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Chad

Chad Water and Sanitation Sector Note

Executive Summary

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CHAD: Water and Sanitation Sector Note (ASA - P167723)

Executive Summary

Introduction

The Government of Chad, through the Ministry of Environment, Water and Fisheries (MEEP), and the World Bank have agreed on the importance of resuming a dialog in the water supply and sanitation sector. In this regard, the primary objective of this Sector Note is to synthesize the achievements and challenges facing the sector and highlight priorities that could guide the decision-making process for the Government, the World Bank and other partners.

Increasing access to drinking water and sanitation is a priority highlighted in the National Development Plan 2017-2021 and the Government's "Vision 2030: The Chad We Want," with the aim of supporting the Sustainable Development Goals (SDGs). Meeting these goals would be an important contribution toward the development of the human capital of the country. Financing needs to expand access to drinking water as well as to develop sanitation options are massive. The sector is engaged in a dynamic of reforms, some of which need to be strengthened or deepened to give them greater strategic and operational coherence. Ensuring the sustainability of water systems through management models adapted to the local context is important, particularly to support the development of infrastructure and quality of services in rural areas and small and medium-size urban centers. Further, the turnaround of the national water utility (*Société Tchadienne des Eaux*, STE) is critical to restore its financial viability and ensure the provision of sustainable urban water services. Likewise, improving human capital development requires strong efforts to enhance access to sanitation and hygiene both for households and in public establishments and to develop effective urban drainage systems and adequate fecal sludge management options.

A fragile socio-economic context

Chad faces major economic and geographic challenges as it strives to reduce poverty and increase shared prosperity. Chad is a poor, landlocked, low-density and climatically diverse, Sahelian country with a population of 15.2 million inhabitants, most of whom are rural (78 percent). Economic growth has been severely affected since 2015 by the fall in oil prices and remains marked by conflict-related instability in border areas. This fragility, combined with high population growth (3.6 percent per year) and aggravated by movements of refugees and displaced people and a humanitarian crisis, put some bounds on the gross domestic product per capita (US\$720 in 2016) and the efforts undertaken to eradicate poverty.

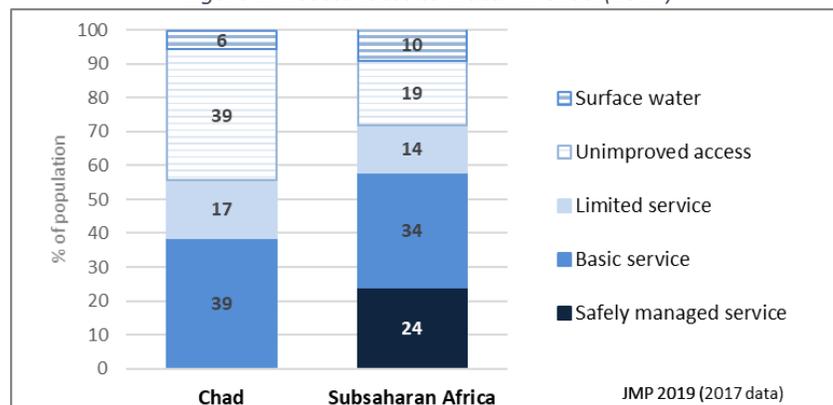
Nearly half of the population lives below the national poverty line, more than 90 percent of the poor live in rural areas, and Chad ranks last in the world on the human capital index. Less than one in two children has access to safe drinking water, only one in 10 children has access to basic sanitation and only one in 17 children wash their hands with soap and water. 40 percent of children suffer from nutritional deficiencies affecting their growth. A Chadian girl spends about 62 days a year drawing water instead of studying. Increased investment in access to safe drinking water and sanitation and hygiene can effectively contribute to strengthening human capital.

Chad is endowed with abundant water resources that contribute to the country's economy but are affected by anthropogenic and climatic effects. The availability and exploitability of groundwater resources vary widely across the country, making it difficult to mobilize water in the bedrock regions in Eastern and Northern Chad. Agriculture is the largest water user (80 percent) and total withdrawals are estimated to be below 5 percent of the renewable potential. However, as a result of climate change, the country is likely to experience a persistent decline in rainfall, associated with more frequent and more severe episodes of floods and droughts, further increasing the vulnerability of agriculture and livestock, which are the source of income for 80 percent of the population. Urbanization combined with a lack of adequate sanitation also leads to bacteriological contamination of shallow groundwater used by many wells and private boreholes.

