
- ? Priority Action 10 on the management of climate risks.

Both focus on the similar priority areas, yet this current funding is more focused on the water sub-sector. As the number one priority of the NAPA is listed as the improvement of water infrastructure in rural Chad, the proposed project delivers the necessary focus to help reach this target, all while supporting the more general efforts of the NAP (which does not focus solely on the water subsector).

8. Knowledge Management

Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.

Knowledge management and communication are essential to this project. While infrastructure takes up a considerable part of the budget, the remaining is mainly allocated to the collection, analysis and dissemination of knowledge (approx. 608,000 or 7% of the budget). It is through knowledge management and its dissemination that there will be value added to these infrastructure - whether at the national level with the updating of the WSMP and training of water sector professionals, or through climate change awareness raising in local communities. Within each component, there are aspects of knowledge management and communication:

Component 1: In order to ensure the adoption of the new WSMP by the private sector and water and sanitation stakeholders, technical guides will be produced for water managers and major developers (Year 1, USD 30,000). In addition, twenty water professionals will be trained in order to help increase Chad's knowledge and institutional capacity (USD 37,000 spread over the 4 years).

Component 2: While the heart of this component is the installation of DWSS infrastructure, there are important climate change awareness raising and the dissemination of soil conservation practices in the intervention areas in order to ensure the sustainability of the water resources and associated infrastructure (USD 68,000 for the two first years of the project). Importantly, there will be a study prior to the deployment of these activities in order to best tailor the methods of dissemination.

Component 3: Like component 2, much of the activities and outcomes are focused on the material needs (e.g. piezometer, laboratory equipment). Nevertheless, there is also provisions for the dissemination of the data collected, in order for it to become of use to the local populations, notably in terms of increasing their preparedness to extreme weather events. As such, a strategy regarding the centralization and dissemination of the data will be established (years 2 and 3, USD 75,000), and funds are allocated to the production and dissemination of weather and water quality data from year 2 onwards (USD 60,000 per year). In addition, there will also be a training aspect, to ensure that the technical knowhow for managing and operating the system is available in country (year 2, USD 10,000).

Component 4: Knowledge management is at the core of component 4 of the project. The main activity involves the compilation of best practices on applicable technologies for dissemination and replication by partners, and will be undertaken at during the second half of year one, and the first half of year 4 (USD 20,000 budgeted for each period). It will be based on the lessons learned during the installation of the DWSS infrastructure, as well as feedback from the training activities of Component 2.

In parallel to the specifics of each component, knowledge management and communication will need to be managed internally in order to ensure the smooth implementation in the two intervention areas of the project, and well as externally, taking into consideration the most efficient methods of data gathering and dissemination for each stakeholder. In terms on internal knowledge management, there will be a need to ensure that key stakeholders have access to knowledge regarding project implementation, as well as ensure that their individual know-how is informing the process. External knowledge management will aim to ensure that achievements and lessons learned are disseminated from the local to national level. Some of the tools utilized will be meetings, public awareness campaigns (e.g. brochures and billboards), training, the M&E reports. Additional detail on communication and knowledge management, both internal and external ? notably the full list of tools ? is further developed in section 4.8 of the project document.

9. Monitoring and Evaluation

Describe the budgeted M and E plan

The monitoring and evaluation plan is in accordance with the AfDB and GEF guidelines. The PAEPA SU MR Monitoring and Coordination Unit will be responsible for the M&E activities throughout the implementation. The table below describes all of the M&E activities and associated budget.

Table 4: Summary of the M&E activities and their allocated GEF-funding

| M&E Activity | Description | Frequency | Budget - GEF funded (USD) |
|-------------------------------|---|---|---------------------------|
| Inception workshop and report | The inception workshop brings together the stakeholders involved in the project and the inception report. It provides an opportunity and means to finalize preparations for the implementation of the proposed project, including the formulation of the first annual work plan, details of stakeholder roles and responsibilities, and reporting and monitoring requirements. Given the consultation process at PPG, only minor adjustments are planned. | Within 2 months of the project kick-off | - |

| | | | |
|---|---|--|--------|
| Baseline study - Definition of the monitoring and evaluation system | The project's logical framework - in particular the reference level of SMART indicators - will be refined if necessary. | At the start of the project | 10 000 |
| Implementation of a monitoring and evaluation system | The project's logical results framework includes SMART indicators for each expected result as well as medium- and end-of-project targets. These indicators will be the main tools for assessing the progress of project implementation and the achievement of project results. Means of verifying the progress of the results and the implementation of the project will be carried out throughout the implementation period. | Data collected throughout the project | 60 000 |
| Quarterly progress reports (PMU to AfDB) | The PMU will prepare a summary of the substantial and technical progress of the project towards achieving its objectives. The summaries will be reviewed and approved by the AfDB before being sent to the AfDB Project Coordinator. | Quarterly | - |
| Annual project report | The annual project report covers the evaluation of the advance on the project's outputs and outcomes, key achievements, evidence of success, constraints, lessons learned and recommendations, as well as the overall evaluation of the project. The annual progress report will be prepared by the Project Coordinator after consultation with relevant stakeholders and will be submitted to the AfDB | Annual | - |
| Evaluation by the Steering Committee | The members of the Steering Committee will meet twice a year to assess the progress of the project and take decisions on recommendations to improve the design and implementation of the project in order to achieve the expected results. | Twice a year | |
| Independent external mid-term evaluation | A mid-term evaluation of the project will be carried out at the beginning of the third year of implementation, focusing on relevance, results (effectiveness, efficiency and timeliness), issues requiring decisions and actions and early lessons learned in project design, implementation and management | Half-way through project implementation | 60,000 |
| Independent external evaluation at the end of the project | A final evaluation, which takes place three months before the last TPR meeting, focuses on the same issues as the mid-term evaluation but also covers impact, sustainability and monitoring recommendations, including the contribution to capacity building and the achievement of global environmental objectives. | At least 3 months before the end of project implementation | 60,000 |

| | | | |
|--|--|---|----------------|
| Final evaluation report | A final evaluation report will be produced after the project feedback meeting. | At the end of the final evaluation | - |
| Financial monitoring reports (PMU to the AfDB) | The PMU will be required to produce financial monitoring reports (FMR) on a quarterly basis. These FRL will be prepared and submitted to the Bank no later than 45 days after the end of each quarter. | Quarterly ? submitted within 45 days of the end of each quarter | - |
| Budget review | Revisions to the project budget will reflect the final expenditures of the previous year, in order to allow for the preparation of a realistic plan for the provision of inputs for the current year. Significant revisions are expected to be approved by the AfDB/GEF Coordinator to ensure consistency with the GEF principle of the additional eligibility criteria and the GEF before being approved. | At least annually / as required | - |
| Financial audit | A financial audit will be carried out each year. The PMU will develop and implement a strategy to address the audit recommendations after each audit | Annual | |
| Total | | | 190,000 |

10. Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

The main socio-economic benefits from this project will originate from the local drinking water and sanitation infrastructure put into place. The socio-economic benefits of access to clean and reliable drinking water supply and sanitation are significant and wide-ranging in the 34 communities benefiting from the installation of the water supply systems. One of the main benefits is the impact on public health as it will greatly reduce the prevalence of water-borne diseases; this will reduce the stress on medical infrastructure, as well as decrease mortality and generally improve the greater population's health and therefore economic opportunity. With the cost of poor WASH services being estimated at 2.1% of the GDP, improvements, especially in rural areas which are well below the national average, will greatly improve the health, and by extension, the economic perspective of Chadian populations. These benefits will doubly benefit women and children, who tend to be responsible of all water related chores - including retrieving water for domestic use. By improving access to drinking water, time that was previously allocated to these chores can be used for other productive activities and/or social involvement will help improve women's economic opportunities and social involvement. It will also decrease the likelihood of girls from dropping out of school; this will be further enhanced by access to sanitation facilities.

The coupling DWSS with soil and water conservation training and awareness raising in the communities, ensures that these gains in water access will be sustainable and climate resilient: such efforts will help restore and sustain ecological integrity of the landscape by halting and preventing land degradation, effectively safeguarding environmental resources for future generations (target of 1,100 ha of restored land). These efforts, alongside better human waste management, will help improve the quality and sustainability of the aquifers. Such efforts will provide resilience to the communities in the face of climate change impacts, notably with the increase in droughts and falling aquifer levels.

Thanks to the capacity building aspects of the project, permanent water and sanitation jobs will be created (3,500), and the construction work from Component 2 will generate both temporary employment for local communities as well as revenue for the private sector. With the Chadian labor market being dominated by informal activities, this offers the opportunity of creating stable job opportunities. The specific focus on climate change, including the soil and water conservation practices, will be promoted throughout the local communities, and further afield through a trainer of trainer approach which will help mainstream climate change awareness, as well as provide a bottom-up effort of integration of climate change awareness and adaptation.

These local efforts will be coupled with national level efforts, notably through Component 1 and 3. Both Component 1 and Component 3 offer upskilling to professionals within the water and climate sector, focusing on how to integrate climate risks into the sector, ensuring both a sustainability in their skills in the face of climate change, but also the mainstreaming of climate change adaptation and resilience into the water sector. The strengthening climate, meteorological and water monitoring network and associated early warning system feeds into promoting adaptation and resilience to increased extreme events associated with climate change at a local level, but also at a national level by adding to a growing national network of infrastructure and expertise. Finally, the integration of climate change adaptations practices in the new WSMP will further mainstreaming of climate change awareness into the water sector, promoting new opportunities for jobs, skills and expertise.

11. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification*

| PIF | CEO Endorsement/Approval | MTR | TE |
|-----------------|-----------------------------|-----|----|
| Medium/Moderate | | | |

Measures to address identified risks and impacts

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

RISK ANALYSIS AND RISK MANAGEMENT MEASURES

Gender mainstreaming

Chad's Constitution and laws prohibit gender discrimination, but the implementation of these provisions in the water and sanitation sector remains a challenge [1]. Reducing gender inequalities and empowering women to participate more fully in society is therefore essential to reduce poverty and achieve the project's objectives. The project will ensure that all key results take into account gender-specific concerns, such as links between women and children and natural disasters and differences in access to key infrastructure between men and women. In particular, gender issues will be integrated into the design of all types of interventions to be implemented by government and communities.

In line with the GEF Gender Action Plan and the AfDB Strategy 2013-2022, the project will ensure that climate change risk management solutions take into account gender issues. This will be done by:

- ? a gender-specific analysis during vulnerability assessments;
- ? gender-responsive budgeting, so that the project includes a budget that includes specific activities (such as livelihood options) to meet women's adaptation needs;
- ? the inclusion of women's perspectives in the development and implementation of the project.

Gender indicators will be included in the monitoring and evaluation system. In addition to collecting results such as the number of women beneficiaries, the project will take into account results that offer opportunities for women's empowerment. The examples of interventions will include objectives for:

- ? women's participation and access to the benefits of the project (participation in training programmes and beneficiary groups such as the water users' group);
- ? women representatives in project committees or local associations; ? the number or percentage of female staff.

The activities of this project focus mainly on improving public health (especially child health) as a contribution to national objectives in SDG 6. About 100,000 people are expected to benefit directly from improved water supply and sanitation. By improving health, they in turn will improve the quality of life of the Chadian population, especially women and children. In addition to bearing the burden of waterborne diseases, women are generally responsible for water collection and, if sufficient access

points are available near the home, time will be freed for productive activities and family well-being. Children, especially girls, will have more time for school work and social assistance activities. In addition, the provision of sanitation facilities in schools will improve girls' enrolment and attendance rates.

Social guarantees and considerations towards indigenous peoples

Southern Chad is home to pastoral groups and transhumant indigenous ethnic minorities. The AfDB's integrated safeguards system recognizes that some communities are vulnerable simply because their social or cultural identity is distinct from that of the main or dominant society. The determination of project impacts was based on the assumption that the proposed GEF//LDCF interventions will not cause unintentional displacement of people and will not have a negative impact on protected areas and indigenous peoples.

During the design of the project, social risks, vulnerabilities and impacts (including rights of access to natural resources) on indigenous peoples and ethnic minorities that could undermine the project's objectives or reduce its benefits were sought. At this stage, no specific risks have been identified.

The private sector will play a key role in the design and implementation of construction activities, including the provision of goods for DWSS infrastructure, as well as in the dissemination of good practice guidelines. The objective will be to improve the effective participation of small and medium-sized private sector enterprises (SMEs) in the provision of rural water supply services. Efforts will be made to address the barriers to their participation by addressing: management, information flow, financial constraints, regulatory and technical constraints.

Adaptation to climate change and mitigation

In 2010, Chad's National Action Plan of Adaptation (NAPA) identified the main vulnerabilities to temperature and precipitation changes caused by climate change in the main sectors of the economy, including: agriculture, fisheries, forest resources, freshwater resources, population, transport, industry and human health, but data for its implementation are largely lacking. The GEF/LDCF project focuses on the implementation of NAPA priorities. It is structured around:

- ? reducing people's vulnerability to climate change;
- ? management of risks related to inadequate water supply and sanitation (NAPA 10 project);
- ? improving the quality of seasonal forecasts of rainfall and surface water flow and integrating them into an overall vulnerability strategy (NAPA 7 project);
- ? the integration of climate adaptation into the water and sanitation master plan (NAPA 8 project);
- ? the construction of infrastructure to protect and preserve the soil for the development of agricultural activities (NAPA 5 project).

The activities implemented under this project will introduce approaches that can be replicated in the Sahel. The project will catalyse the production of social and economic benefits and lay the foundations for larger-scale projects through analytical work and skills development.

In summary, the risks to water supply and sanitation in Chad related to climate change are mainly as follows:

- ? the modification of the hydrological regime and therefore of the supply of non-fossil groundwater;
- ? desertification that:
 - ? in the North creates a maintenance and resource management problem by increasing competition for water: groundwater, water bodies, and infrastructure maintenance;
 - ? is likely to accelerate impluvium flows over watersheds and thus also contribute to changing the regime of aquifers;
 - ? can make surface slicks more vulnerable.

It includes the following risk reduction measures that which are solely addressed in this GEF project:

- ? measure and forecast in the short and medium term to anticipate crises; ?
- integrate long-term forecasts into master plans and other policies;
- ? integrate climate change concerns into governance at the:
 - ? investment decisions making level (and therefore sizing);
 - ? level of decisions on resource sharing and institutional arrangements to manage these issues (preferably upstream);
 - ? level of soil management and conservation decisions that contribute to protecting the resource both qualitatively and quantitatively.

GEF/LDCF resources will help to raise community awareness of the consequences of climate change and provide rural towns with access to risk information and early warnings. In addition to improving the quality of life, the formation and creation of WASH committees (with an emphasis on women representation) will empower vulnerable people. Young people will be particularly targeted for training in the operation and maintenance of WASH facilities with mandatory representation on WASH committees. In addition to the benefits to public health and social development, this project is likely to contribute to environmental integrity through improved water management (quantity and quality) and reduced groundwater pollution from human waste.

The integration of climate change risk management principles into the updated WSMP will encourage and lead to the identification of new development priorities and revised plans, as well as the evolution of regulations and enforcement mechanisms. Weather stations, groundwater improvement and water quality monitoring will complement the existing meteorological and hydrological support programs under Agrhymet. Communities will immediately benefit from warnings related to groundwater quality

and aquifer management. Soil and water conservation will increase the resilience of local communities by protecting water sources and aquifers. River basin management could contribute to broader adaptation to climate change.

The risks considered and the proposed mitigation measures to achieve the project objectives are summarized in the table below:

| Risk and rating | Assessment | Mitigation measure |
|---|------------|--|
| High vulnerability to extreme weather events and their associated impacts. Although the project contributes to reducing vulnerability to climate variability, extreme weather events could hinder the progress of the project in all its components, including by limiting access to rural areas. | Moderate | The project will use mapping resources to analyze climate-related vulnerabilities and conduct targeted risk screening for vulnerable sectors of activity to identify risk mitigation options. |
| Reluctance of local institutions to change the status quo and promote the water harvesting sector, which could help to reduce pressures on groundwater | Low | The project will organize ongoing consultation and engagement of stakeholders. It will strengthen user associations and local community groups to empower them to organize water rationing and distribution rules. |
| Availability of insufficient groundwater resources | Low | Past assessments confirm that sufficient groundwater resources are available in and around the project's cities and rural areas. |
| Limited capacity of local and national institutions | Low | The government's capacity is not likely to represent a risk to the project because its political will is strong. Although capacity is limited, efforts will be made to develop the capacity of key institutions to fully participate in the implementation of the project. |

Supporting Documents

Upload available ESS supporting documents.

Title

Module

Submitted

| Title | Module | Submitted |
|--|------------------------|-----------|
| FEM_Tchad_BUDGET | CEO Endorsement ESS | |
| Stakeholder_Engagement_Plan_PAEPA MR SU | CEO Endorsement ESS | |
| Supporting-document-Chad- PAEPASUMR | CEO Endorsement ESS | |
| ESIA_PAEPA_MR_SU_English_GEF | CEO Endorsement ESS | |
| Chad_PAEPA_E&S_English_GEF | CEO Endorsement ESS | |

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Annex A: Project Results Framework

| Strengthening rural and peri-urban resilience to climate change and variability by the provision of gender sensitive water supply and sanitation in Chad | | | | | |
|--|--------------------------------------|------|--------|---|--|
| Expected results | Indicator | Base | Target | Source of verification | Measurement (M) / Risk (R) |
| 1. Mainstreaming Climate adaptation into the National water and sanitation masterplan (WSMP) | | | | | |
| Outcomet Outcome 1.1. Climate adaptation and resilience developed in the water sector from policy level through to capacity. | | | | | |
| 1.1.1. Climate change adaptation practices developed and integrated into the updated Water and Sanitation Masterplan | Update of the WSMP | 0 | 1 | Validation of the new WSMP | R: (i) Inappropriate priorities, (ii) Delays in document preparation, (iii) Low level of stakeholder engagement, (iv) Low implementation capacity at local and institutional levels M: (i) Appropriate capacity to implement identified priority |
| 1.1.2. Development of gender sensitive technical guides for investments resilient to climate variability and change in the water and sanitation sector | Number of technical guides published | 0 | 1 | Evaluation (audit) report, quarterly/annual monitoring report | R: (i) Delays in document preparation (ii) Difficulty in prioritizing studies M: Appropriate capacity to implement identified priority |

