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CORPUS

DES FICHES DE PRÉSENTATION

DES MISSIONS DES AUDITEURS OPT
SUR LEURS SERVICES
D'EAU ET D'ASSAINISSEMENT

COMPENDIUM

OF PRESENTATION DOCUMENTS

PREPARED BY OPT TRAINEES CONCERNING
THEIR RESPECTIVE URBAN WATER
AND SANITATION SERVICES

OPT
Eau pour Tous
Water for All
AgroParisTech • SUEZ

Promotion Gérard PAYEN 2019/2020
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UNESCO Organisation des Nations Unies pour l'éducation, la science et la culture

ICIREWARD International Center for Interdisciplinary Research on Water Systems Dynamics sous l'égide de l'UNESCO

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PRÉFACE (FR)

Ce corpus de fiches de présentation des missions de 37 auditeurs du MASTÈRE SPÉCIALISÉ "Eau pour Tous" - OPT 2019/2020 (23 anglophones et 14 francophones / 7éme promotion dite promotion Gérard Payen) est le résultat d'un cursus de formation de 13 mois en alternance entre :

• La formation sur le campus AgroParisTech à Montpellier sur 6 mois en 3 temps
• L'immersion et l'étude de cas à l'étranger sur 3 semaines : Singapour/Cambodge - Casablanca/Ouagadougou
• 6 mois dans leurs propres services pour collecter des données précises, échanger avec leurs équipes, partager les diagnostics et stratégies.

Chaque auditeur OPT a présenté, d'avril 2020 à juin 2020, son plan d'action stratégique (PAS), véritable thèse professionnelle, appliqué à la conduite du changement auquel il a réfléchi tout au long de sa formation.

Il est le fruit d'analyse et de diagnostique d'une situation de service d'eau et d'assainissement d'une part, puis dans sa prolongation, d'une stratégie aussi élaborée que possible, enfin de préfiguration d'actions à engager.

Leur plan d'actions constitue "un scénario du possible" dans une projection à 5 ou 10 ans, tout en prenant en compte, ou pas, des actions ou des investissements déjà engagés dans leur service ou à un degré étatique. Ils sont présentés à travers ce corpus.

Ils fournissent des éclaircissements sur leur propre analyse de la situation et sur les moyens de parvenir à des améliorations concrètes. En prenant de la hauteur, et en livrant leur point de vue en les vulgarisant parfois, les auditeurs OPT désirent saisir le lecteur sur la complexité de leur environnement qui peut, qui doit, conduire à la transformation de leur service.

Ces fiches sont perfectibles et personnelles avec parfois des styles différents. Elles ont pour objet de donner le goût au lecteur d'en savoir plus sur leur vision et les horizons de développement du service telles qu'imaginées par l'auteur auditeur OPT.

Parfois hétérogènes dans leur forme, voire dans leur contenu, elles sont le résultat de travaux menés en trois temps. Elles ont le mérite d'introduire les grandes dimensions du management du secteur de l'eau et/ou de l'assainissement dans leur pays.

Elles montrent les questionnements voire parfois les doutes et obstacles qui jalonnent leur chemin pour l'amélioration de l'accès à l'eau et à l'assainissement pour tous les citoyens de leur ville et de leur pays.

Résolument tournés vers le futur, ces travaux ne sont pas "des articles scientifiques" mais des messages qui mettent aussi en évidence que des managers s'emploient à avancer et à progresser dans leurs entreprises, quels que soient les aléas et les éléments défavorables existants.

Nous rappelons à cet égard que les pays dans lesquels ils évoluent et que les indicateurs socio-économiques présentés, sont bien en deçà de ceux des pays occidentaux. Il est clair aussi que l'émergence de la pandémie COVID, depuis début 2020, va contrarier ces visions et actions envisagées avant la crise. Ils sont néanmoins toujours à l'ordre du jour alors même que les nouveaux auditeurs de la nouvelle promotion OPT 2021-22 (47 auditeurs) terminent leur parcours et parfois révisent et ajustent ces plans d'actions...

Ces travaux et ce parcours dans notre grande école de management de service public que constitue AgroParistech ont été possibles grâce au soutien du groupe SUEZ, de l'Agence Française de Développement (AFD), et des Agences de l'eau françaises et enfin des directions générales des entreprises dont sont issues nos Executive managers.

Face aux enjeux qu'ils décrivent, souhaitons-leur à toutes et tous un engagement et une détermination de tous les instants dans des secteurs EAU ET ASSAINISSEMENT trop souvent négligés en investissement et en capacité alors qu'ils sont déterminants pour les succès à venir de leur pays et de leurs continents !

Jean Antoine FABY

Directeur de la chaire AgroParisTech - SUEZ
"Management général des services urbains d'eau et d'assainissement"
Mars 2022

Eau pour Tous
Water for All
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La chaire AgroParisTech - "SUEZ - Management général des services urbains d'eau et d'assainissement"

Inaugurée en 2009, la chaire d'enseignement et de recherche "Eau pour Tous" - OpT, a pour objectif de mener des actions de recherche et de formation pour faciliter l'accès universel et durable à l'eau potable et à l'assainissement.

Portant sur la gestion des service urbains d'eau et d'assainissement dans les pays émergents, en transition et en développement, elle vise à constituer un pôle international de référence pour renforcer les compétences des gestionnaires et ainsi contribuer à l'atteinte des Objectifs de Développement Durable de l'ONU.

Adossé à un programme de recherche adapté aux objectifs de la chaire, le MASTÈRE SPÉCIALISÉ "Eau pour Tous" - OpT, a ainsi été créé pour renforcer les compétences des leaders et des managers opérationnels identifiés par les opérateurs locaux pour accompagner le changement et améliorer les services sur le périmètre urbain d'une capitale ou d'une ville secondaire de leur pays.

Il est ouvert à des spécialistes venus d'Afrique, d'Asie Centrale et du Sud-Est mais également d'autres horizons comme l'Europe Centrale et l'Amérique.

La formation vise à renforcer les capacités des managers eau et assainissement pour qu'ils puissent :

• Diagnostiquer et élaborer des stratégies pour atteindre l'excellence technique, sociale et financière de leur service
• Conduire le changement dans leur entreprise et leur régie avec des méthodes de management durable
• Définir et engager les dynamiques de réforme à l'échelle de leur service ou de leur pays

En l'espace de 13 ans, 240 managers venant de 52 pays sur 4 continents (Afrique, Asie, Amérique et Europe) ont été formés au MS "Eau pour Tous" - OpT. Ils ont doté les services de leur ville de plans d'actions pour une durée de 5 à 10 ans.
Ces plans représentent en totalité la distribution annuelle de + de 2 milliards de m^3 d'eau en 2022 et + de 4 milliards de m^3 à l'horizon 2035 d'après la croissance urbaine de ces continents.

PREFACE (ENG)

These summary presentation documents prepared by 37 specialist SPECIALIZED MASTER “Water for All” - OpT session 2019-2020 (23 English speaking /14 French speaking - 7th promotion called promotion Gérard PAYEN) are the outcome of 13 months of a training program between:

• Training on the AgroParisTech campus in Montpellier over 6 months in 3 phases
• Immersion and case studies abroad over 3 weeks: Singapore/Cambodia - Casablanca/Ouagadougou
• 6 months in their own departments to collect precise data, exchange with their teams, share diagnoses and strategies.