Status of access to water and sanitation services

Despite significant efforts in constructing water points and piped systems since the early 2000s, Chad failed to achieve its Millennium Development Goal (60 percent of the population with access to improved water sources in 2015) and stands well below the sub-Saharan African average, according to the WHO/UNICEF Joint Monitoring Programme (JMP). The rate of access to an improved water supply is 55.7 percent in 2017 but less than 40 percent have at least access to a basic service. Only 25 percent of the urban population have access to household connections, yet they do not meet the criteria for a safely managed service, in terms of either water quality or service continuity.

Figure 1: Access rates to water in Chad (2017)



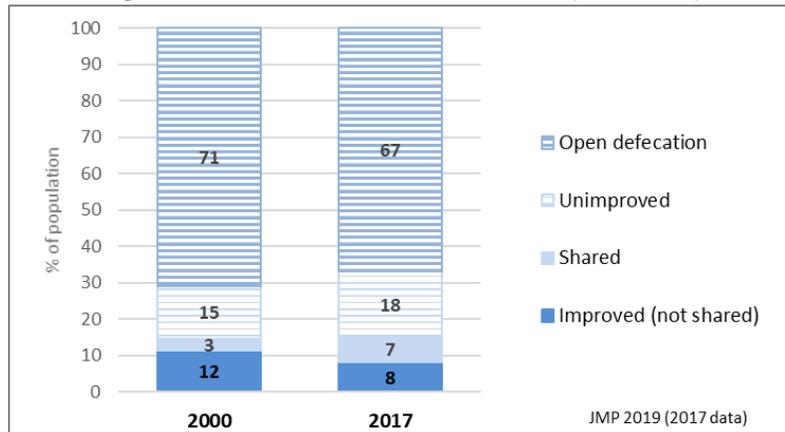
Regional inequalities and inequalities based on income levels and service modalities are also very significant. The poorest households in urban centers have better access conditions than the richest in rural areas. Half of the regions have an access rate to a basic or limited service combined of less than 50 percent. According to national data, it is estimated that 40 percent of villages, two thirds of semi-urban centers and one in five urban centers lack public drinking water supply facilities.

Tableau 1: Modalities of water supply in villages, semi-urban and urban centers

| Centers | RURAL Villages < 1,200 inhab. | SEMI-URBAN Small-medium centers 1,200-10,000 inhab. | URBAIN Centers > 10 000 inhab. | |
|------------------------------|---|---|--|---------------------|
| Proportion of the population | 48% of the population | 26% of the population | 26% of the population, Incl. 50% N'Djamena | |
| Level of service | Handpumps (pastoral hydraulics not included) | Small Water Supply Systems (WSSs) | Water Supply Systems (WSSs) | Urban network (STE) |
| Water points/systems | 15 000 | 578 | 48 | 18 centers |

Most Chadian households have no access to sanitation and open defecation is well above the regional average (JMP, 2017). Widely underfunded, access to sanitation declined on a national average between 2000 and 2017, with a slight increase in urban areas being absorbed by a severe decline in rural areas (from 8 to 2 percent). Nearly 80 percent of primary schools are not equipped with sanitation facilities and only 6 percent of the population have basic handwashing facilities with soap and water. There is no collective sewerage system and the disposal of fecal sludge and wastewater is carried out without control or treatment in the natural environment. Urban drainage networks, when they exist, are underdeveloped and poorly maintained. This often results in public health concerns, especially during floods, which are frequent in the rainy season and mostly affect the capital and districts without essential urban services.

Figure 2: Access rates to sanitation in Chad (2000-2017)



The lack of household access to improved sanitation, combined with the absence of adequate septage and wastewater disposal and inadequate drainage generates significant economic and social costs, particularly affecting the poorest strata of the population. The Water and Sanitation Program thus estimated the economic losses associated with poor sanitation (higher infant mortality, increased health costs and increased travel time to a safe site of defecation) at 2.1 percent of GDP (2012).