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| 1.1.3. Improved institutional capacity to facilitate the integration of gender sensitive climate risks into the water supply and sanitation sector | Number, disaggregated by sex, of water professionals trained | 0 | 40 | Socio-economic and environmental monitoring audit, evaluation reports | R: Low level of cooperation and coordination among stakeholders M: Stakeholder participation at all levels |
| Component 2: Improved access to climate- resilient water supply and sanitation | | | | | |
| Outcome 2.1: Increased reliability and improved quality of water supply | | | | | |
| 2.1.1. Drinking water supply systems (including boreholes, reservoirs and solar energy distribution systems) built for 34 unserved communities. | Number of mini DWSS built Number of women's groups undertaken IGA around the boreholes | 0 | 34 | Evaluation reports, audits, quarterly/annual monitoring reports | R: (i) Delay in the delivery of the works, (ii) lack of ownership of the works, (iii) Divergence between interventions undertaken at national and provincial level, (iv) Divergence between interventions undertaken at national and provincial level M: (i) Contracts with local companies, (ii) regular |
| Outcome 2.2: Sustainable, climate-resilient and community-led water source protection | | | | | |
| 2.2.1. Soil and water conservation (including reforestation activities), on approximately 1100 ha of degraded land | Number of hectares of degraded land restored Number of women involved in reforestation activities Follow-up of the works | 0 ha 0 | 1100 ha 4 | Evaluation report (audit), quarterly/annual monitoring report /PV of acceptance of work | R: Difficulties in involving local stakeholders, mainly women M: Promotion and dissemination of good practices |

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| 2.2.2. Community awareness/capacity-building/support services for soil and water conservation/agroforestry provided | <p>Campaign tracking report</p> <p>Number of women beneficiaries from these services</p> | 0 | 1 | Campaign monitoring report, socio-economic and environmental monitoring audit | <p>R: Lack of involvement of local stakeholders</p> <p>M: Establish appropriate campaigns and include local representatives as trainers (training of trainers)</p> |
| Component 3. Strengthening climate information and early warning systems | | | | | |
| Outcomet 3.1. Groundwater and surface water resources monitoring services provide information that can be used at the local level | | | | | |

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| 3.1.1. Needs-based upgrade of the Logone River basin surface and groundwater monitoring network (including Lai Water Analysis laboratory) and strategy undertaken. | Report on the diagnosis of the weather and groundwater monitoring network | 0 | 1 | Accounting and financial audits, acquisition audits, work acceptance reports | R: (i) Delay in delivery of works, (ii) Limited understanding and commitment to the value of an expanded and representative network of protected areas "M: (i) Contracts with local companies, (ii) regular monitoring of progress by local (WUA) and national (GCC) stakeholders |
| | Report on the data acquisition strategy and the use of information | 0 | 1 | | |
| | Piezometers installed | 0 | 6 | | |
| | Rain gauges installed | 0 | 100 | | |
| | Millimetre scales installed | 0 | 20 | | |
| | Lai laboratory rehabilitated | 0 | 1 | | |
| 3.1.2. Early warning systems that take into account climate, groundwater, the environment and socio-economic information over different | Feasibility study of an early warning system | 0 | 1 | Evaluation reports, audits, quarterly/annual monitoring reports | R: Inappropriate priorities; delays in the preparation of documents M: Appropriate capacity to implement identified priority |
| | Early warning project study | 0 | 1 | | |

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| 3.1.3. At least 20 personnel trained in the maintenance and repair of equipment, including effective techniques for interfacing with existing | Trained technicians desegregated by sex | 0 | 20 | Socio-economic and environmental monitoring audit | R: Lack of involvement of local stakeholders M: Establish appropriate training with people involved in water management |
| 4. Knowledge management, monitoring and evaluation | | | | | |
| Outcomet 4.1. Capitalization and dissemination of best practices from project activities, capacity building initiatives and regulatory developments | | | | | |
| 4.1.1. (i) Best practices on applicable technologies compiled for dissemination and replication by project partners (ii) gender sensitive knowledge based monitoring and evaluation system in place and operational | Reporting and dissemination of gender sensitive best practices and technologies Reporting and gender sensitive M&E notes | 0 0 | 1 1 | Evaluation reports, audits, quarterly/annual monitoring reports | R:(i) Inappropriate priorities; (ii) Delays in the preparation of documents M: Appropriate capacity to implement identified priority assessments and studies |
| 5. Project management | | | | | |
| 5.1 Project Costs and Performance | | | | | |
| 5.1. Project management team in place and functional | Project monitoring report equipment purchase | 0 | 1 | Audits of PAEPA SU MR acquisitions | R: Delays in validation and disbursement of work plan and procurement plans M : Effectiveness of PMU |

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| 5.2. Project evaluation and audit mission carried out | Mid-term evaluation | 0 | 1 | Audits | |
| | Final evaluation | 0 | 1 | | |

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

GEFSEC Comments at PIF Stage:

| Review Criteria Questions | Secretariat Comment at PIF/Work Program Inclusion | AfDB Response to Secretariat comments |
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| Review Criteria Questions | Secretariat Comment at PIF/Work Program Inclusion | AfDB Response to Secretariat comments |
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| <p>1. Is the project/program aligned with the relevant GEF focal area elements in Table A, as defined by the GEF 7 Programming Directions?</p> | <p>GEFSEC, 10/23/2018 - Updates requested. While Table A reflects objectives CCA-1 and CCA-2 without explicitly articulating the objectives, in the text of the body, wherever the objectives are mentioned; they are the GEF-6 LDCF framework objectives.</p> <p>Recommended action: Please update the text in this request to reflect the new GEF-7 LDCF objectives. For example, GEF-7 LDCF Objective 1 is: Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation.</p> | <p>AfDB 25/10/18. Comment noted and addressed in section 1- 4: Consistency with the LDCF eligibility criteria and priorities.</p> <p><u>Section 1-3: Proposed alternative Scenario (LDCF project)</u> The table is updated to reflect alignment of the proposed project activities to the GEF7 Adaptation strategy</p> <p><u>1- 4: Consistency with the LDCF eligibility criteria and priorities</u> The sub section on Consistency with GEF Focal Area objectives has been updated.</p> <p>The project is consistent with the goal of the GEF-7 Adaptation strategy which is to strengthen resilience and reduce vulnerability to the adverse impacts of climate change in developing countries, and support their efforts to enhance adaptive capacity. Within the Focal Area Strategy, this project addresses the three Climate area focal area objectives.</p> <p>? <i>Objective 1: Reduce Vulnerability and Increase Resilience through Innovation and Technology Transfer for Climate Change Adaptation</i> (through enhancing the capacity of hydro-meteorological system for delivery of more effective and targeted of climate information including early warnings). The result area also includes enhancing the water quality management network; improving monitoring and evaluation and adaptive management and improving access to information, together with appropriate training at local and national levels for staff to use that information for effective early warning.</p> <p>? <i>Objective 2: Mainstream Climate Change Adaptation and Resilience for Systemic Impact</i> (through Enhancing access to safe water supply and sanitation among vulnerable communities in disaster prone areas, strengthening community awareness on health impacts due to climate change and through reduction of watershed degradation and water source protection measures)</p> <p>? <i>Objective 3: Foster Enabling Conditions for Effective and Integrated Climate Change Adaptation</i> (enhancing adaptive capacity through updating the national water and sanitation masterplan, to address climate change. Training and awareness raising of climate-resilient Water, Sanitation and Hygiene (WASH)</p> |

| Review Criteria Questions | Secretariat Comment at PIF/Work Program Inclusion | AfDB Response to Secretariat comments |
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| <p>Core indicators</p> <p>6. Are the identified core indicators in Table F calculated using the methodology included in the correspondent Guidelines? (GEF/C.54/11/Rev.01)</p> | <p>GEFSEC, 10/23/2018 - Additional information requested.</p> <p>In line with the Adaptation Program's efforts to align more closely with GEF Trust Fund procedures, we have developed four Core Indicators for PIF-stage (as well as subsequent-stage) submissions to the LDCF and SCCF. These will also contribute to an adaptation section of the GEF Corporate Scorecard. Due to overwhelming demands on the Portal at the moment which preclude our being able to program them in, we would like you to please include a separate brief document (can be just a page) in your GEF-7 LDCF/SCCF PIF submissions to us, titled "Core Indicators".</p> <p>Recommended action: As requested in the email dated 17 October, please upload a very brief document entitled "Core Indicators" onto the portal with the information requested to accompany this submission.</p> | <p>AfDB 25/10/18. Comment noted and addressed. Core LDCF/SCCF Indicators have been added to the submission as attachment "Chad Project LDCF Core Indicators v 25-10-18". They include the following:</p> <p><u>Core Indicator 1: Number of direct beneficiaries (gender-segregated, M/F)</u></p> <p>? Direct beneficiaries 4,787,000 people benefiting from improved climate resilient water supply infrastructure in the semi-arid regions, improved livelihoods and reduced vulnerability to climatic hazards due to new or enhanced early warning systems.</p> <p>? Indirect beneficiaries 2,144,000 people</p> <p>? Proportion of women beneficiaries 50.3%</p> <p>- <u>Core Indicator 2: Number of hectares of land under climate-resilient management</u></p> <p>? 1100 ha under Soil and water conservation/agro forestry/conservation agriculture practices associated with restoration of degraded land along water sources for the climate resilient water supply systems</p> <p>- <u>Core Indicator 3: Number of policies, plans and development frameworks that mainstream climate resilience</u></p> <p>? 1 Updated Chad National Water and Sanitation Masterplan, with mainstreamed Climate Risk Management.</p> <p>- <u>Core Indicator 4: Number of people with enhanced capacity to identify climate risk and/or engage in adaptation measures (gender-segregated, M/F)</u></p> <p>? Capacity of an estimated 40 Water professionals targeting both public and private sector to facilitate integration of climate risks in water supply and sanitation sector built (30%Female)</p> <p>? 20 officers trained to maintain and repair equipment, including cost-effective technologies to interface with existing equipment/software (15% Female)</p> <p>? All the people will be selected by the PMU, following the guidelines of the Steering committee, and based of the results of the Analysis and diagnosis of the sector related to water supply and sanitation (Activity 1.1.3.1).</p> |