Each OPT trainee presented, from April 2020 to June 2020, his or her strategic action plan (SAP), a real professional thesis, applied to the management of change which he or she had been thinking about throughout the training.

It is the result of an analysis and diagnosis of a water and sanitation service situation on the one hand, then in its extension, of a strategy that is as elaborate as possible, and finally of the prefiguration of actions to be undertaken.

Their action plan constitutes a "scenario of the possible" in a 5- or 10-years projection, while taking into account, or not, actions or investments already undertaken in their service or at a state level. They are described in this corpus.

They provide insights into their own analysis of the situation and how to achieve concrete improvements. By taking a step back and giving their point of view, sometimes in layman's terms, the OPT trainees want to make the reader aware of the complexity of their environment which can, and must, lead to the transformation of their service.

These presentation sheets are personal and can be improved upon, sometimes in different styles. They are intended to give the reader a taste of their vision and the horizons for service development as imagined by the author, an OPT trainee

Sometimes heterogeneous in their form, even in their content, they are the result of work carried out in three stages. They have the merit of introducing the main dimensions of water and/or sanitation sector management in their country.

They show the questions and sometimes the doubts and obstacles that they face on their way to improving access to water and sanitation for all citizens of their city and country.

Resolutely framed towards the future, these documents are not "scientific reports" as such but rather a series of messages which highlight that managers are working to move forward and progress in their companies, regardless of the hazards and unfavourable elements that exist.

In this respect it's only right and proper to bear in mind the context of the many and varied socio-economic indicators which exist in their respective countries that are well below those of western countries apart from when it comes to issues of growth. It is also clear that the emergence of the COVID pandemic, since the beginning of 2020, will thwart these visions and actions envisaged before the crisis. Nevertheless, they are still on the agenda as the new OPT 2021-22 class (47 trainees) completes their course and sometimes revises and adjusts these action plans...

This work and this course at AgroParisTech, our renowned public service management school, were made possible thanks to the support of the SUEZ group, the French Development Agency (AFD), the French water agencies and the general management of the companies from which our executive managers come.

Facing the challenge, they describe, let us wish them all a constant commitment and determination in the WATER AND SANITATION sectors, which are too often neglected in terms of investment and capacity, even though they are decisive for the future success of their countries and their continents!

Jean Antoine FABY

AgroParisTech - SUEZ Chair Director
" General management of urban water and sanitation services"
March 2022

AgroParisTech Centre in Montpellier

Eau pour Tous
Water for All
AgroParisTech • SUEZ

AGROPARISTECH - SUEZ “General management of urban water and sanitation services”

Inaugurated in 2009, the “Water for All” teaching and research chair aims to contribute to research and training actions in order to ease global, sustainable access to water and sanitation.

Regarding the drinking water and wastewater urban services management in emerging and in transition countries, it aims at setting up an international centre of reference in order to reinforce the management skills and thus reach the objectives of the millennium.

Supported by a research programme based on the aims of the chair, the International Executive Masters OPT (Advanced Masters - IEM OpT) was created to expand the skills of operational leaders and managers identified by local operators to support change and improve services in the urban area of a capital or secondary city in their coun try.

The course is open to specialists from Africa and Central and South-East Asia, as well as from regions such as Central Europe and America.

The training programme aims at rein forcing the skills of business managers so that they are able to:

• Assess and develop strategies for reaching technical, social and financial service excellence
• Directing the change in their companies and public corporations, with sustainable management methods,
• Defining and employing reform dynamics on a departmental or nationwide scale

In 13 years, 240 managers from 52 countries on 4 continents (Africa, Asia, America and Europe) have been trained in the MS "Water for All" - OpT.
They have provided their city departments with action plans for a period of 5 to 10 years.
These plans represent in total the annual distribution of more than 2 billion m^3 of water in 2022 and more than 4 billion m^3 by 2035 according to the urban growth of these continents.

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BURUNDI

AMÉLIORATION DE LA QUALITÉ DU SERVICE D'ASSAINISSEMENT A BUJUMBURA (BURUNDI) ET PROTECTION DES RESSOURCES EN EAU DU LAC TANGANYIKA

Par M. François NAHIMANA

Capitale économique du Burundi, située au bord du Lac Tanganyika, traversée par plusieurs cours d'eau, surplombée par la chaîne de montagne "Crête Congo-Nil", Bujumbura a une superficie de 128 km^2 et une population de 743 500 habitants. Les projections prévoient 920 000 habitants en 2030, avec un taux d'accroissement annuel moyen de 4,2%. L'urbanisation est incontrôlée et il n'existe pas de plan d'urbanisation.

CONTEXTE

Le premier réseau d'eau et d'assainissement date des années 1950 (avant l'indépendance).
La REGIDESO assurait alors le service d'assainissement à travers un département de la municipalité. En 1983, une Régie des Services Techniques Municipaux (SETEMU) a vu le jour pour la gestion du service d'assainissement (liquide et solide). Avec l'aide de la coopération allemande, le réseau s'est développé en 1997 et compte 4 stations de pompage. Il a été raccordé à une STEP en 2020 (environ 20 000 m^3/jour), actuellement exploitée à moins de 25%.
Malgré cette avancée, le secteur n'a pas connu d'évolution. La qualité du service et l'état des ouvrages se sont dégradés par manque de moyens financiers pour la maintenance et l'extension du réseau de la ville qui s'accroît régulièrement.

Le réseau d'assainissement unitaire est long de 185 km et son état physique n'est pas connu.
Le taux de raccordement est estimé à 10%.
Nous ne disposons d'aucune redevance d'assainissement sur l'eau potable.
En mai 2019, la Régie est intégrée au sein de l'"OBUHA" (Office Burundais de l'Urbanisme, de l'HAbitat et de Construction) résultant de la fusion de plusieurs services de base : assainissement, hygiène, urbanisme et habitat. Par le passé, les services d'urbanisation et d'habitat se coordonnaient uniquement avec la Régie des eaux pour le raccordement à l'eau potable des nouveaux quartiers, et non avec le service d'assainissement.