Institutions and governance

Chad has adopted, with the 1999 Water Code, an advanced legal framework for the water sector, but it remains incomplete and unevenly applied and internalized. Its implementation lacks a genuine policy and strategy document defining the guidelines and means of implementation for each sub-sector. Only parts of its provisions have been translated into implementation documents. Provisions related to

regulation and protection of water resources and water quality have not materialized. Those on the sector financing and promoting private sector participation in the delivery of water services have yet to demonstrate the expected results.

The legislation and regulation of sanitation have had a limited impact, in the absence of significant resources and programs to support and monitor the sub-sector. Faced with the magnitude of the health challenges related to the lack of sanitation, the Government adopted a National Sanitation Policy and Strategy document (*Politique et Stratégie Nationale de l'Assainissement*, PSNA) in 2017 to guide and boost its development.

The institutional setting clearly separates the responsibilities of the State, through the Ministry in charge of Water (Ministry of the Environment, Water and Fisheries, MEEP), from those for service delivery. The State is the contracting authority for all hydraulics works and responsible for infrastructure development, sector monitoring and regulation. Local authorities have been vested the authority to delegate the public water service but are not involved in its operation. After two unsuccessful experiments of management and service contracts with private partners, a decision was made in 2010 to continue with public water management in the urban hydraulics subsector through the Chadian Water Utility (*Société Tchadienne des Eaux*, STE), under a delegation contract with the State. Local authorities delegate the management of water supply systems (WSS) in semi-urban centers and small towns to water user associations (WUAs), and in a few recent cases to small private operators. Community management of hand pumps by village committees remains the rule in rural areas.

Inadequate means and the weakness or absence of appropriate planning, coordination, monitoring and regulation instruments hinder the ability of the central administrations to fulfil their missions of steering, coordinating, monitoring and regulating the sector. These constraints stem first from limited autonomous project management capacities and a weak presence on the ground in regional offices. The lack of (i) tools for monitoring the status of water points/systems and reviewing the progress of investment programs' implementation; (ii) investment planning instruments; and (iii) a unified intervention framework applying to all projects and partners also penalize the coordination and strategic management of the sector. There is no permanent asset inventory and no functional and systematic system to monitor service provision and operating performance. Finally, the regulatory capacity and mandate within the sector is weak, due to the lack of explicit and measurable performance objectives for STE on one hand, and the absence of mechanisms to review tariff setting for WSSs on the other.

Sector financing

In the absence of cash flow generated by the operation of services and low public spending in the sector in a constrained budgetary context, funding for water supply and sanitation development relies almost entirely on external aid. Projects and programs under implementation total more than CFAF 158 billion (an equivalent of US\$270 million),¹ most of which are focused on water supply. The pipeline of projects and programs for which the financial envelop has been identified represents an estimated amount of more than CFAF 133 billion (an equivalent of US\$228 million).

¹ Estimates based on data provided by the MEEP (February 2019)

The financing needs to achieve the Sustainable Development Goals (SDGs) are massive. A detailed investment plan carried out in 2015 estimated the annual investment need at CFAF 145 billion (excluding N'Djamena), or 2.4 percent of GDP by 2030, while the share of public expenditure on water has not exceeded 1% percent in recent years. It is critical to update these data and conduct a realistic assessment of these needs accompanied by five-year investment programs, in line with the ambitions of the National Development Plan (NDP) 2017-2030, and to design tools for monitoring project implementation to guide and coordinate the sources and allocation of funding.

The enduring operating deficit of STE, which is unable to cover its cash operating expenses, combined with the national budget constraint preventing the subsidization of services, strongly affects the utility's financial equilibrium. To remedy this at least partially, the Government approved a substantial tariff increase in January 2018, the first since 1984. The impact of this revision on water consumption and the utility's cash flow is not yet known. In any event, its ability to cover operating and maintenance costs and restore financial viability is conditioned by its debts' settlements and the improvement of its governance and operating performance.

Limited information available on financial performance suggests that many WSSs in small and medium-sized urban centers have been able to finance repairs and renewal of pumping equipment from their water sales, while the financial balance of WSSs in larger centers is more problematic. WUAs only manage existing systems and under no circumstances have been able to expand the service. Water rates charged by WUAs are much higher than those of STE. They apply to both sales to standposts' users and to service connections, which is likely to curtail consumption levels and the and profitability of operations.