| Review Criteria Questions | Secretariat Comment at PIF/Work Program Inclusion | AfDB Response to Secretariat comments |
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| <p>2. Is the baseline scenario or any associated baseline projects appropriately described?</p> | <p>GEFSEC, 10/23/2018 - Clarification requested. While the baseline intervention and the justification of the requested LDCF financing is clearly articulated, some clarifications are requested pertaining to components A and C of the baseline. The Secretariat understands that the AfDB will provide US\$ 13,645,740 as co-financing through its actions implemented under Water Supply and Sanitation in Middle Semi Urban And Rural of 11 towns (2017-2022), PAEPA - SU MR project. The program goal is to improve the quality of life in 11 prefectures in Chad through the provision of water supply and sanitation by 2030. The project addresses drinking water and sanitation needs targeting up to 95% of more than 6 million inhabitants in semi-urban and rural areas of eleven (11) prefectures in North, South and East of Chad, namely: Borkou-Ennedi-Tibesti, Mayo Kebbi, Tandjil?, Logone Oriental, Logone Occidental, Mandoul, Moyen Chari, Salamat and Sila. The baseline investment is structure around 3 components: (A) Drinking water and sanitation infrastructure; (B) Institutional capacity strengthening; and (C) Climate change related activities.</p> <p>Regarding components A and C, the Secretariat would appreciate some clarification regarding how the LDCF financing is additional to the activities being financed under the baseline under each component. Output 2.1.1 seems to duplicate some of the activities already being financed under the baseline (Production well prospecting, scheme design and construction of safe water supply systems (comprising solar powered production boreholes, reservoirs and distribution systems) for 30 unserved areas. It will include interventions to increase access</p> | <p>AfDB 25/10/18. Comment noted and addressed. The scope of the baseline and the LDCF funded projects are clarified below.</p> <p><u>Component A-Development of Drinking Water and Sanitation Infrastructures</u></p> <p>- The scope under component 2-1: Increased reliability and improved quality of water supply (considering climate change induced risks) in targeted areas has been updated.</p> <p>- While the entire project areas includes eleven (11) prefectures in North, South and East of Chad, namely: Borkou-Ennedi-Tibesti, Mayo Kebbi, Tandjil?, Logone Oriental, Logone Occidental, Mandoul, Moyen Chari, Salamat and Sila. The LDCF financing under component A will only address interventions in the prefectures of: Borkou, Ennedi, Tibesti, western Logone and eastern Logone.</p> <p>Activities under Output 2.1.1 are therefore additional to the activities to be financed under the baseline project. The remaining prefectures which include Mayo Kebbi, Tandjil?, Mandoul, Moyen Chari, Salamat and Sila will be covered with financing from the baseline project (AfDB).</p> <p><u>Component C ? Climate Change related activities: (cost = 3, 26 UA million or 7.34%).</u></p> <p>The scope under component 2-2: Reduction of watershed degradation and water source protection has been updated.</p> <p>Under this component, the LDCF financing will mainly contribute towards Outcome 2-2: Soil and water conservation practices undertaken by farmers/youth at selected project sites for improved water source protection in the prefectures which include: Borkou, Ennedi, Tibesti, western Logone and eastern Logone.</p> <p>The remaining prefectures which include Mayo Kebbi, Tandjil?, Mandoul, Moyen Chari, Salamat and Sila will be covered with financing from the baseline project (AfDB).</p> |

| Review Criteria Questions | Secretariat Comment at PIF/Work Program Inclusion | AfDB Response to Secretariat comments |
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| <p>4. Is the project/program aligned with focal area and/or Impact Program strategies?</p> | <p>GEFSEC, 10/23/2018 - Update requested. The submission is in line with CCA-1 and CCA-2, however please refer to Item 1.</p> <p>Recommended Action: Wherever the submission refers to CCA framework objectives, please update to reflect the current programming strategy for adaptation 2018-2022 (for example, on the table in section 1-3 on the alternative scenario; and anywhere the submission refers to consistency with the GEF focal area strategies.</p> | <p>AfDB 25/10/18. Comment noted and addressed.</p> <p>The submission has been updated to reflect the GEF 7 CCA framework objectives. The table under section 1-3 Proposed alternative Scenario (LDCF project) has been updated to indicate the GEF CCA objectives</p> <p>Section 1- 4: Consistency with the LDCF eligibility criteria and priorities, has also been updated and is now consistent with the new GEF 7 LDCF CCA programming directions.</p> |

| Review Criteria Questions | Secretariat Comment at PIF/Work Program Inclusion | AfDB Response to Secretariat comments |
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| <p>5. Is the incremental / additional cost reasoning properly described as per the Guidelines provided in GEF/C.31/12?</p> | <p>GEFSEC, 10/23/2018 - Please see Item 2, which is relevant to the additionality of proposed activities within the context of Components A and C of the baseline project.</p> <p>Recommended Action: Please briefly indicate in the proposal how the activities proposed in this submission are additional specifically pertaining to components A and C of the baseline investment.</p> | <p><u>AfDB 25/10/18. Comment noted and addressed. Section 1-5:</u></p> <p>Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, CBIT and co-financing, strengthened to reflect justifications below.</p> <p>The additionality under the proposed LDCF funded activities is mainly related to baseline Project Component A- Development of Drinking Water and Sanitation Infrastructure.</p> <p>The baseline scenario, describes the 'business as-usual' development of water sources with no consideration of the likely implications of long-term climate change.</p> <p>The alternative scenario to be financed by the LDCF fund describes key outcomes that will be achieved that explicitly address climate change concerns. Components 1 and 2 relate directly to the baseline intervention whilst components 3 and 4 add weather and water resources monitoring and knowledge management to enable efficient, climate-resilient water management.</p> <p>Additionality related to component A therefore include activities related to:</p> <ul style="list-style-type: none"> ? Mainstreaming adaptation into sectoral programmes, through updating of the water supply and sanitation masterplan, development of technical guidelines for climate proofing investments in the water and sanitation sector and building adaptive capacity (outcome 1-1). ? Increasing coverage of water supplies to combat increasing drought. This is mainly through outcome 2-1, on increased reliability and improved quality of water supply (considering climate change induced risks in targeted areas and outcome 2-2. Soil and water conservation practices undertaken by farmers/youth at selected project sites for improved water source protection ? Expansion of adaptive capacity to deal with future and not only current risks, this is mainly through (i) Institutional capacity development to facilitate integration of climate risks in water supply and sanitation sector ? Directly addressing impacts from climate change through improved understanding of groundwater resources in light of persistent drought. This mainly |

| Review Criteria Questions | Secretariat Comment at PIF/Work Program Inclusion | AfDB Response to Secretariat comments |
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| 6. Are the project?/program?s indicative targeted contributions to global environmental benefits (measured through core indicators) reasonable and achievable? Or for adaptation benefits? | GEFSEC, 10/23/2018 - Please see Item 6. | <u>AfDB 25/10/18</u> . Comment noted and addressed. Core LDCF/SCCF Indicators have been added to the submission as attachment ?Chad Project LDCF Core Indicators v 25-10-18?. They are reasonable and achievable |

| Review Criteria Questions | Secretariat Comment at PIF/Work Program Inclusion | AfDB Response to Secretariat comments |
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| Is the institutional arrangement for project/program coordination including management, monitoring and evaluation outlined? Is there a description of possible coordination with relevant GEF-financed projects/programs and other bilateral/multilateral initiatives in the project/program area? | <p>GEFSEC, 10/23/2018 - More information requested. The description of coordination with relevant GEF/LDCF-financed initiatives is adequate, but there does not seem to be any information regarding the institutional arrangement for project coordination. Additionally, the GCF is financing NAP readiness in Chad - any information regarding coordination with GCF-financed initiatives would be greatly appreciated.</p> <p>Recommended action: Please briefly indicate institutional arrangements for project coordination, as well as if and how the project will coordinate with any GCF-financed initiatives.</p> <p>Additionally, the LDCF is already financing some hydromet activities under the Chad National Adaptation Plan project. Please clearly indicate there is no duplication between the proposed hydromet activities under this project and those of the Chad NAP project.</p> | <p><u>AfDB 25/10/18. Comments noted and section 6-Coordination updated.</u></p> <p>- <u>Coordination with Chad GCF Readiness Program Comment noted and addressed under section 6 ?coordination.</u></p> <p>- Chad is engaged in the national adaptation plan (NAP) process which includes assessment of vulnerabilities, mainstreaming climate change risks, and addressing adaptation. The GCF financing is part of the process to support the formulation of the NAP, taking into consideration the UNFCCC NAP technical guidelines and the importance of coordination and complementarity with other NAP-related initiatives and support.</p> <p>- Chad submitted a request for a GCF Readiness and Preparatory Support Programme (2016). The aim of the Chad GCF financed readiness program is to provide preparatory support to strengthen the capacity of the National Designated Agency (NDA) so that the NDA can effectively discharge the GCF-related roles and responsibilities and speed up the process of facilitating the development of projects and programmes that are both aligned to the country's strategic priorities and the GCF investment framework.</p> <p>During the PPG process, the project preparation team will establish the extent of implementation of the NAP process as well as the Chad readiness program and identify mechanisms for synergy/complementarity or lessons that could be used to scale up the climate action in Chad. This will facilitate the integration of climate change adaptation, in a coherent manner, into the water and sanitation masterplan as well as future programmes and activities, in particular development planning processes and strategies at different levels, as appropriate</p> <p><u>Institutional mechanisms for coordination</u> Comment noted. Institutional mechanisms for coordination among the GEF/LDCF/GCF programs, will be defined during the project preparatory phase.</p> <p><u>Coordination with hydromet services under the Chad NAP project</u> Section 6 under coordination has been strengthened. There is no duplication between the proposed hydromet activities under this project and those of the Chad</p> |