ÉLÉMENTS DU DIAGNOSTIC

Les chiffres de l'assainissement aujourd'hui :
• Taux de raccordement au réseau conventionnel : 10%
• Taux de l'assainissement décentralisé autonome et non contrôlé : 85%
• Taux de population sans toilette : 5%
Le volume d'eaux usées collectées et non épurées : de l'ordre de 40% (pas de débit métré)

"Faibles implications des bailleurs pour le moment alors que le lac Tanganyika constitue une des plus grandes ressources d'eau douce du monde"

Forces et opportunités	Points sensibles et faiblesses
Rapprochement urbanisme-habitat-assainissement	Existence de plusieurs acteurs institutionnels
Un signal fort pour un vrai changement dans la gestion des services de base où il faut penser à l'assainissement comme il a été fait pour les autres services lors des travaux de viabilisation des nouveaux quartiers	La non-définition des limites des uns et des autres est à l'origine d'absence de concertation et de chevauchement d'action
Volonté des partenaires techniques et financiers (PTF)	Absence de plan stratégique et d'investissement consolidé
Ils sont toujours disposés à améliorer la qualité du service à cause des épidémies récurrentes liées aux maladies hydriques et à la pollution subit par le lac Tanganyika	Cela met en péril l'autonomie de l'Office et prend en otage les performances de la société
Réseau existant non saturé (bien inférieur à la capacité de traitement et de collecte)	Absence totale de redevance "assainissement" sur l'eau
Existence des lois sur l'eau et l'environnement	Faible performance opérationnelle due à une absence d'organisation et de stratégie claire
Un avantage même si les textes d'application pour garantir un service d'assainissement adéquat sont peu nombreux	Personnel non formé et manque de matériel

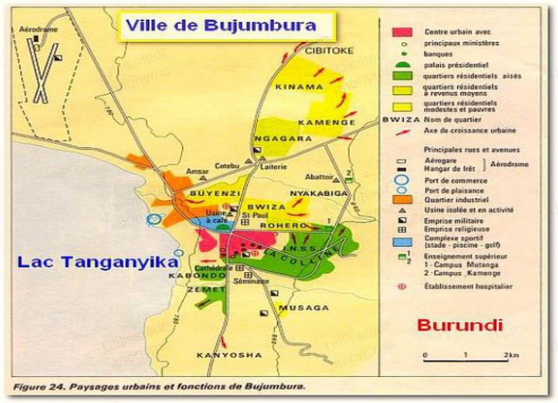
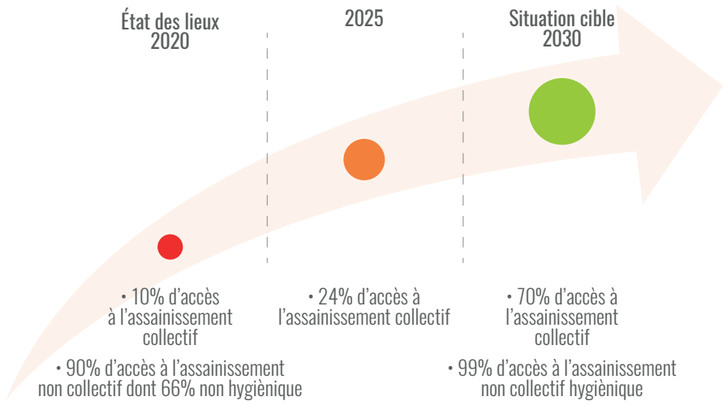


Figure 24. Paysages urbains et fonctions de Bujumbura.

STRATÉGIE

Elle vise à "assurer un service d'assainissement offrant les meilleures pratiques d'hygiène à la population de Bujumbura et préservant la qualité des eaux du Lac Tanganyika".



Cinq objectifs pour concrétiser la stratégie

1) Rendre opérationnelle et performante l'OBUHA
L'objectif vise à transférer tout le personnel des anciennes structures, à les former avec de nouveaux processus et procédures de fonctionnement au sein de l'OBUHA. L'Office doit disposer d'indicateurs de performance pertinents afin d'évaluer régulièrement ses progressions et de mesurer les résultats par rapport à des objectifs réalistes. L'intégration 'Urbanisme/Habitat/Assainissement/Construction' dans une seule structure nécessite une nouvelle culture de coordination et d'anticipation dans le développement de la capitale.
2) Élaborer un plan de développement des compétences des ressources humaines
Pour aboutir à la performance opérationnelle, Il faut un personnel formé, engagé et motivé. La formation est l'un des leviers pour obtenir l'engagement du personnel. L'objectif est d'allouer un budget suffisant (5% à 10% du budget de l'OBUHA) pour la formation du personnel.
3) Diminuer les risques sanitaires et environnementaux en améliorant les infrastructures de collecte et de traitement des eaux usées
Cet objectif vise à rénover le patrimoine et investir pour mieux collecter et traiter tous les effluents des ménages raccordés, mais aussi ceux des nouveaux ménages, ainsi que les effluents des industries de la capitale préalablement prétraités (suivant de nouvelles normes à établir). Le Lac, milieu récepteur, doit aussi disposer de systèmes de contrôle sur le plan physico-chimique, écologique et en accord avec sa biodiversité.
4) Améliorer l'accès à l'assainissement et sensibiliser les populations aux risques socio-environnementaux
Il s'agit de mobiliser la population pour changer de comportement face aux questions d'assainissement et pour considérer l'accès à l'assainissement amélioré (collectif ou non collectif) comme une des priorités à Bujumbura. Le secteur et les acteurs doivent ainsi être davantage orchestrer y compris pour les ménages non raccordés au réseau collectif, en relation avec des vidangeurs, du secteur privé le plus souvent.
5) Atteindre une gestion durable, fiable et équitable d'un service d'assainissement
Un service de qualité durable est garanti si l'équilibre financier de l'Office est atteint. La disponibilité des moyens financiers est nécessaire pour assurer un service d'assainissement équitable. Les usagers doivent être impliqués dans le financement du service par l'instauration de redevances assainissement au moins sur la consommation d'eau potable, et avec des contributions d'investissement de part de l'État, de partenaires financiers voire des investisseurs privés.

FAISABILITÉ POLITIQUE

Le Plan National de Développement (PND horizon 2028) est considéré par le Gouvernement du Burundi comme un outil de référence pour la capitale. Il intègre le secteur d'assainissement.
Ce Plan d'Action Stratégique (PAS) est conforme aux orientations du PND à travers ce qu'il propose en matière de gouvernance du secteur d'assainissement (grâce à l'OBUHA), le renforcement des capacités professionnelles, la réhabilitation et l'extension du réseau, la gestion rationnelle des boues de vidange, l'organisation des acteurs (y compris dans l'habitat) et la promotion de l'hygiène.

"Le Lac, milieu récepteur, doit aussi disposer de systèmes de contrôle sur le plan physico chimique, écologique et en accord avec sa biodiversité"

FAISABILITÉ SOCIALE

Une nouvelle politique salariale du personnel OBUHA avec des revalorisations salariales par rapport au marché est programmée avec une stratégie plus intégrée.
Les ménages doivent eux-mêmes s'impliquer, notamment s'ils ne sont pas connectés au réseau collectif, grâce à des campagnes de sensibilisation de l'OBUHA et de l'État.
Mon Plan propose la construction de 27 000 toilettes hygiéniques, l'apprentissage des bonnes pratiques d'hygiène, le raccordement de 21 000 ménages en 2025 et de 74 000 ménages à 2030. En tout ce seront 25 000 branchements en plus sur 10 ans sur le réseau qui sera réhabilité (comme la station de traitement des eaux usées) et étendu de plusieurs dizaines de kilomètres.
La première ébauche de plan d'investissement de notre PAS se résume en phase 1 sur 3 ans à 14 Millions d'euros dont 83% par L'État, 9 % par l'OBUHA, et 8% par des banques de développement sachant que 850 K€ sont déjà engagés par L'État pour la réhabilitation de la station, et 690 k€ par l'Union Européenne sur le projet "Lake Tanganyika Water Management" dit "LATAWAMA".
On notera à ce titre les faibles implications des bailleurs pour le moment alors que le lac Tanganyika constitue une des plus grandes ressources d'eau douce du monde.