Performance of service providers

STE's operating performance place the Chadian water utility far below most other urban water utilities in the region regarding service coverage, network efficiency and billing, collection and staff productivity ratios. STE suffers from major shortcomings in technical management, maintenance, customer and human resources management. Its operations are contingent on its performance in N'Djamena (accounting for 51 percent of connections and 80 percent of water sales) where it faces insufficient production, storage and distribution capacities. The poor quality and erratic public service provision has given space to an increasing number of private suppliers (boreholes).

Following a recent operational and organizational audit of STE, a detailed action plan has been prepared to address these shortcomings and restore the utility's credibility and financial viability. In addition to revising the tariffs and preparing a cross-debt plan to settle public arrears, the Government's commitment to support the implementation of the audit's recommendations will be instrumental to turn around the public utility, including by revisiting its contractual and performance framework. Budget support has already been provided for an ongoing social plan to adapt the workforce to skills needs. This process should receive significant support from the Netherlands, the European Union (EU) and the French Development Agency (*Agence Française de Développement, AFD*) as part of a project under preparation for the rehabilitation of N'Djamena's water supply.

In semi-urban centers, WSSs performance are constrained by competition from traditional water sources and high tariffs that limit sales and revenues, and by high operating costs. Only a minority of WSSs benefiting from accompanying measures, particularly through an advisory and management

support unit in the south of the country, are operational. WSSs in larger urban centers face more sustainability and operating challenges, including significant technical and commercial losses and poor collection rates. WUAs' administrative and financial management is unprofessional and often opaque. Management by private operators is very limited to date and still largely informal, apart from the recent experience of competitive selection of 16 operators under EU-funded projects. Operating costs could be reduced through a more systematic use of solar energy, and by developing social connections.

In rural areas, the operational capacity of community managed handpumps could be improved by better organizing the networks of craftsmen-repairers and spare parts suppliers. Local authorities don't currently play an important role in monitoring water point committees. The constitutional reform of May 2018 could give them increased responsibilities, including project management. This could only be exercised through effective transfers of sufficient resources and the development of their capacities.

The only suppliers of sanitation services are the fecal sludge haulers, whose supply chain can be rapidly improved if adequate disposal sites are made available. Local authorities are the contracting authority for drainage systems, yet they have limited resources to manage and maintain them adequately.

Strategic directions and options for the implementation of reforms

The Government has expressed a strong commitment towards the SDGs and has embarked on reforms to create an enabling environment and consolidate the sector. The Government's strategic objectives focus on achieving the SDGs, with an emphasis on both increasing access to safe water and improved sanitation and strengthening the sustainability of services. The development of sectoral strategies to achieve them builds on the inputs provided by: (a) the water supply development planning documents; (b) the national sanitation policy and strategy document (2017); (c) the STE diagnosis (2018); and (d) the draft strategy for the sustainable management of water facilities (2018) and the proceedings of the workshop on management models for sustainable water facilities organized by MEEP in February 2019.

Based on the above analyses highlighting sector challenges and areas of opportunity to address them, and in accordance with the strategic orientations formulated by the Government, seven strategic lines for consolidation and development have been identified, of which one is sector-wide, three relate to safe water and three to sanitation, as follows:

1. Strengthening sector's planning, monitoring and regulation;
2. Expanding and rehabilitating water supply infrastructure;
3. Deepening STE reform and turnaround;
4. Finalizing and implementing the strategy for sustainable rural and semi-urban water supply;
5. Ending open defecation through community-led total sanitation;
6. Implementing sustainable solutions for urban sanitation;
7. Improving urban drainage systems.

While the challenges and the need to develop infrastructure are real and immediate, it is necessary to ensure the effectiveness of these investments to support the country in the reforms undertaken, which are medium- and long-term processes. Operationalizing these strategic orientations and translating them into action plans requires an analysis of the operational nature of the approaches and strategies formulated to achieve the objectives. This involves: (i) revising or adopting policies and strategies adapted

to the country's situation; (ii) strengthening the institutions, reviewing contractual arrangements between the actors in the sector, particularly with service providers, as well as consolidating or implementing the necessary regulatory instruments; and finally (iii) ensuring adequate sources - public, through tariffs and external aid - and financing mechanisms of the sector in line with the scale of financing needs.