| Review Criteria Questions | Secretariat Comment at PIF/Work Program Inclusion | AfDB Response to Secretariat comments |
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| <p>Consistency with National Priorities</p> <p>Has the project/program cited alignment with any of the recipient country's national strategies and plans or reports and assessments under relevant conventions?</p> | <p>Text for later: The proposed project is country-driven, and focused on immediate needs of vulnerable people, including youth and women. The water sector is identified as a priority in both the NAPA and the 2nd Nat Com. The project is also consistent with National priorities for climate adaptation, as demonstrated in the NDC, which recognizes priority target zones (Kanem, Barh El Ghazal, Batha, Gu'ra, Hadjer Lamis, Wadi Fira; Ouaddai, Dar Sila, Lac, Moyen-Chari, Borkou, Tibesti, Ennedi Est, Ennedi Ouest) as especially vulnerable to the effects of climate change and, in part, to the arrival of displaced populations. Key measures addressed by this project include (i) Improvement of production techniques by developing water infrastructure, access to improved and adapted inputs (ii) Informing, educating and communicating information relating to climate risk, (improve the observatory used to forecast meteorological events and develop the population's ability to react in the event of a catastrophe) (iii) Improving the seasonal forecast of precipitation and surface runoff and (iv) Management of climate risks. Additionally, the project is part of the National Development Plan (PND 2017-2021), whose aim is to lay the foundations for an emerging Chad. The project will also contribute towards SDG 6 on ensuring availability and sustainable management of WSS for all, through measures such as: protecting and restoration of water-related ecosystems, including forests, wetlands, rivers and aquifers; improving water quality by reducing pollution and managing water scarcity due to drought, through improved ground water governance and drought resilience. Chad's SDG 6 related targets also include raising the access rate of drinking water to 52% by 2015</p> | <p><u>AfDB 25/10/18. Comments noted and Section 7, Consistency with national Priorities updated to provide linkage to the NAP process.</u></p> <p>Chad is engaged in the national adaptation plan (NAP) process which includes assessment of vulnerabilities, mainstreaming climate change risks, and addressing adaptation. The GCF readiness support is part of the process to support the formulation of the NAP, taking into consideration the UNFCCC NAP technical guidelines and the importance of coordination and complementarity with other NAP-related initiatives and support.</p> <p>During the PPG process, the project preparation team will establish the extent of implementation of the Chad readiness program, progress in implementation of the Second National Communication and identify mechanisms for synergy/complementarity or lessons that could be used to scale up the climate action in the water supply and sanitation sector in Chad.</p> |

Comments to be addressed at PPG Stage:

| GEF comments | AfDB Response |
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| <p>-During the PPG process, the project preparation team will establish the extent of implementation of the NAP process as well as the Chad readiness program and identify mechanisms for synergy/complementarity or lessons that could be used to scale up the climate action in Chad. This will facilitate the integration of climate change adaptation, in a coherent manner, into the water and sanitation masterplan as well as future programmes and activities, in particular development planning processes and strategies at different levels, as appropriate.</p> | <p>Thank you for the comment. This was done during the PPG process ? notably in the Inception Workshop and subsequent consultations ? as evidenced in the re-working of Component 1. Indeed, it became immediately apparent that due to budgetary constraints, the outcomes of Component 1 were refined and scaled back in order to ensure that the outputs were both financially viable and in line with national priorities and needs (including in terms of the implementation of the NAP ? please refer to Table 5 in the CEO Endorsement Form.</p> |
| <p>-Institutional mechanisms for coordination among the GEF/LDCF/GCF programs, will be defined during the project preparatory phase.</p> | <p>Thank you for the comment. The institutional mechanisms were discussed (e.g. GEF Country Focal Point meeting) and designed as explicated in the CEO Endorsement Form Question 6 (<i>Institutional Arrangement and Coordination</i>). These mechanisms utilize the structures already in place for the AfDB funded PAEPA-SU-MR project.</p> <p>It should be noted that the institutional arrangement, including the project management unit, is extremely robust, as evidenced by the low percentage of GEF funding being allocated to project costs (USD 120,000; or 1.4% of the requested funding).</p> |

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| -Mechanisms for coordination for hydromet services, including use of satellite information and data bases, will be detailed at the Project Preparation stage. | <p>Thank you for the comment. Due to the changes that were made to the Project Results Framework (see Comment 8) in order to ensure that the project was realizable and in line with Chadian national priorities, the activities for a hydromet service were scaled back to a feasibility study rather than the implementation of a full scale project.</p> <p>As such, such discussions were no longer the focus or necessary at the PPG stage, and therefore not included in the ProDoc.</p> |
| -During the PPG process, the project preparation team will establish the extent of implementation of the Chad readiness program, progress in implementation of the Second National Communication and identify mechanisms for synergy/complementarity or lessons that could be used to scale up the climate action in the water supply and sanitation sector in Chad. | <p>Thank you for the comment. Please refer back to our response to the first comment.</p> |

STAP's comments at PIF stage

| STAP comments | AfDB response to STAP's comments |
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| 1. In Section 1-2 Baseline scenario (p. 21): the list of active projects dates back to September 30, 2016, that is more than two years ago. It might be useful to include in the Baseline scenario projects that have been initiated (approved or actually started) since then to capitalize on them and to avoid overlaps/repetitions. | Thank you for the comment, the list of active projects and the baseline section has been updated. |

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| 2. Please address the discrepancy in the discussion on trends in mean annual rainfall. In Box 1, it was stated that "no trend in mean annual rainfall has been determined since 1990" no consistent trend has been detected?. However, in the section on "Decrease in rainfall and the change of its spatial and temporal distribution", it states that Agrhymet data show that there has been a decline in average annual rainfall throughout the country. Please clarify this discrepancy. | Thank you for the comment. The trends in mean annual rainfall have been clarified at PPG stage. There has been a noticeable decrease in flows in certain rivers, alongside the slowing groundwater recharge and erratic rain patterns. These trends are only going to worsen, as climate change accelerates. |
| 3. Output 2.1.1 focuses on well prospecting, scheme design and construction of safe water supply system. This is more of a developmental activity/agenda. | Under component 2, 34 drinking climate resilient water supply systems will be built for unserved Logones and BET communities (including boreholes, reservoirs and solar energy distribution systems) in rural and peri-urban areas not yet covered by the baseline projects identified (such as PAEPA SU-MR and COM-Nord). In addition to the infrastructure, the GEF funding under component 2 will provide training and awareness of communities. Community awareness, capacity building and support services for soil and water conservation will enable, in addition to rehabilitated land, sustainable management of groundwater resources, especially in the face of climate change, and an increased sense of ownership for local communities. |
| It will be essential to secure a commitment from the government or private sources to ensure the sustainability of all (institutional and physical) outputs of the project and increase the chances of scaling up. | This is well noted and has been discussed in Part 2. Section 5 (risks) as well as in the alternative scenario section. |
| It is very important that a detailed analysis of private sector engagement including barriers and incentives be carried out when the project is being fully developed. | The engagement with the private sector will seek to improve the effective participation of small and medium-sized private sector enterprises (SMEs) in the provision of rural water supply services. This will be aided through the formalization of the relationship between beneficiary communities and the private sector (e.g. Memorandum of Understanding). Furthermore, the private sector will be considered in the development of the institutional capacity building analysis and diagnostic and be eligible for the capacity training in terms of climate resilience (Component 1). |
| Gender analysis will be done during the PPG phase | The gender analysis results is included as part of the CEO Endorsement document. |
| Yes, the risks section presents a reasonably good list of potential risks and management measure. However, an important risk is missing - political risk, for which management options need to be developed. | A more expanded analysis of risks (environmental and social risks screening) has been undertaken with additional information in the corresponding sub-section 5 of the CEO Endorsement. |