CHIFFRES CLÉS

Prix moyen m^3 assainissement	-
Volume d' eaux épurées par jour	4 000 m^3
Nombre d' employés dans le service	190 (OBUHA) (2019)
Nombre branchements collectifs	59 421 (2013)

M. François NAHIMANA
OBUHA
Chef du département exploitation du réseau des eaux usées jusqu'en 2020
Avril 2020

CAMBODIA

IMPROVING SANITATION SERVICE AND OPERATOR PERFORMANCE IN SIEM REAP CITY

By Mrs Dany DOURNG

CONTEXT

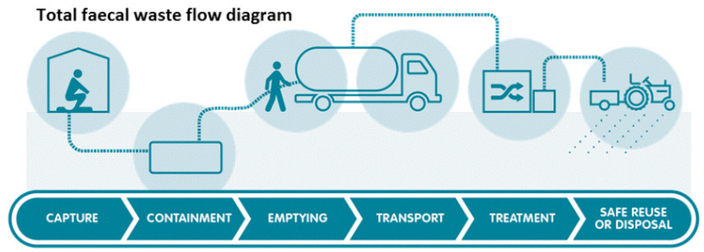
With a population of about 280,000 inhabitants, Siem Reap is a major tourist city in Cambodia which receives around 5 million tourists a year (before COVID 19).

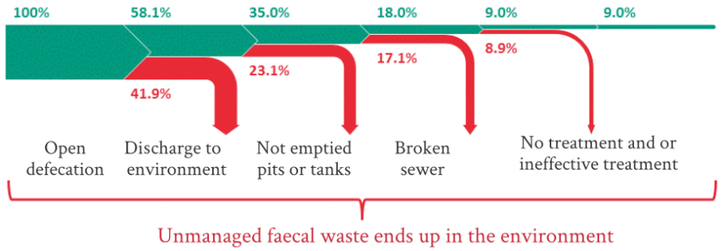
Siem Reap Sewerage and Wastewater Treatment Plant Unit (SR-SWTPU) is an administrative unite created in 2008 in purpose to operate the sewerage system. It operates under provincial department of Public Works and Transport lined with its Ministry.

"The treatment capacity should be 28 000 m³/day by 2030 which is 12 500 m³/day right now"

SANITATION CHALLENGE

About 75% of the population has access to basic sanitation, wherein only 24% are facilitated with sewerage system. Further, only 9% of faecal waste water is collected and treated. In accordance with master plan and other signatory commitments, the treatment capacity should be 28 000 m³/day by 2030 which is 12 500m³/day right now. This illustrate the inevitability of improvement in sanitation services.



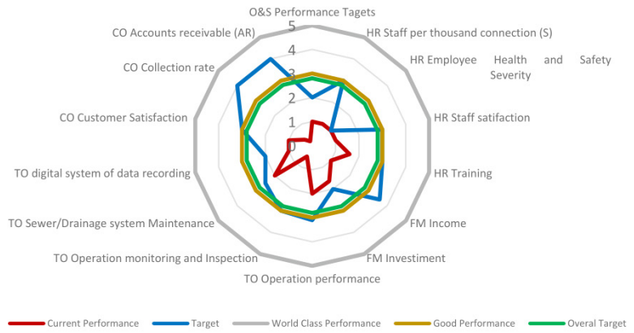


OPERATION CHALLENGES

Organization & HR

SR-SWTPU is less autonomy. The approbation of main sewerage administrative works lies under SR-DPWT whereas, planning, budgeting, master plan and big capital investments are under MPWT.

SR-SWTPU conducts operation and maintenance in a stereotype working in lieu of systematically due to non existent of any vision, mission, proper strategy, action plan and H&S guidelines. The culture of unit is orthodox due to limited skilled HR.



"SR-SWTPU conducts operation and maintenance in a stereotype working in lieu of systematically due to non existent of any vision, mission, proper strategy, action plan and H&S guidelines"

"Only 9% of faecal waste water is collected and treated"

Technical & commercial

Based on the Sewerage master plan Siem Reap city 2010-2035, feasibility 2014 & 2018 and Land us master plan 2018-2035:

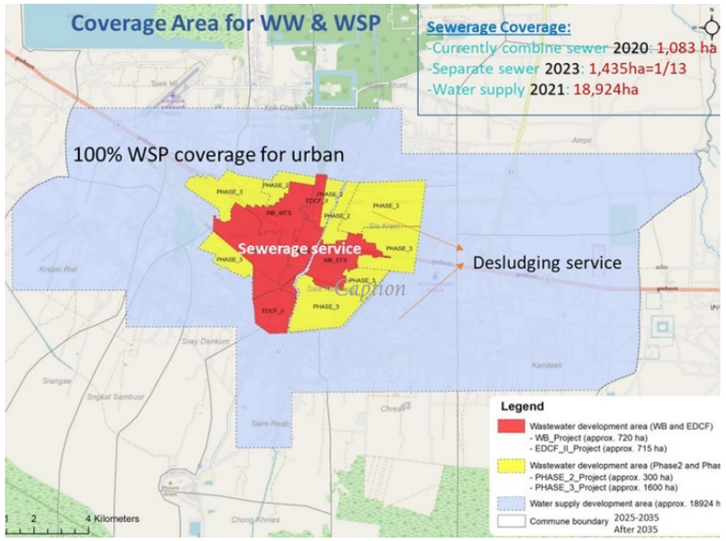
- Sewerage coverage population, coverage area (land applicable for construction) and number of connection should be 46%, 46% and 6000 respectively but instead of it, currently about 24%, 18% and 920 only.
- Treatment capacity in 2020 and 2030 should be about 11,500m³/day and 28,000m³/day whereas currently it is 12,500m³/day.
- The operation and maintenance activities/services are stereotype and orthodox. No proper desludging and maintenance of existing infrastructure are being carried out.

Weaker commercial operation due to improper customers management, limited engagement of stakeholders and poor physical & financial collection efficiencies.

Financial sustainability

The main income of SR-SWTPU is a monthly revenue, collected from the customers on the basis of block tariff which was established on the' size of the building and type of business.

The average cost recovery was 50% of the OPEX (excluding amortization and/or debt service). This gap is usually filled through grants from Government in shape of subsidies. It is estimated that O&M cost will be 60% higher than current revenues.



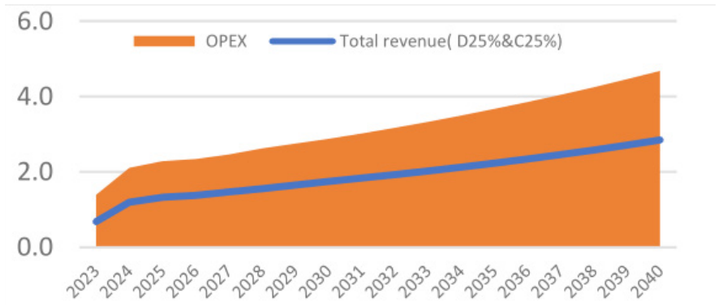
Improving the operation efficiency by developing holistic operation and maintenance manual and practice.

An independent regulatory body or agency in the meso level set up and capacity building for SR-SWTPU to handle the planning should be considered.

