



Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 22-Jan-2022 | Report No: PIDC32222

**BASIC INFORMATION****A. Basic Project Data**

Country Chad	Project ID P177044	Parent Project ID (if any)	Project Name N'Djamena Urban Resilience Project (P177044)
Region AFRICA WEST	Estimated Appraisal Date Oct 05, 2022	Estimated Board Date Sep 07, 2022	Practice Area (Lead) Urban, Resilience and Land
Financing Instrument Investment Project Financing	Borrower(s) Ministere Economie, de la Planification du developpement et de la Cooperation internationale	Implementing Agency City of N'Djamena	

Proposed Development Objective(s)

The Project Development Objective (PDO) is to reduce flood risk and reinforce climate resilient urban services and planning in N'Djamena.

PROJECT FINANCING DATA (US\$, Millions)**SUMMARY**

Total Project Cost	150.00
Total Financing	150.00
of which IBRD/IDA	150.00
Financing Gap	0.00

DETAILS**World Bank Group Financing**

International Development Association (IDA)	150.00
IDA Grant	150.00

Environmental and Social Risk Classification

Concept Review Decision



Substantial

Track II-The review did authorize the preparation to continue

Other Decision (as needed)

B. Introduction and Context

Country Context

- Chad is a large Sahelian landlocked country located in Central Africa with an inequal distribution of its population across its territory.** The country has three distinct agroecological zones: the Sahara Desert in the north, the Sahel in the center, and the Sudanese belt in the south. The first covers almost half of the land area but is home to less than 5 percent of the population. As the region is extremely arid, pastoralism is the main livelihood activity. The Sahel region, more suited to agriculture, makes up about one-quarter of the land area and contains approximately one-third of the population. The Sudanese belt in the south, which is more fertile, hosts most Chad's population and almost all the country's cotton production.
- Chad's population is growing quickly, putting pressure on the country's resources.** The population is projected to grow from 16 million in 2020 to 22 million and 34 million by 2030 and 2050, respectively. While the fertility rate fell from 7.4 births per woman in 2000 to an estimated 5.7 births in 2018, it remains significantly higher than the Sub-Saharan African (SSA) average. As a result, Chad has the third youngest population in the world: the median age is 16.6 years, with two-thirds of the population estimated to be younger than 25 years old. The weak capacity of the private sector, coupled with the limited room for increasing payroll budgets, makes it challenging to absorb the large cohort of young job seekers.
- Security risks originating in neighboring countries could have a negative impact in Chad's economy.** According to the 2020 Chad Risk and Resilience Assessment (RRA), Chad's fragility risks include: (i) regional conflict spillovers and forced displacement; (ii) geopolitical influence; and (iii) the activities of transnational criminal groups. Internal fragility drivers have led to an increase in the number of conflicts since 2015 that have disrupted progress toward the World Bank's twin goals. Refugees and internally displaced persons (IDPs) have increased three-fold since 2014. Insecurity and violence have created an acute humanitarian situation and large refugee inflows into Chad. As of December 2020, there were about 480,000 refugees settled in 19 camps in the east, south, and Lake Chad regions (UNHCR 2020).
- GDP per capita increased by over 100 percent between 2000 and 2015, before it declined significantly between 2015 and 2020.** This period was characterized by an initial major positive shock—the onset of oil production—and the beginning of the oil super cycle. It allowed Chad to boost GDP per capita (PPP) from US\$1,007 in 2002 to US\$1,618 by 2005, rapidly distancing itself from other low-income countries and reducing the large income gap with the rest of SSA. In 2019, GDP per capita (PPP) dropped to US\$1,579, due to oil price shocks and renewed insecurity. Chad's continued reliance on oil has left the economy less diversified, less competitive, and more vulnerable to exogenous shocks.
- Chad is regularly impacted by disaster and climate-related shocks, such as Floods and droughts that have affected over 1.4 million people between 1985 to 2020, and over 7 million people since 1990 respectively.** These events have significant adverse socio-economic consequences and disproportionately affect the poor. Floods generate damages especially in urban areas, displacing populations, and preventing cities from properly fulfilling their role as an engine for growth. Drought episodes happen roughly every four years and largely contribute to significant increase on food



insecurity. Coupled with economic and environmental vulnerability factors, droughts have led to price spikes of agricultural goods, high numbers on household food insecurity and rural-urban migration.