Annexe B: comments review

Council comments at PIF stage

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| <p>Germany welcomes the proposal aiming to strengthen rural and urban resilience to climate change and variability by the provision of water supply and sanitation in Chad. Germany appreciates that the project clearly intends to scale-up the impacts of the AfDB financed baseline project for water supply and sanitation and in rural and peri-urban communities for Climate Adaptation. The project documents clearly details the vulnerability of the population and the benefits of adaptation</p> | <p>The location of the different intervention is indicated in annex E.</p> <p>Annex E ? Project Map</p> <p>The project's intervention sites were identified by the Government of Chad during the previous phase of PAEPA SU MR. These sites were chosen through a consultative process, and all of the technical feasibility studies (e.g.network plans) and associated environmental and social impact studies have already been carried out.</p> <p>The map identifies the location of each of the locations where GEF funding will be allocated, notably for the DWS systems, details for which are given in Table 1.</p> <p>The sites are located in 5 provinces which currently present the lowest drinking water access in the country: Eastern Logone (27%); Western Logone (16%); Borkou (19%); Ennedi West (8%); Tibesti (5%) (Department of Drinking Water Supply, 2017).</p> <p>The entire population of these districts are considered as beneficiaries; using the INSEED projections based on the 2009 Demographic and Household survey, this amounts to approximately 2,164,183 in 2017- 50.7% of these beneficiaries are women.</p> <p>Descriptions of each of these provinces can be found below, starting by the three provinces in the North of Chad, and followed by those in the South.</p> <p>Borku Province</p> <p>Geography: The Borku Province has an area of 236,000 km² and covers 18.38% of the national territory.</p> <p>Climate: This province is known for its extreme climatic conditions: there can be no annual rainfall, low humidity and very high temperatures.</p> <p>Water resources: Only the important groundwater resources of Borku allow to engage in agricultural practices: there are no rainfed crops. Irrigated agriculture thanks to the groundwater resources of the Borkou depression, allows it to satisfy the food needs of local populations and export market gardening products, grapes, olives, figs, dates, to other provinces. Access to drinking water in the majority of villages is a worrying issue, with only 16% of the population served.</p> <p>Socio-economic aspects: The Province has almost no infrastructure (schools; water, sanitation, etc.). The Province exports agricultural products to domestic markets and neighbouring countries.</p> <p>Ennedi West</p> <p>Geography: The Province of Ennedi West is subdivided into two Departments: Fada (capital cities: Fada) and Mourtcha (capital city of Kala?t). This Province has an area of 34,824 km² and an estimated population of 69,000 inhabitants in seven sub-prefectures.</p> <p>Rainfall and vegetation: Low rainfall (0 to 100mm per year) increases desertification. The vegetation is sparse but the existence of several oases in its northern part, where water is available on the surface and underground, allows the exploitation of crops (date palm and market gardening).</p> <p>Socio-economy: The Province of Ennedi West is a breeding area where all species of domestic animals except pigs are raised. Insufficient water and grazing conditions lead pastoralists to move to the Archei area (the fauna reserve in Fada/Arch?i or those still in the works, such as Ouadi Chile and Aga Dib?) and Torboul. This displacement puts pressure on resources. The Province has some infrastructure, in particular for the DWS (water towers and boreholes).</p> <p>Tibesti Province</p> <p>Geography: The Tibesti Province is one of the largest in the country with an area of about 200,000 km² or 1/6 of the national area. It borders two countries: Libya in the north and Niger in the west. The population of the Province is estimated at more than 41,000 inhabitants.</p> <p>Climate: The climate is classified as arid desert in the whole Province. Rainfall is very low or non-</p> |
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| <p>In its current form, the proposal, though referring to the Chad Version 2030 and the National Adaptation Program of Action, only partly relates to Chad's Intended Nationally Determined Contribution (INDC) and the policies included therein. It is therefore highly recommended to update the respective sections on long-term solutions and barriers to achieving it, as well as the consistency with national priorities to confirm the project's alignment with the</p> | <p>That section has already been revised by the consultant both in the ProDoc and in the CEO Endorsement under 7. Consistencies with national priorities.</p> <p>The project is country-led and as such takes into consideration national strategies and plans. In particular, the project is part of the 2017-2021 National Development Plan, which also lays the foundations for Chad's 2030 Goals.</p> <p>In terms of internationally recognized goals and commitments, it will contribute to the achievement Goal 6 of the SDGs, through measures such as the protection and restoration of water-related ecosystems, as well as looking to improve water quality by reducing water pollution and scarcity. Specifically, it will help reach the drinking water access target of 95% by 2030 (from 52%) and sanitation services access from 16% to 50% in 2040.</p> <p>Additionally, the project is in line with the INDC of Chad, as it targets some of the recognized target areas (BET), and includes measures to improve production techniques, as well as improving climate change risk dissemination and management. Furthermore, the measures proposed by the project are directly in line with those proposed in Chad's National Action Plan for Adaptation to Climate Change:</p> <p>The project also comes to strengthen the current NAP (UNDP/GEF), which also incorporates 5 of the priority areas from the 2010 NAPA. These include:</p> <ul style="list-style-type: none"> ? Priority Action 4 on information, education and communication on climate change adaptation; ? Priority Action 6 on improving intercommunity grazing areas; ? Priority Action 7, on improving the forecasting of seasonal rains and surface water flows; ? Priority Action 8 on the creation of an observatory of climate change adaptation policies, and ? Priority Action 10 on the management of climate risks. <p>Both focus on the similar priority areas, yet this current funding is more focused on the water sub-sector. As the number one priority of the NAPA is listed as the improvement of water infrastructure in rural Chad, the proposed project delivers the necessary focus to help reach this target, all while supporting the more general efforts of the NAP (which does not focus solely on the water subsector).</p> |
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| Germany welcome s that reducing gender inequaliti es is an integral part of the projects objective s. However , the initial assessme nt of ?adaptati on problems ? and ?underlyi ng causes? does not specificall ly highlight the link between gender inequalit y and vulnerabi lity to climate change impacts in water supply and sanitation . Given that health and water are the projects? primary sectors of activity, more detailed insights into the underlyi ng causes for gender inequalit | Additional info has been provided on this aspect. Women are mostly impacted by climate change due to their social and reproductive role in the community. Indeed, they are responsible of providing the whole family with safe water and care for their members, mainly the children, the ill and the elders. Water scarcity thus entails time constraints for women since they have to travel long distance to find water. |
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| <p>The proposal states several risks for delivering the project outcomes . Germany would welcome a further elaboration of these risks, as for example the risk of creating parallel processes and duplication of efforts with other national processes , such as the NAP process or measures for the implementation of the country's NDC. The risk overview would also profit from a probability and impact rating.</p> | <p>Additional risks were identified and classified.</p> | | | | | | | | | | | | | | | |
|---|--|--|---|--------------------|---|----------|---|--|-----|--|--|-----|--|---|-----|--|
| | <p>The results are presented in the matrix below, along with the possible attenuations.</p> | | | | | | | | | | | | | | | |
| | <table><tr><th>Risk and rating</th><th>Assessment</th><th>Mitigation measure</th></tr><tr><td>High vulnerability to extreme weather events and their associated impacts. Although the project contributes to reducing vulnerability to climate variability, extreme weather events could hinder the progress of the project in all its components, including by limiting access to rural areas.</td><td>Moderate</td><td>The project will use mapping resources to analyse climate-related vulnerabilities and conduct targeted risk screening for vulnerable sectors of activity to identify risk mitigation options.</td></tr><tr><td>Reluctance of local institutions to change the status quo and promote the water harvesting sector, which could help to reduce pressures on groundwater</td><td>Low</td><td>The project will organize ongoing consultation and engagement of stakeholders. It will strengthen user associations and local community groups to empower them to organize water rationing and distribution rules.</td></tr><tr><td>Availability of insufficient groundwater resources</td><td>Low</td><td>Past assessments confirm that sufficient groundwater resources are available in and around the project's cities and rural areas.</td></tr><tr><td>Limited capacity of local and national institutions</td><td>Low</td><td>The government's capacity is not likely to represent a risk to the project because its political will is strong. Although capacity is limited, efforts will be made to develop the capacity of key institutions to fully participate in the implementation of the project.</td></tr></table> | Risk and rating | Assessment | Mitigation measure | High vulnerability to extreme weather events and their associated impacts. Although the project contributes to reducing vulnerability to climate variability, extreme weather events could hinder the progress of the project in all its components, including by limiting access to rural areas. | Moderate | The project will use mapping resources to analyse climate-related vulnerabilities and conduct targeted risk screening for vulnerable sectors of activity to identify risk mitigation options. | Reluctance of local institutions to change the status quo and promote the water harvesting sector, which could help to reduce pressures on groundwater | Low | The project will organize ongoing consultation and engagement of stakeholders. It will strengthen user associations and local community groups to empower them to organize water rationing and distribution rules. | Availability of insufficient groundwater resources | Low | Past assessments confirm that sufficient groundwater resources are available in and around the project's cities and rural areas. | Limited capacity of local and national institutions | Low | The government's capacity is not likely to represent a risk to the project because its political will is strong. Although capacity is limited, efforts will be made to develop the capacity of key institutions to fully participate in the implementation of the project. |
| | Risk and rating | Assessment | Mitigation measure | | | | | | | | | | | | | |
| | High vulnerability to extreme weather events and their associated impacts. Although the project contributes to reducing vulnerability to climate variability, extreme weather events could hinder the progress of the project in all its components, including by limiting access to rural areas. | Moderate | The project will use mapping resources to analyse climate-related vulnerabilities and conduct targeted risk screening for vulnerable sectors of activity to identify risk mitigation options. | | | | | | | | | | | | | |
| Reluctance of local institutions to change the status quo and promote the water harvesting sector, which could help to reduce pressures on groundwater | Low | The project will organize ongoing consultation and engagement of stakeholders. It will strengthen user associations and local community groups to empower them to organize water rationing and distribution rules. | | | | | | | | | | | | | | |
| Availability of insufficient groundwater resources | Low | Past assessments confirm that sufficient groundwater resources are available in and around the project's cities and rural areas. | | | | | | | | | | | | | | |
| Limited capacity of local and national institutions | Low | The government's capacity is not likely to represent a risk to the project because its political will is strong. Although capacity is limited, efforts will be made to develop the capacity of key institutions to fully participate in the implementation of the project. | | | | | | | | | | | | | | |
| <p>The larger scale high risks, that were identified and are provided for in the PAEPA programme include, but are not limited to:</p> | | | | | | | | | | | | | | | | |
| <p>? The economic and political climate of Chad: the lack of transparency and efficiency of public finance management, as well as the low level of trust in the system (corruption allegations);</p> <p>? Procedural/implementation delays due to multiple levels of validation (e.g. GEF, Ministry, AfDB).</p> <p>For the areas related to investments in infrastructure and investments (component 2 and 3), the risks were evaluated under the PAEPA program. The relevant sections from this are provided in Annex H, notably Appendix IV of the PAEPA-SU-MR Project Document, and Technical Annex B8. Furthermore, feasibility studies have already been undertaken for the DWS.</p> | | | | | | | | | | | | | | | | |

ANNEX C: Status of Utilization of Project Preparation Grant (PPG).
(Provide detailed funding amount of the PPG activities financing status in the table below:

| PPG Grant Approved at PIF - LDCF Amount (\$) | | | |
|--|-----------------|----------------------|------------------|
| Project preparation activities implemented | Budgeted Amount | Amount Spent to date | Amount committed |
| Consultancy fees | 132,318 | 119,086 | 13,232 |
| Consultants' travel and missions | 33,372 | 33,372 | 0 |
| Stakeholder meetings/conferences and workshops | 34,310 | 34,310 | 0 |
| Total | 200,000 | 186,768 | 13,232 |

ANNEX D: Project Map(s) and Coordinates

Please attach the geographical location of the project area, if possible.