Activities	Outputs	Outcomes	
Revise the tariff Sub-contract sewerage bill with SR-WSA	New tariff grid Join billing Sewerage and water supply	Adaquated tariff with High collection	The revenue can cover operating cost
Construct separate sewer & Sewerage treatment Plant	Lenghth of sewers laid in city	Households covered by sewer	Increase access to improve sanitation
Conduct sludge emptying service	N.trip emptying& volum of	Households received faecal sludge	

KEY OBJECTIVES

Increasing revenue to cover operating cost in an affordable manner by 2030



Increasing access to the improve sanitation through implementation of desludge service, extension of sewerage system and sewage treatment plant

It is anticipated that the lateral sewer will collect and convey wastewater from at least 4,300 additional connections by 2023, 3,400 of which are residential. While the construction would start in 2020 and in 2023, customer connections are assumed to materialize slowly, starting in 2022 and ending in 2030, with 55% of new customers connected in 2022.

KEY FIGURES

Average sanitation tariff / m³	0,12 € / 10 m² housing / month (2016)
Volume treated wastewater per day	12 500 m³ (2019)
Number of employees	37 (2019)
Number of sewage customers	920 (2019)

Mrs Dany DOURNG

Chief of office of sewerage treatment plant and solid waste infrastructure management

April 2020

CAMBODIA

SIEM REAP WATER SUPPLY AUTHORITY

By Mrs Ravy SEANG

Population	250 798 inhabitants
Tourists (before COVID)	5 011 316 persons
GDP	1.561% (2018)

CONTEXT

Siem Reap is the 10th largest province located in the northwestern part of Cambodia with a total population of 1,042,286 Million (CDB1 2017). Siem Reap city is located centrally in the province. It consists of 13 communes with the population of the urban center estimated at around 250,798 inhabitants (Data:2018, Siem Reap Plan Department).
Today, Siem Reap is the famous cultural and natural tourist destination of the country (and the world) because the city has priceless cultures treasure such as Angkor Wat and other temple, but also natural resources like forests, biodiversity, and ecological systems. It has a large number of hotels, guesthouses, restaurants that need a demand for clean water supply. Majority of people and hotels/ restaurants are still using groundwater due to the lack of water supply system. So around 50% of the water is produced for consumption by tourists.

Currently, Siem Reap Water Supply Authority has a water supply production capacity of about 18,000 m^3/day (2018) by taking 100% underground water resources. Its service area coverage is around 38%. This figure has not fulfilled yet the demand of drinking water for the urban area including tourists. To meet the demand, SRWSA is expanding the

"It has a large number of hotels, guesthouses, restaurants that need a demand for clean water supply. Majority of people and hotels/ restaurants are still using groundwater due to the lack of water supply system"

water supply capacity with three other projects that have secured loan from AFD (Agence Française de Développement), ADB (Asian Development Bank) and JICA (Japanese International Cooperation Agency). When all the projects will be completed by 2022, we will have 92,000m^3/day and the distribution network will be 458km with a coverage area around 90%.

SRWSA is currently using the block tariff with an average tariff is 0.53$/$m^3$. With the monthly reading and the billing system, the collection ratio is around 99.99%. Also, the customer can pay his invoice by bank (CANADIA Bank, ACLEDA Bank), Wing agent and at the central agency (SRWSA's head office). For non-payment invoices, the company cut off the water temporarily and penalties are requested when reconnecting.

NRW was 6.49% by the end of 2018. For SRWSA, this is a very good indicator, reducing NRW with efficiency methods and engaged professional staff.
The financial situation is still good with an EBITDA at 40% and Net income ratio at 16%, this means that the tariff can cover the total cost.

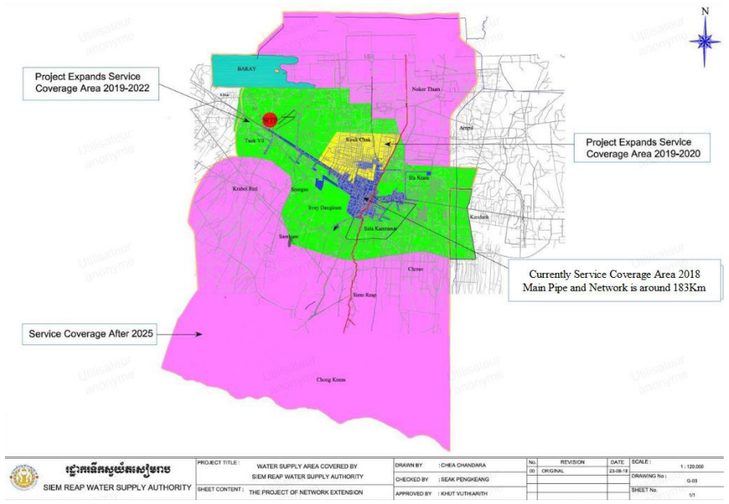
The staff ratio is 12.73/1,000 connection. It is quite high but it will gradually decrease as the network expands.
The HR system is not yet reliable due to the lack of information to understand it and a lack of qualified staff.

Regarding the measurement of the employee's satisfaction, this is not yet implemented.

DIAGNOSTIC SYNTHESIS

Cambodia has abundant freshwater resources during the rainy season and a water scarcity in the dry season. The Groundwater, streams, ponds, lakes, Mekong River, and the Tonle Sap Lake are the main sources of freshwater resources. These rich water resources provide Cambodia with a potential for developing the water supply system to people, especially in urban areas. The population access to improved water supply in urban areas (excluding Phnom Penh) is 69.7%, while access to piped water supply is low at only 42.2%.

Siem Reap is the 10th largest province located in the northwestern part of Cambodia with a total population of 1,042,286 Million (CDB1 2017), bordering the Tonle Sap (Great Lake) floodplain. Siem Reap, especially the inner city, is one of the fastest changing provinces in Cambodia and many people from other parts of Cambodia have migrated into Siem Reap town to look for jobs and run family businesses. It consists of 13 communes with the population of the urban center at around 250,798 (2018).



MAIN CHALLENGES

The big challenge of SRWSA is the gap between water demand and water production. The water demand is about 62% considering the fact that a lot of inhabitants and hotels have their own providing of groundwater not well quality controlled.

To meet the water needs, SRWSA found external help for financing. As a result, three projects are underway to increase the production capacity and to expand the distribution network with three different donor loans from AFD, ADB and JICA. The project is supposed to be carried out gradually since 2017 and will be completed in 2023. At that time, SRWSA will grow up very quickly from a small to a the big company, and the staff environment may change terribly.

To ensure that SRWSA achieves the vision, the company has set up a strategy with three objectives:

1. Reach 95% coverage of population served in the area by 2030
Target: 95% SRWSA coverage rate: Continue ongoing projects, improving existing treatment capacities, expand distribution pipeline networks and increasing the number of customers.

2. Ensure the sustainability on financial by 2030
Target: Operation cost coverage ratio≥ 1.20: Secure finances through the optimisation of operations and maintenance, maintain collection rate at 99.99% and make the tariff revision of nowadays tariff structure.

3. Improve and advance employee productivity by 2027
Target: 5/1,000 connection: Participate in the training and staff evaluation based on each person's performance. Monitor staff skills and motivation by maintaining (or upgrading) the incentive program.