6. **Chad is extremely vulnerable to the effects of climate variability and change, with the N'Djamena urban and peri-urban areas particularly exposed.** Temperatures in Chad are elevated year-round, with an important amplitude in the Sahelian zone where N'Djamena is located, which also experiences high levels of inter-decadal rainfall variability. Climate variations directly affect agriculture production and livestock, which accounts for 30 percent of the country's GDP and negatively affect food security in the country.¹ Furthermore, historical conflicts between pastoralists and agriculturalists, are exacerbated by changing transhumance flows and competition over scarce natural resources. Climate change and projected increases in average temperatures, might create the potential for health hazards with a heat island effect. Changes in rainfall variability could increase extreme rainfall events and extended dry periods affecting frequency of alternating floods and droughts episodes. This could create sitting water ponds, and favor vector-borne diseases in the absence of proper drainage networks.² The impacts are amplified by the effects of rapid, poorly planned, urbanization, putting a high concentration of people, often the socially marginalized, and economic assets increasing vulnerability to climate-related shocks.

Sectoral and Institutional Context

7. **Chad's capital, N'Djamena, is highly exposed to pluvial and riverine floods.** The city is located about 100 km south of Lake Chad, at the border with Cameroon, in a flat alluvial plain at the confluence of the Chari and Logone rivers. Most of the city is located on the right bank of the Chari, north of the river, with a declivity of about 4 m over 40 km, oriented towards the north rather than the natural outlet constituted by the Chari. Therefore, most of the built-up in the city is located in a flood-prone area even if alluvial deposits, consolidated as the Lake Chad receded over centuries, have provided natural dikes that got used since the 1960's to protect the city against the Chari overflowing. The city suffers regularly from pluvial (flash) floods, due to a weak and in some areas inexistant drainage system. While the city's drainage challenges can be partly attributed to the city's geological dispositions with a low water absorption capacity, other factors include deficient operations and maintenance of existing drainage infrastructure, as well as the accumulation of solid waste, in particular plastic, blocking drainage channels.
8. **N'Djamena's population is growing rapidly, which has resulted in an increase of settlements in flood-prone areas.** With a population estimated to be around 1.5 million inhabitants and growing at a rate of 4 to 6% per year (slightly above national urban growth rates)³, the city largely dominates urbanization in Chad counting almost ten times the population of Moundou, the second largest city in the country. The share of urban population has been relatively constant over the past 20 years and total population is expected to follow national population growth rates, and double by 2030, with roughly half of it in N'Djamena.⁴ Uncontrolled, sometimes informal urban sprawling has led to the burgeoning of new flood-prone settlements, on the left bank of the Chari to the southwest, in former riverbeds (see Figure 1). Thus, built-up area has increased steadily in the past decades through in-filling and leapfrogging.

¹ Data in this section are from the Climate Change Knowledge Portal (database), World Bank Group, Washington, DC (accessed June 9, 2020): <https://climateknowledgeportal.worldbank.org/country/chad>.