The present review has identified a series of short and medium-term actions over a five-year period, including various activities to make progress in ongoing reforms and provide support for decision-making to finalize new ones, prior to their implementation. The main options for engagement and key related issues are as follows:

- **The reform of the urban water subsector must be pursued to turn around the public water utility STE,** improve its performance and restore its financial viability. The decisions already taken on STE governance and the revision of tariffs have given a positive signal, resulting in the commitment of three donors to support STE (Dutch Cooperation, AFD, EU). An in-depth assessment of the contractual framework, performance and organizational setting was carried out and an action plan for STE's financial recovery and further strengthening of its governance was developed. Significant progress in this endeavor will help mobilize other financial partners for much needed investments in N'Djamena and other centers in STE perimeter.
- **In rural areas, community management of handpumps remains the most appropriate approach** in Chad's socio-economic context and requires improved maintenance support circuits. The option of decentralized management by local authorities, opened up in the new constitution, would require effective transfers of sufficient financial resources and the development of their capacities. The timeframe and chances of success of such a process should be considered in light of the experience from other countries that have achieved this decentralization and the effectiveness of public spending in Chad.
- **For the management of water supply supplies in small and medium-sized urban centers, demographic and economic challenges require a change of scale and the professionalization of service providers.** To attract performing operators, it is necessary to explore ways to reduce operating costs, particularly through the promotion of solar pumping, the possible aggregation several systems to ensure more profitable operating perimeters and the implementation of social connection programs to increase customers and sales. It is also important to strengthen the State capacity as contracting authority and local authorities for the monitoring of performance and control of operations. The option of an autonomous asset holding company under contract with the State should be explored, particularly from a financial perspective to ensure the viability of the structure, and from an institutional and contractual perspective to incentivize operational performance and regulation mechanisms.
- **The sub-sectors of wastewater and excreta and of drainage require a specific attention as key contributors to the improvement of dire health conditions and human capital in Chad.** Hygiene promotion and the development of latrines in public institutions are essential in rural areas. In large cities, improved fecal sludge collection and treatment facilities and drainage systems raises the issues of land availability and sustainable maintenance and management options.

Indicative Short-Term Action Plan (2019-2020)

| Strategic Line | Short-term Actions (2019-20) | Responsible Entity | Required Financing Estimate (US\$) |
|--|---|-----------------------------|------------------------------------|
| Strengthening planning, monitoring and regulation of the sector | Prepare investment framework to achieve SDGs, to be staged in 5-year programs | MEEP | TA - \$150K |
| | Define and implement an unified intervention framework | MEEP | |
| | Define processes and tools for monitoring project implementation and reviewing progress of 5-year program | MEEP and partners | TA & Workshop - \$150K |
| | Define processes for reviewing AUE tariffs and the resolution of conflicts between AUE, CTD and operators | MEEP | TA - \$50K |
| Expanding and rehabilitating water supply infrastructure | Secure financing for and launch implementation of the existing project portfolio | MEEP, MFB, STE and partners | TBD |
| | Finalize 2020-2025 program, incorporating STE investment needs | MEEP and STE | AT - \$75K |
| | Secure financing of 2021-2025 program | MEEP, MFB and partners | Workshop \$25K |
| Deepening STE reform | Update STE delegation contract | STE and MEEP | TA - \$50K |
| | Prepare and sign STE performance contract | MEEP, STE and MFB | TA – \$200K |
| | Prepare STE business plan | STE | TA - \$200K |
| | Prepare STE financial projections and adopt financial restructuring plan | STE and MFB | TA - \$150K |
| | Implement recommendations of STE operational audit | STE | TA - \$2000K |
| | Strengthen STE project management capacity | STE | TA - \$100K |
| | Prepare action plan for the effective taking over of urban centers recently incorporated in STE perimeter | STE | STE Resources |
| Ensuring sustainable rural and semi-urban water supply | Exchange of experiences with other countries of the region | MEEP and partners | \$50K |
| | Feasibility study of the reform of the management of water facilities: diagnostic study of private operators, market study of private operator, feasibility study of regrouping the AEP (zoning), feasibility of the creation of an asset-holding agency, review of AUE tariffs | MEEP | TA - \$350K |
| | Study of conversion to solar energy | MEEP | TA - \$150K |