Indicator	2018	PROJECTION 2030
Production	6.57Mm^3/day	32.85Mm^3/day
Coverage area	38%	99%
Number of Customers	8,797	52,249
Metered Connections	100%	100%
NRW	6.49%	8%
Network	183Km	500Km
Number of Staff	112	251
Staff Ratio	12.73/1000 connections	5/1000 connections
EBITDA	40%	45%
Collection rate	99.99%	99.99%

"The big challenge of SRWSA is the gap between water demand and water production. The water demand is about 62% considering the fact that a lot of inhabitants and hotels have their own providing of groundwater not well quality controlled"

KEY FIGURES

Average water tariff / m^3	0,47 € (2018)
Volume treated water per day	18 000 m^3 (2018)
Volume treated wastewater per day	8 797 m^3 (2018)
Number of employees	112 (2018)

Mrs Ravy SEANG

Vice chief mechanical and laboratory office

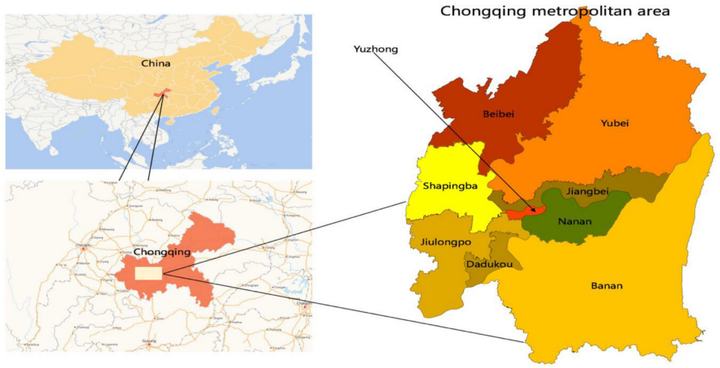
Siem Reap Water Supply Authority

April 2020

CHINA

STRATEGY AND ACTION PLAN TO IMPROVE WATER SUPPLY SERVICE IN CHONGQING MAIN CITY

By Mr Yin CHENG



Population in 2018	8.75 million
Urbanisation rate	90.5%
GDP	€ 104.4 Billion

OVERVIEW

Chongqing Main City is the core area of Chongqing City in southwest of China. It is a large city with a population of 8.75 million and rich surface water (2 rivers). Chongqing Water Asset Management Company (CQWA) is a state-owned enterprise founded in 2007. Located in Chongqing Main City, the company is in charge of urban water supply and sewage treatment, water resource development, solid waste treatment, hazardous waste disposal and ecologic environment restoration. Through years of development, CQWA company has a very good performance, it owns 21 water supply plants and covers 95% of the water supply local market. The customer satisfaction rate is over 98%. However, with the growing urbanisation in China, the urban water supply market is in expansion, and customers have more needs and want higher standards for water services.

The opportunities and challenges of CQWA are:
- further improve management ability
- optimise the level of service
- realise the expansion of water supply business.

Strategic action plans aimed at answering these challenges.

Chongqing Main City, China:
Stand at the starting point of further upgrading and quality development of water supply industry.

Water 2017/2018

Production	2.63 Mm^3/d
No. customers	3.24 Million
Meter connections	99.5%
NRW	15%
Network	10000 km
Storage	0.27 Mm^3
No. employees	2000
Turnover water	372 M€
EBITDA	32.68%
Revenue after tax	13.83%
Collection rate	100%

"Through its development, CQWA found that in the current management process, the water supply industry chain is scattered, affecting work efficiency"

DIAGNOSIS

Through a comprehensive diagnosis with organisation and strategy, HR management, financial management, technology management and commercial management, CQWA's water supply business is well developed in Chongqing Main City.

The company has a complete water supply industry chain and infrastructure. It has established a variety of management information systems. The water supply service has been recognised by local customers. Its performance and maturity indicators on the five dimensions reach the "well-performing" level, but there is still a gap with the "world-class" level. Through its development, CQWA found that in the current management process, the water supply industry chain is scattered, affecting work efficiency.

The existing information technology, the operation management and the water supply service also need to be further improved, although the willingness of industrial market expansion is not strong.

STRATEGIC OBJECTIVES

"The CQWA 2030 Strategy" is to be listed in the TOP 10 most renowned enterprises in China's water supply industry by 2030.
The Strategy includes 12 Action sheets in the field of management, operation and business expansion.

MANAGEMENT UPGRADE

By integrating the business industry chain (company water supply), then establishing a unified management system, and also comprehensively using "smart water" information technology, production and operation costs per cubic meter will be reduced by 15% to 20%.

Management upgrading also means optimising the management team, establishing a professional public relations department, maintaining the customer satisfaction to more than 98%, and establishing a mechanism of employee compensation to strengthen the incentive.

"By integrating the business industry chain (company water supply), then establishing a unified management system, and also comprehensively using "smart water" information technology, production and operation costs per cubic meter will be reduced by 15% to 20%"

OPERATIONAL UPGRADE

An operational upgrade through the application of new technologies, to ensure 100% water quality, to reduce NRW to 10% and to reach 100% of the water supply facilities regarding the life-cycle management.

BUSINESS EXPANSION

Implement a business expansion by :
- shaping the company's brand image and becoming a national famous brand
- maintaining water supply coverage over 95% in Chongqing Main City (about 1Mm^3/d)
- increasing by 40% (about 3.5 Mm^3/d) water supply business of CQWA total water supply capacity
diversifying the water supply business (fine drinking water)
- introducing innovation ("water saving and e-commerce")

FEASIBILITY

China is in a period of rapid development and transformation of the water supply industry.
On one hand, from the perspective of company development, this strategy meets the CQWA company's development needs:
- improve the efficiency of water supply management
- reduce costs
- save social resources
- make the company more efficient
- enhance the company's water supply operation ability
- improve the water quality
- reach the water quality standard
- stably reduce the leakage of pipe network
- improve the asset management ability to reduce the company's operation cost
- improve the service quality to customer

On the other hand, the company is in:
- the growing period of urban water supply demand
- seizing marketing opportunities
- establishing the company's brand and image
- improving the water supply capacity of the Chongqing Main City area
- increasing water supply projects outside of Chongqing
- investing in diversified water supply business
- developing innovative services, which can further improve the company's popularity
- enhancing capacity for water supply to customer needs
- expanding business and getting support from the Government

Therefore, for CQWA company's development, the strategy is of great importance, which not only meets the development goals of the company, but also meets the water supply needs of the government and society.
It is a win-win situation for the development of the company and the society.
At the same time, China's society is stable. Every year, there is a large amount of investment in the national financial infrastructure in the field of water supply industry.

Customers have developed the habit of paying for water, and they are very concerned about protecting the ecological environment and conserving water. The water supply market has huge potential.

Through the comprehensive analysis of internal and external social, economic, environmental and market development needs of CQWA company, this strategy is entirely feasible and necessary.

Population growth	2.8%
GDP per capita	€11938

KEY FIGURES (M = Million)

Average water tariff / m^3	0,33 € (2018)
Volume treated water per day	2,63 M m^3 (2018)
Number of water employees	Around 2 000 (2018)
Number of water customers	3,24 M (2018)

Mr Yin CHENG

Senior technical engineer

Chongqing Water Asset Management Company

April 2020

CHINA

HOW CAN A PUBLIC UTILITY OVERCOME CHALLENGES AND SEIZE HISTORICAL OPPORTUNITIES TO PROVIDE CUSTOMERS WITH FINE DRINKING WATER SERVICES?