² <https://www.climatecentre.org/wp-content/uploads/RCCC-ICRC-Country-profiles-Chad.pdf>

³ World Bank. (2019a). *WDI — Urban Population in Chad*. Accessed on April 23, 2021, on : <https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?locations=TD>

⁴ World Bank. (2019b). *WDI — Annual Urban Population Growth in Chad*. Accessed on April 23, 2021, on: <https://data.worldbank.org/indicator/SP.URB.GROW?locations=TD>



Relationship to CPF

9. **The proposed project is aligned with the current Country Partnership Framework (CPF) and the Systematic Country Diagnostic (SCD).** The current CPF 2016-2020, which was extended to 2022, lists building of human capital and reducing vulnerabilities as one priority engagement area for progress towards the twin goals in Chad. The SCD, prepared in 2020, furthermore highlights the urgent need to address emerging binding constraints, especially climate change and environmental degradation, increased violence and fragility, weak access and insufficient investments in infrastructure and services as well as low access to employment and limited inclusion of women. With its focus on flood risk reduction and selected urban services (solid waste, early warning system, etc.), the project is strongly aligned with the Bank's overall strategic goals and engagement in Chad. The proposed project will complement other Bank initiatives on country- and regional-level, such as the Chad Fragility and Resilience Project (P177163), the PROGREEN – Sahel Landscape Restoration Program (P176188) or the Chad specific interventions of the Climate Risk and Early Warning Systems Initiative (CREWS).
10. **The proposed project is closely aligned with the WBG Climate Change Action Plan (2021-2025), the WBG's Strategy for FCV (2020-2025), and the Green, Resilient and Inclusive Development (GRID) framework.** By financing activities to reduce flood risk in N'Djamena, the proposed project aligns with the "WBG Action Plan on Climate Change Adaptation and Resilience". The project is also aligned with the Next Generation Africa Climate Business Plan⁵, whose fourth strategic direction focuses on building resilient cities. Given Chad's context, project preparation and implementation will be guided by WBG's Four Pillars of Engagement in FCV settings and activities will be designed to be resilience-enhancing. Finally, by strengthening resilience to disaster events, integrating nature-based solutions, and promoting an inclusive approach to urban planning and management, the proposed project is also aligned with the GRID framework and its focus on resilient recovery from the COVID-19 pandemic.
11. **The proposed project is informed by and aligned with the GoC's priorities**, especially in the areas of climate action, disaster risk management (DRM) and sustainable urban development. The project aligns closely with Chad's NDCs⁶ on aspects related to adaptation through prevention and management of extreme climate phenomena; emission reduction targets from improved solid waste management in urban areas; improved access to drainage and sanitation; risk-sensitive urban planning, early warning and community sensibilization, as well as its National Development Plan 2017-2021,⁷ which highlights the need to ensure improved land-use planning, enhanced municipal infrastructures and services including drainage and sanitation systems, and effective management of climate change effects and environmental degradation.⁸

C. Proposed Development Objective(s)

12. The Project Development Objective (PDO) is to reduce flood risk and reinforce climate resilient urban services and planning in N'Djamena.

Key Results (From PCN)

⁵ The Next Generation Africa Climate Business Plan (World Bank, 2020) outlines the climate sensitivities of most key sectors and engines of growth in the African continent, and provides four strategic directions for development: Food Security and Resilient Rural Economy, Ecosystem Stability and Water Security, Low Carbon and Resilient Energy, and Resilient Cities and Green Mobility, <https://openknowledge.worldbank.org/handle/10986/34098>.

⁶ Republique du Tchad (2021). Mise à jour de la contribution déterminée nationale (DCN).

⁷ Republique du Tchad (2017). Plan National de Développement 2017-2021, « Le Tchad que nous voulons ».

⁸ Thus, the Project will mostly contribute to Axis 4 - Improving the Quality of Life of the Chad People; respectively Sub-Axis 3.4 Infrastructures as a lever for development.