| Strategic Line | Short-term Actions (2019-20) | Responsible Entity | Required Financing Estimate (US\$) |
|-------------------------------|---|--|---|
| | Prepare roadmap Feasibility study of handpump maintenance support improvement: feasibility of the creation of an autonomous maintenance agency Identification and pilots of low-cost digital tools for handpump monitoring | MEEP and partners MEEP MEEP and partners | TA - \$100K TA - \$100K TA - \$50K |
| Ending open defecation | Secure financing of the first phase of the CLTS roadmap Implement first phase of the CLTS roadmap | MEEP, MFB and partners MEEP, MSP, UNICEF | Workshop \$25K \$15 000K |
| Urban sanitation | Prepare ESIA study of the N'Djamena sludge treatment plant Define and adopt operating and cost recovery arrangements for the sludge treatment plant Prepare investment program for building sanitation facilities in schools, health centers and public latrines Define and adopt maintenance and cost recovery arrangements for sanitation facilities Design IEC program for sanitation facilities | MEEP and municipality MEEP, municipality and septage haulers MEEP, MEN, MSP, municipalities MEEP, MEN, MSP, municipalities MEEP, MSP | TA - \$50K TA - \$50K TA - \$75K TA & Workshop - \$75K TA - \$50K |
| Urban drainage | Secure financing of N'Djamena stormwater drainage project Identify urban centers with high risk of flooding Prepare stormwater drainage master plans for high-risk urban centers | MEEP, MFB and partners MEEP, MAT MEEP, municipalities and partners | Own resources and Workshop - \$50K Own resources TBD |

Indicative Medium-Term Action Plan (2021-2023)

| Strategic Line | Medium-term Actions (2021-23) | Responsible Entity | Required Financing Estimate (US\$) |
|--|--|--|------------------------------------|
| Strengthening planning, monitoring and regulation of the sector | Report on monitoring implementation of projects and review progress of 5-year program | MEEP and partners | Workshop - \$50K |
| | Technical audit and monitoring of STE performance contract | MEEP, STE and MFB | TA - \$200K |
| Expansion and rehabilitation of water supply infrastructure | Continue implementation of portfolio of existing projects | MEEP, STE and partners | TBD |
| | Implement 2021-2025 5-year program of MEEP and STE | MEEP, MFB and partners | TBD |
| Deepening STE reform | Continue implementation of STE business plan | STE | STE Resources |
| | Update STE financial projections and implement STE financial restructuring | STE and MFB | TA - \$150K |
| | Continue implementation of the recommendations of the operational audit | STE | TBD |
| | Implement action plan for taking over new STE centers | STE | TA and Rehabilitation (TBD) |
| Ensuring sustainable rural and semi-urban water supply | Implement pilot programs for ensuring AEP sustainability, including inventory and rehabilitation of facilities | MEEP | TBD |
| | Implement solar power conversion programs | MEEP | TBD |
| | Evaluate impact of pilot programs independently | MEEP | TA - \$150K |
| Ending open defecation | Continue implementation of the first phase of the CLTS roadmap and evaluate impact | MEEP, MSP, UNICEF and partners | \$15000K |
| | Secure financing of the second phase of the CLTS roadmap | MEEP, MFB and partners | Workshop - \$25K |
| Urban sanitation | Implement the N'Djamena sludge treatment plant project | MEEP, municipality and partners | TBD |
| | Set up management of the sludge treatment plant | MEEP, municipality and septage haulers | TBD |
| | Prepare studies of the sanitation value chain and of sludge treatment plants in the five largest urban centers outside N'Djamena | MEEP, municipalities | TA - \$250K |

| Strategic Line | Medium-term Actions (2021-23) | Responsible Entity | Required Financing Estimate (US\$) |
|-----------------------|--|--|------------------------------------|
| | Implement investment program for building sanitation facilities in schools, health centers and public latrines Implement associated IEC program | MEEP, MEN, MSP, municipalities MEEP, MSP | TBD TBD |
| Urban drainage | Implement N'Djamena stormwater drainage project Secure financing of projects based on stormwater drainage master plans Implement stormwater drainage projects in high-risk urban centers | MEEP, municipality and partners MEEP, MFB and partners MEEP, municipalities and partners | TBD Own resources TBD |