??Annex E ? Project Map

The project's intervention sites were identified by the Government of Chad during the previous phase of PAEPA SU MR. These sites were chosen through a consultative process, and all of the technical feasibility studies (e.g.network plans) and associated environmental and social impact studies have already been carried out.

The map identifies the location of each of the locations where GEF funding will be allocated, notably for the DWS systems, details for which are given in Table 1.

The sites are located in 5 provinces which currently present the lowest drinking water access in the country: Eastern Logone (27%); Western Logone (16%); Borkou (19%); Ennedi West (8%); Tibesti (5%) (Department of Drinking Water Supply, 2017).

The entire population of these districts are considered as beneficiaries; using the INSEED projections based on the 2009 Demographic and Household survey, this amounts to approximately 2,164,183 in 2017- 50.7% of these beneficiaries are women.

Descriptions of each of these provinces can be found below, starting by the three provinces in the North of Chad, and followed by those in the South.

Borku Province

Geography: The Borku Province has an area of 236,000 km² and covers 18.38% of the national territory.

Climate: This province is known for its extreme climatic conditions: there can be no annual rainfall, low humidity and very high temperatures.

Water resources: Only the important groundwater resources of Borku allow to engage in agricultural practices: there are no rainfed crops. Irrigated agriculture thanks to the groundwater resources of the Borkou depression, allows it to satisfy the food needs of local populations and export market gardening products, grapes, olives, figs, dates, to other provinces. Access to drinking water in the majority of villages is a worrying issue, with only 16% of the population served.

Socio-economic aspects: The Province has almost no infrastructure (schools; water, sanitation, etc.). The Province exports agricultural products to domestic markets and neighbouring countries.

Ennedi West

Geography: The Province of Ennedi West is subdivided into two Departments: Fada (capital cities: Fada) and Mourtcha (capital city of Kala?t). This Province has an area of 34,824 km² and an estimated population of 69,000 inhabitants in seven sub-prefectures.

Rainfall and vegetation: Low rainfall (0 to 100mm per year) increases desertification. The vegetation is sparse but the existence of several oases in its northern part, where water is available on the surface and underground, allows the exploitation of crops (date palm and market gardening).

Socio-economy: The Province of Ennedi West is a breeding area where all species of domestic animals except pigs are raised. Insufficient water and grazing conditions lead pastoralists to move to the Archei area (the fauna reserve in Fada/Arch?i or those still in the works, such as Ouadi Chile and Aga Dib?) and Torboul. This displacement puts pressure on resources. The Province has some infrastructure, in particular for the DWS (water towers and boreholes).

Tibesti Province

Geography: The Tibesti Province is one of the largest in the country with an area of about 200,000 km² or 1/6 of the national area. It borders two countries: Libya in the north and Niger in the west. The population of the Province is estimated at more than 41,000 inhabitants.

Climate: The climate is classified as arid desert in the whole Province. Rainfall is very low or non-existent.

Water resources: Tibesti Province has important water resources and irrigable land estimated at 284,103 ha.

Socio-economic aspects: Agricultural practices are centred around oases that provide spring water. The Province is also favourable to cultivating crops which thrive in Mediterranean and tropical climates. The main types of crops, traditionally irrigated through *chadouf*, are market gardening, arboriculture and cereal cultivation. Tibesti Province has important mineral resources (gold, uranium, oil), but also therapeutic water sources renowned for curing certain diseases.

Western Logone

Geography: The Province of the Western Logone is located in the south of the country, it borders Cameroon and is divided into 4 Departments: Doudji, Lake Wey, Gu?ni and Ngourkosso. It has 21 Sub-Prefectures.

Climate: The province is characterized by relative humidity and has a Sudanese climate. Precipitation varies from 900 to 1200 mm/year and is spread over two seasons:

? rainy season from May to October characterized by heavy rainfall;

? dry season from November to the end of April.

Vegetation: It is mainly composed of savannah or wooded savannah. Most of them include classified forest formations (D?li, Koutou).

Eastern Logone

Geography: Located in southern Chad, the Province of Eastern Logone covers an area of 28,035 km² and has a density of 33 inhabitants/km², with 51.28% of women and 80% of young people. It is composed of 6 departments, 23 sub-prefectures, 23 municipalities, 42 cantons and 1324 villages.

Climate: The Province of Logone Oriental has a transitional climate between Sudano-Sahelian and Sudano-Guinean characterized by an average rainfall ranging between 800 and more than 1200 mm (for the department of Nya-Pend?) and temperatures between 26°C and 31°C. The Province is characterized by a rainy season of 5 to 6 months (between May and October) and a dry season of 6 to 7 months.

Socio-economic aspects: At the border, the main food crop is cassava. Further north, millet and sorghum are the main sources of subsistence. Commercial cotton and groundnut crops are concentrated around the city of Doba.^[1] Oil fields have been exploited via a 1,070 km-long pipeline commissioned in 2003 that connects the region to the Cameroonian coast at Kribi. However, access to safe drinking water and sanitation facilities remains insufficient. In addition, there are low literacy rates, waterborne diseases, land conflicts and conflicts between farmers and herders.

Intervention sites of the project – Location of the 34 identified villages in which DWS systems will be built

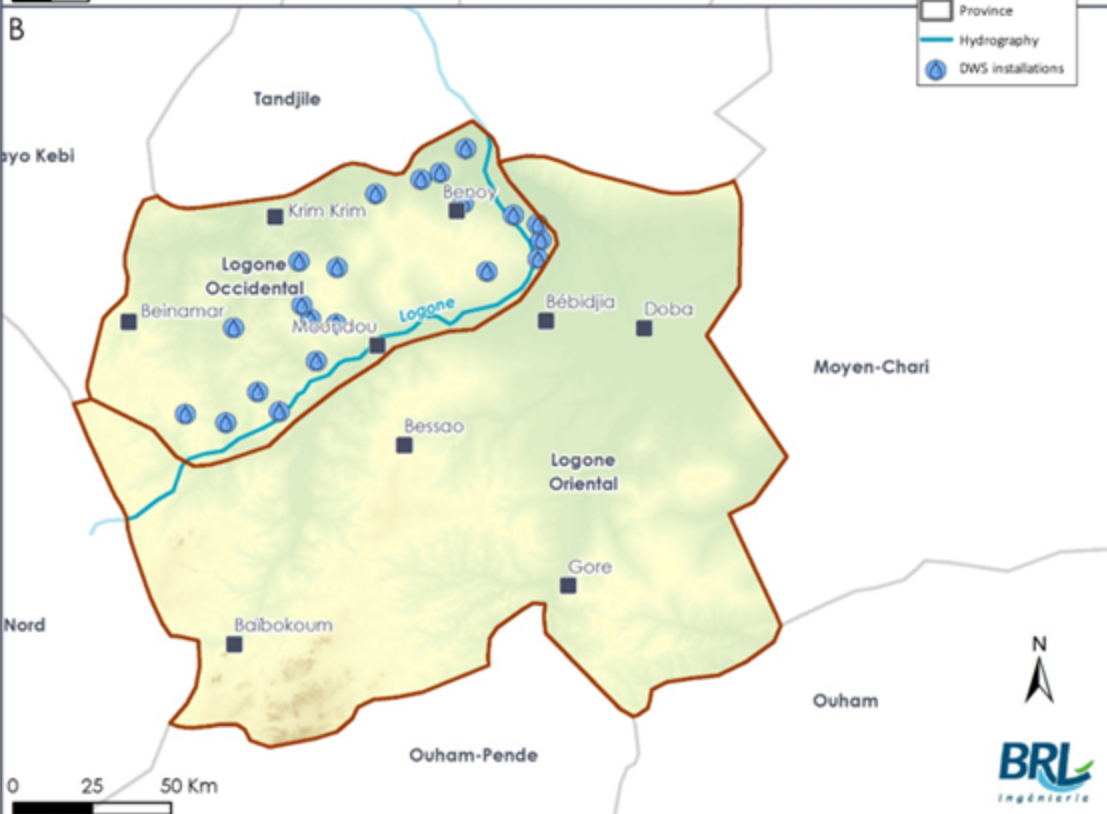
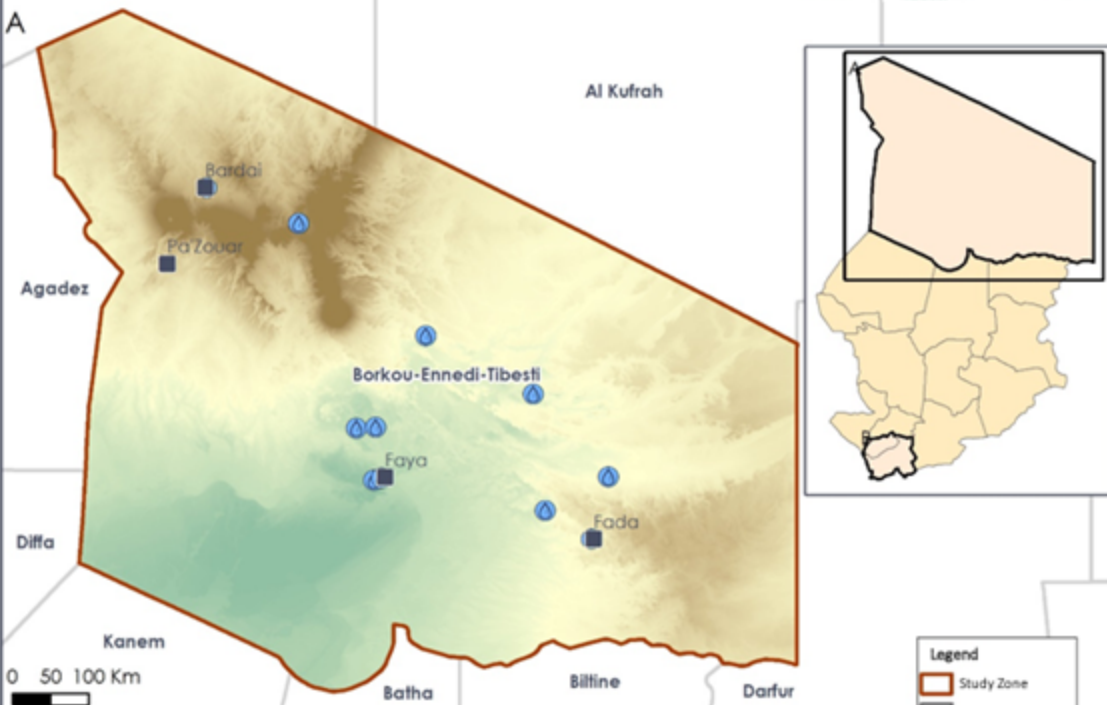