13. The proposed project is expected to have the following results and related indicators:

PDO outcomes	Outcome indicators
Reduce flood risk	<ul style="list-style-type: none"> • Number of people covered by flood reduction infrastructure supported under the project •
Reinforce climate resilient urban services and planning	<ul style="list-style-type: none"> • People provided with improved urban living conditions (sub-indicator: those who are female)—Corporate Results Indicator (CRI) • Number of people covered by solid waste management interventions supported under the project • Number of people covered by city-level flood EWS supported under the project

D. Concept Description

14. **The proposed project aims to address the issue of recurrent flooding in N’Djamena, which has a significant impact on the population’s physical wellbeing, assets, and livelihoods and the city capacity to be an engine of growth.** To that end, the project adopts a two-pronged approach of i) directly investing in priority and medium- to long-term flood protection and drainage infrastructure with a heavy emphasis on utilizing nature-based solutions (NBS), and ii) strengthening selected urban services that are complementary to the infrastructure investments, including SWM interventions, mainstreaming disaster and climate-related management considerations in urban planning, and a flood early warning system and disaster preparedness. Throughout these supported activities, the project aims to generate access to green jobs for the city’s population targeting in priority women and youth population. Finally, a Contingent Emergency Response Component (CERC) will allow for the flexible reallocation of resources in the case of a disaster event improving emergency response and contingency planning.

Component 1: Flood protection and drainage infrastructure

15. **The first component focuses on mitigating of the negative impacts of floods through green and grey infrastructures to protect selected areas of N’Djamena against recurrent flooding of fluvial and pluvial origin.** This will be achieved through a phased approach that combines structural and non-structural measures, including urban drainage and associated roadworks, dikes, and retention basins, with a strong emphasis on NBS. Given its focus on infrastructure investments, it is expected that the associated works will contribute significantly to the creation of local jobs across different activities and investments.

16. Following the 2020 floods, an inter-ministerial working group was tasked by the GoC to identify short-term emergency investments to reduce the impacts of recurrent flooding in the capital. The plan identified infrastructure gaps for stormwater management in the most affected neighborhood of the city. As a result, the most affected areas were prioritized and infrastructure needing urgent rehabilitation was identified for an estimated amount of FCFA 48 billion (US\$ 83 million). While these needs have been partially addressed, the majority still requires financing. Priority areas notably include the west bank of the Chagri river (9th arrondissement), where new informal settlements have developed despite the zone being the most affected by riverine floods, and where flood protection investments have been almost inexistant as compared to older parts of the city. Based on the already identified needs, the component seeks to finance priority investments in pluvial and fluvial flood risk management, which can be implemented in the first three years of



project implementation to generate quick wins for the targeted beneficiaries. During preparation, the task team will conduct a stocktaking of existing feasibility studies and, if required, use the Project Advance to finance the ones missing.

17. While the component would focus initially on pre-identified priority and emergency investments, one key objective is to build a long-term flood risk management strategy to strengthen the resilience of the city to floods in the context of changing climate conditions. The strategy will include medium to long-term investments.
18. Whenever feasible, the project will rely on NBS to increase the acceptability and sustainability of project infrastructure. Based on a preliminary scoping of possible options, five (not mutually exclusive) categories of NBS will be investigated during project preparation: (i) green corridors along drainage infrastructure, which may be facilitated by the low density of some of the city neighborhoods; (ii) stream renaturation and riverbank planning, which would reduce significantly issues with riverbank deterioration (particular care will need to be paid to erosion risk); (iii) flood plains, which, while a seemingly obvious choice, may lead to issues related to relocation needs; (iv) urban and peri-urban gardening and fruit orchards, as burgeoning initiatives have encountered success and have the benefit of creating productive land-use in flood-prone areas; and (v) large scale afforestation in the outskirts of the city to increase soil's capacity to play a buffer role during flood events. During project preparation, the task team plans to carry out detailed feasibility studies to ensure the appropriateness of specific NBS interventions.