By Mr Benhong YU

Population (2018)	8.75 M
Urbanization rate	90.51%
GPD per capita	US$ 13 302

OVERVIEW

Chongqing Sanfeng Science & Technology Co., Ltd (Sanfeng Sci &Tech) is a core engineering technology company and integrated solution provider for waste leachate, industrial waste water treatment, garbage collection and transfer, and food and kitchen waste treatment. Sanfeng Sci &Tech is market-oriented and able to provide design, equipment supplies, project construction and operation services to internal companies of CSEG, but also external companies.

Nowadays China's residents have a strong demand for fine drinking water. The Chinese government encourages enterprises to use new technologies for fine drinking water. However, the fine drinking water market is dominated by private enterprises, with poor services, because the private enterprises pursue equipment sales and neglect maintenance and after-sale services.

Sanfeng Sci & Tech believes that there is a big chance with challenges in fine drinking water services market.

Chongqing has both opportunities and challenges in providing fine drinking water services.

"The fine drinking water market is dominated by private enterprises, with poor services, because the private enterprises pursue equipment sales and neglect maintenance and after-sale services"

Year	N° of Employees	Income (M€)
2016	111	40
2017	128	48
2018	149	54

DIAGNOSIS

In order to standardise operation and management of the fine drinking water service in the Chongqing main city, this report diagnoses environment and ability of Sanfeng Sci &Tech from the aspects of policy framework and regulation system, the organisation and strategy of the company, human resources, financial management, technology management and commercial management.

Sanfeng Sci &Tech has strengths in many aspects: it is able to design, manufacture and maintain the membrane system. It has a design department with R&D function, construction ability for EPC (Engineering, Procurement and Construction), staff with technical skills, young and middle-aged staff account for 86%, Strong and mature HR management. The mother company has high experience on investment. It is a public entity with trust from customer safety management is sufficient.

Sanfeng Sci &Tech has weaknesses in many aspects, such as no department or branch to manage fine drinking water services, lack of experienced staff for fine drinking water service, lack of communication experience to customers of fine drinking water service, and equipment procurement process is too long.

Sanfeng Sci &Tech has opportunities in many aspects, such as customer demand for fine drinking water, existing fine drinking water services are provided by private companies, quality can't be guaranteed. It belongs to CQWA, which can provide water resource for fine drinking water services.

Sanfeng Sci &Tech has threats in many aspects, such as lack of benchmarking, no pricing policy and strong competition in fine drinking water services.

STRATEGIC OBJECTIVES

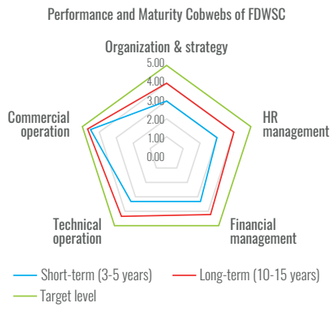
Main objective

The main objective is to provide 50% of Chongqing population with fine drinking water sustainable in the future 15 years, with the water quality meeting the requirements of "Water quality standards for fine drinking water (CJ 94- 2005)" at the same time.

Sub-objectives

In order to achieve the above main objective, a new company named FDWSC is suggested to be set up by Sanfeng Sci &Tech in near future, which will be responsible for fine drinking water services in Chongqing main city.

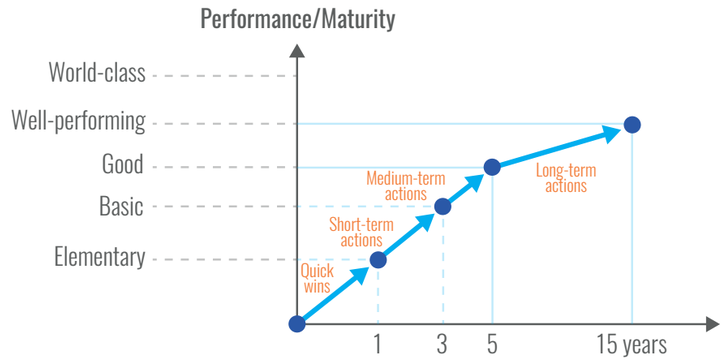
Five sub-objectives are defined. The maturity and performance of FDWSC should reach the level of good performance and world class in 5 aspects: organisation & strategy, financial management, human resource management, technical operations, and commercial operations.



Action plans

A series of action plans would be implemented to achieve the sub-objectives, such as making a good vision and strategy for fine drinking water and implement, using the financial management method to monitor the financial KPIs to ensure the financial sustainability, using human resource management methods to monitor human resource KPIs to ensure the efficiency of human resources, using technical means to manage the quality and efficiency of fine drinking water service, development and design of equipment for fine drinking water systems, using commercial operation management method to monitor KPIs of commercial operation and ensure good services to customers and stable income.

"Public utilities: Is it a good idea to upgrade product quality to meet customers' requirements, like Nokia's mobile phone moving to Apple?"



In order to achieve the strategic objective of providing 40% of Chongqing population with fine drinking water sustainable in the future 3-5 years, 38 actions will be implemented, such as :

- starting research and development and pilot test of fine drinking water project
- developing a strategic plan for the company in the next 10 years and share short-term targets and strategic plans with each employee
- optimising the equipment procurement procedure
- using IT software, operating systems, and tools that match work flow
- making the company sustainable in finance and implementation
- controlling the number of employees based on the number of customers
- building a policy to make sure employee compensation is consistent with local market prices
- developing NRW reduction and water balance statistics and control policies
- recording and assessment of assets every year
- raising public awareness of fine drinking water

Public utilities: Is it a good idea to upgrade product quality to meet customers' requirements, like Nokia's mobile phone moving to Apple?

Water is source of life, maybe it's time to improve the quality of the water we drink every day.

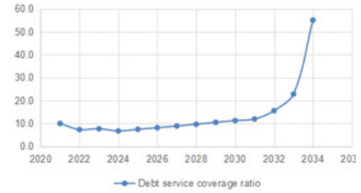
FEASIBILITY

From the tariff study, we can get the relationship between different water price scenarios and annual debt-to-equity ratio prediction of FDWSC from 2021-2034. As a result, it is recommended that the 'drinking and purified water' tariff of this project be set at 50 US $/m^3$, cheaper than water bottles currently! which not only ensures the financial stability, but also ensures that FDWSC is competitive with a relatively low price compared to competitors.

The debt service coverage ratios (DSCR) prediction of FDWSC from 2021 to 2034 can be obtained, based on the sub-scenario with a water tariff of 50 $/m^3$. As a result, all of the DSCR>1.0 indicate that FDWSC will generate sufficient cash flow to pay the debts in the future years. This indicates that FDWSC has sufficient financial stability to support the operation of fine drinking water in future.

According to global feasibility analysis, it is possible to develop fine drinking water services in Chongqing main city in the aspects of social, political, economic activities, geo-strategic, environment impact, market and technical subjects.