Table 1: Main characteristics of the DWS where activities funded by the GEF will take place

| Areas serviced | Province | Water tower capacity (m3) | Pumping station | Network linear (m) | Fountain Terminals | Sanitation (latrines) | Piezometers |
|---|----------------|---------------------------|-----------------|--------------------|--------------------|--|-------------|
| Dodinda 1 and 2 | Western Logone | 100 | 1 | 2045 | 14 | 60 (distributed in throughout Western Logone intervention area) | |
| Lolo | Western Logone | 50 | 1 | 3489 | 7 | | |
| Kana and Neighborhoods | Western Logone | 100 | 1 | 3044 | 10 | | |
| Kana Mad? | Western Logone | 30 | 1 | 1637 | 3 | | |
| Deli | Western Logone | 100 | 1 | 5472 | 14 | | |
| Goundeye 1 and 2, Barbo, Kere | Western Logone | 50 | 1 | 4047 | 6 | | |
| Doman 1 and 2 | Western Logone | 30 | 1 | 2498 | 4 | | |
| Dono, Begreu, Mainani, Bagtchama | Western Logone | 30 | 1 | 2657 | 4 | | |
| Mendoubadou | Western Logone | 50 | 1 | 2767 | 8 | | |
| Massa 2-3-4 | Western Logone | 50 | 1 | 2233 | 7 | | |
| Doiti and Bendo | Western Logone | 30 | 1 | 2159 | 6 | | |
| Bao | Western Logone | 50 | 1 | 4254 | 7 | | |
| Andji | Western Logone | 100 | 1 | 3553 | 11 | | |

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|---|----------------|-----|---|------|----|---|---|
| Beri, Baikoro, Namti | Western Logone | 50 | 1 | 2766 | 6 | | |
| Moussoum 1 and 2, Ngara Moussoum | Western Logone | 50 | 1 | 4802 | 6 | | |
| Saar Gogne | Western Logone | 50 | 1 | 2831 | 6 | | |
| Central Sawa, Sawa gogo, Beala, Guelmare, Dosaw, Guelkoura | Western Logone | 50 | 1 | 3224 | 8 | | |
| Pius 1 and 2 | Western Logone | 100 | 1 | 3403 | 11 | | |
| Bekiri | Western Logone | 100 | 1 | 2318 | 8 | | |
| Ndouh 1 and 2 | Western Logone | 100 | 1 | 3094 | 11 | | |
| Nama | Western Logone | 50 | 1 | 3606 | 6 | | |
| Amoul | Borku | 50 | 1 | 3645 | 7 | 2 | |
| Koukourou, Faya | Borku | 30 | 1 | 2591 | 4 | 3 | 2 |
| Kirdimi | Borku | 50 | 1 | 2940 | 6 | 1 | |
| Yarda | Borku | 50 | 1 | 1595 | 6 | 2 | |
| Yebibou | Borku | 40 | 1 | 2086 | 5 | 1 | |
| Aumchaloba Goume | Borku | 30 | 1 | 2048 | 3 | | |
| Bardai | Tibesti | 50 | 1 | 3257 | 6 | 3 | 2 |
| Zoumri | Tibesti | 50 | 1 | 3300 | 5 | 2 | |
| Onianga Saker | Ennedi West | 30 | 1 | 1981 | 4 | 1 | |
| Fada | Ennedi West | 100 | 1 | 2443 | 11 | 3 | 2 |

| | | | | | | |
|--------------|-------------|----|---|------|---|---|
| Weyi | Ennedi West | 30 | 1 | 1060 | 3 | 1 |
| Gouro | Ennedi West | 50 | 1 | 2093 | 6 | |
| Teby | Ennedi West | 30 | 1 | 1388 | 3 | 1 |

[1] Republic of Chad, "Technical consultation for the validation of 2017/2018 forecast production and 2016/2017 ex-post cereal and food balances and 2017/2018 forecast production in the CILSS and West African countries" (Bammako (Mali), November 2017).

ANNEX E: Project Budget Table

Please attach a project budget table.

| | Component 1 | Component 2 | | Component 3 | Component 4 | Subtotal (USD) | Monitoring & Evaluation | Project Management Costs | Total (USD) |
|---|----------------|------------------|------------------|----------------|---------------|------------------|-------------------------|--------------------------|------------------|
| Items | Outcome 1.1 | Outcome 2.1 | Outcome 2.2 | Outcome 3.1 | Outcome 4.1 | | | | |
| Communication and education | | | | | | | | | |
| Production and dissemination of meteorological and groundwater monitoring results | - | - | - | 180 000 | - | 180 000 | - | - | 180 000 |
| Implementation of a monitoring and evaluation system | - | - | - | - | - | - | 60 000 | - | 60 000 |
| Audit and evaluation | | | | | | | | | |
| Mid-term evaluation | - | - | - | - | - | - | 60 000 | - | 60 000 |
| Final evaluation | - | - | - | - | - | - | 60 000 | - | 60 000 |
| Contractualisation of service providers for studies (consultancy or NGO) | | | | | | | | | |
| Integration of climate change in the WSMF | 130 000 | - | - | - | - | 130 000 | - | - | 130 000 |
| Elaboration of technical guides for climate resilient investments | 30 000 | - | - | - | - | 30 000 | - | - | 30 000 |
| Drafting of call for tenders | 3 000 | - | - | - | - | 3 000 | - | - | 3 000 |
| Study of the water and sanitation sector | 50 000 | - | - | - | - | 50 000 | - | - | 50 000 |
| Gap analysis and development of training for professionals in the water sector | 32 000 | - | - | - | - | 32 000 | - | - | 32 000 |
| Study of soil conservation measures in implementation sites | - | - | 68 000 | - | - | 68 000 | - | - | 68 000 |
| Study of the means of awareness and actions to be implemented | - | - | 68 000 | - | - | 68 000 | - | - | 68 000 |
| Diagnosis of the meteorological network and underground monitoring (inventory of the existing assets) | - | - | - | 75 000 | - | 75 000 | - | - | 75 000 |
| Development of a strategy for acquiring, monitoring and using information | - | - | - | 75 000 | - | 75 000 | - | - | 75 000 |
| Feasibility study for an early warning system project | - | - | - | 40 000 | - | 40 000 | - | - | 40 000 |
| Study of the early warning project | - | - | - | 40 000 | - | 40 000 | - | - | 40 000 |
| Compilation of practices and technologies for dissemination by partners | - | - | - | - | 40 000 | 40 000 | - | - | 40 000 |
| Diagnosis of the skills and means of the monitoring sector, development of training | - | - | - | 20 000 | - | 20 000 | - | - | 20 000 |
| Definition of the monitoring and evaluation system | - | - | - | - | - | - | 10 000 | - | 10 000 |
| Training | | | | | | | | | |
| Training of 40 water professionals | 5 000 | - | - | - | - | 5 000 | - | - | 5 000 |
| Training of 20 technicians | - | - | - | 10 000 | - | 10 000 | - | - | 10 000 |
| Operating Costs | | | | | | | | | |
| Construction of a Water Supply System in a BET site | - | 2 676 471 | - | - | - | 2 676 471 | - | - | 2 676 471 |
| Construction of a Water Supply System in a Logone site | - | 3 823 529 | - | - | - | 3 823 529 | - | - | 3 823 529 |
| Soil conservation work implementation | - | - | 825 000 | - | - | 825 000 | - | - | 825 000 |
| Monitoring of soil conservation works | - | - | 144 000 | - | - | 144 000 | - | - | 144 000 |
| Purchase and installation of piezometer | - | - | - | 72 000 | - | 72 000 | - | - | 72 000 |
| Purchase and installation of a rain gauge | - | - | - | 18 000 | - | 18 000 | - | - | 18 000 |
| Purchase and installation of a millimetre scale | - | - | - | 10 000 | - | 10 000 | - | - | 10 000 |
| Lai laboratory equipment | - | - | - | 75 000 | - | 75 000 | - | - | 75 000 |
| Total | 250 000 | 6 500 000 | 1 105 000 | 615 000 | 40 000 | 8 510 000 | 190 000 | - | 8 700 000 |

ANNEX F: (For NGI only) Termsheet

Instructions. Please submit an finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

ANNEX G: (For NGI only) Reflows

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agency is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

ANNEX H: (For NGI only) Agency Capacity to generate reflows

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies' capacity and eligibility to administer NGI resources as established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).

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