Component 2: Climate resilient urban services and planning in N'Djamena

19. **This second component aims at reinforcing climate resilient urban services and planning.** It would include the following proposed activities:
20. *Improving solid waste management to reduce flood risk.* Activities will draw on the findings and recommendations of the Country Environmental Analysis (CEA) on SWM aspects focused on flood risk reduction outcomes, with a special interest on the plastic recycling value chain. Plastics have been shown to have the highest impact on clogging of the city's drainage system, with significant consequences during heavy rainfall on water levels and flooding. Throughout the supported activities, the aim is creating a favorable environment for private sector investments while providing the analytical and institutional basis for the design of future dedicated and larger-scale SWM interventions.
21. *Strengthening flood early warning and disaster preparedness in N'Djamena.* Activities will focus on strengthening flood early warning systems and disaster preparedness capacity in N'Djamena. It would include the design and implementation of an integrated Early Warning Systems (IEWs), strengthening the capacities of the hydrometeorological services for the city, including measurement gauges, the functionality of the radar installed in Ndjamen, and hydrological river measurements; the development of contingency plans and their testing through simulation exercises for floods, as well as information dissemination and public awareness raising on risk reduction, relying on an inclusive and gender-sensitive approach that takes into account the specific information needs of women and youth.

Promoting sustainable and risk-informed urban planning and management. Mainstreaming DRM considerations in technical and strategic aspects of urban planning and management is critical to ensure sustainability of flood reduction investments. The update and preparation of the key urban planning documents including the Master Plan for Urban Development and Planning (SDAU) and Urban Reference Plan (PUR) are critical to ensure flood resilient and sustainable urban development in N'Djamena over the medium- to long-term. They can also serve as important impetus for related urban planning and management reforms at the national level, which would benefit other urban areas in Chad.

22. *Facilitating and promoting access to green jobs.* Throughout the various components and targeting those including infrastructure development, the proposed operation is expected to generate a significant number of local jobs. In addition, specific activities will focus on strengthening both the demand and supply side to further facilitate access to



green jobs related to the project’s focus on flood risk reduction. It will include: (i) a gender-focused training program to develop the skills of small and medium enterprises (SMEs) on relevant recycling tools and techniques as well as on entrepreneurship skills focusing on the most relevant recycling value chains, including plastic waste; (ii) waste hand-picking, collection and transfer campaigns to intermediary sites in areas where vehicles cannot access, through local associations supporting women and youth employment; (iii) training and equipment for the citizen-led use of digital technologies to collect data relevant to urban planning and services, such as mapping of uncontrolled dump sites, clogged networks, and stagnant water ponds; (iv) urban gardening, tree planting, riverbank stabilization and food transformation activities. Urban gardening initiatives, such as urban fruit orchards and vegetable crops, have recently been implemented by the city and have shown excellent results in promoting ownership by the population, thereby preventing degradation of public spaces and goods.

- 23. Significant disaster events have affected N’Djamena in the past years. The project will include **Contingent Emergency Response Component (CERC)**. The CERC is expected to be triggered at least once during the lifespan of the project. This Component will finance the implementation of emergency response, early recovery and/or urgent reconstruction measures, bridging the gap to long-term recovery and reconstruction. Resources will be allocated to this component as needed by the project during implementation.
- 24. A final component on **Project Management and Monitoring support** will finance the costs associated with implementation support, financial management, procurement, environmental and social management, monitoring and evaluation, communication, and knowledge management.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	Yes
Projects in Disputed Areas OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

- 25. Overall environmental and social risk rating is deemed substantial at this stage of preparation. This is because although the project activities are limited in scale and site-specific, mainly activities strengthening existing infrastructure including storm water drains and municipal waste collection and treatment, and land restoration and natural regeneration activities, they are however implemented in densely populated urban areas in the capital city and various social risks are likely to emerge. Rehabilitation and/or construction works may cause physical or economic resettlement of illegal occupants/squatters although the extent of this is not yet known. The risk of exclusion or discrimination from project benefits or adequate compensation is possible, affecting particularly women and illegal occupants. Civil works in densely populated urban spaces may increase the risk of SEA/SH. Overall security situation as well as potential risks for project activities may pose a risk for implementation.



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APPROVAL

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