We can also conclude that there are many advantages to develop fine drinking water services, such as saving resources for the society, creating value for customers, and making Sanfeng Sci &Tech achieve continuous and stable development.



KEY FIGURES

Fine tap drinking water / m^3	44 € (2030)
Volume fine tap drinking water	Pilot experience
Number of employees	149 (2018)
Fine tap water consumer	-

Mr Benhong YU

Deputy General Manager

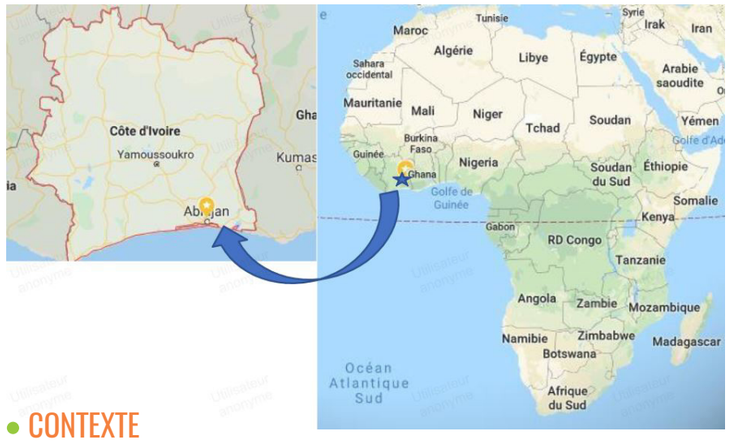
Chongqing Sanfeng Science & Technology Company

April 2020

CÔTE D' IVOIRE

AMÉLIORATION DE L'ASSAINISSEMENT DANS LE DISTRICT AUTONOME D'ABIDJAN

Par M. Dominique OGA



CONTEXTE

La Côte d'Ivoire est un pays d'Afrique de l'Ouest, sa superficie est de 322 462 km² et compte 26 594 750 habitants et sa capitale économique est Abidjan. Abidjan est une ville côtière de 422 km² et sa population est estimée en 2020 à environ 5,7 millions d'habitants.

En matière d'assainissement, le réseau de la ville est le plus important du pays avec un linéaire de plus de 2500 km (EU et EP) et 52 stations de pompage (refoulement et Relevage).

Malgré ces importantes infrastructures, la situation de l'assainissement de ce district n'est pas satisfaisante.

"Malgré la création de l'ONAD, la situation de l'assainissement et du drainage de la ville d'Abidjan, bien qu'ayant connu une légère amélioration, est tout de même loin de satisfaire les usagers"

PROBLÈMES D'ASSAINISSEMENT

La situation sanitaire reste précaire dans la capitale et une pollution généralisée des milieux urbain et lagunaire, est à noter. Les causes en sont les suivantes :

- Le volume de boues de vidange dépoté illégalement est de 700 m³/j pour une production estimée à 1400 m³/j
- 70% des industries ne disposent pas de stations d'épuration pour leurs rejets liquides
- 40% des industriels ne réalisent pas de bilans de pollution
- Une occupation anarchique des sites non aménagés
- La prolifération de quartiers précaires déversant les eaux usées dans les canaux pluviaux

Il existe aussi une insuffisance du réseau collectif surtout dans les quartiers périphériques dû à :

- Un manque d'investissement dans les infrastructures d'assainissement avec pour corollaire la vétusté du réseau
- Une défaillance dans l'exploitation du réseau d'assainissement
- Une multitude d'acteurs dans le domaine de l'assainissement marqué par un manque de coordination de leurs activités.

L'État a créé un Office National de l'Assainissement et du Drainage (ONAD) en vue de pallier ces insuffisances dans le domaine de l'assainissement.

La création de cet office a pour objectif :

- Une responsabilité unique, plus claire pour la mise en œuvre de la politique d'accès à l'assainissement et au drainage
- Une plus grande efficience administrative et financière du fait d'une double tutelle technique et financière
- Une meilleure interaction entre les projets d'assainissement et les autres projets ayant des impacts sur le secteur (urbanisme)

"Le réseau de la ville est le plus important du pays avec un linéaire de plus de 2500 Km (EU et EP) et 52 stations de pompage (refoulement et Relevage)"

Cependant, malgré la création de l'ONAD, la situation de l'assainissement et du drainage de la ville d'Abidjan, bien qu'ayant connu une légère amélioration, est tout de même loin de satisfaire les usagers.

DIAGNOSTIC DE L'ONAD

FORCES

- Bénéficie de la Confiance de l'État et des bailleurs de fonds
- Compétence du Directeur Général
- Professionnalisme et expertise du personnel

FAIBLESSES

- Difficulté à s'imposer comme unique responsable chargé de la mise en œuvre de la politique sectorielle de l'assainissement
- Ressources humaines non utilisées efficacement
- Absence de politique de rémunération en fonction de la performance
- Difficulté de vérifier les charges directes du service du fermier
- Entièrement dépendant des subventions

MENACES

- Application lente de la réforme institutionnelle
- Non-opérationnalité de la FNAD censé financer l'ONAD
- Insuffisance des indicateurs de performance et de mesures de coercition du contrat d'affermage
- Incivisme des populations
- Impact sanitaire lié au niveau élevé de la pollution due aux eaux usées non traitées
- Insuffisance du tarif du m³ d'eau (PMB)

OPPORTUNITES

- Existence d'une assistance technique institutionnelle : Le BNETD
- Existence d'une volonté politique
- Contexte politique et économique favorable
- Existence d'un schéma Directeur récemment actualisé
- Existence d'entreprises locales compétentes dans le domaine des travaux d'assainissement

VISION

"Garantir à toute la population d'Abidjan, l'accès à un ass. amélioré et à un service qui offre les meilleures pratiques d'hygiène et de protection de l'environnement en 2030"

CIBLE

Aujourd'hui 40% d'ass. collectif et 60% d'ass. non-collectif dont 10% non hygiénique. La cible en 2030 : 75% d'ass. collectif et 25% d'ass. non-collectif hygiénique.

PLAN D'ACTION STRATÉGIQUE

Le PAS découle de quatre objectifs structuraux qui sont :

Objectif 1 : Accroître l'accès à l'assainissement des eaux usées domestiques et développer les ouvrages de drainage des eaux pluviales

Objectif 2 : Mobiliser des financements pour sa mise en œuvre

Objectif 3 : Garantir un service d'entretien et d'exploitation du patrimoine d'assainissement de qualité

Objectif 4 : Sensibiliser la population, communiquer et former les acteurs

ÉVALUATION ÉCONOMIQUE ET FINANCIÈRE

Définition des scénarios :

Pour l'étude de la faisabilité économique et financière, nous avons exploité le modèle de comparaison basique des flux financiers actualisés

Deux scénarii ont été simulés :

1-Scénario au fil de l'eau, qui n'intègre pas le Plan d'Action Stratégique (PAS). Il correspond à la situation "sans projet" i.e. qu'aucun investissement n'est réalisé.

Les habitants d'Abidjan continuent à utiliser leurs installations d'assainissement existantes. Ils paient ainsi la même redevance d'assainissement incluse dans la facture d'eau potable. Le nombre de raccordements est constant et reste le même entre 2020 et 2030.

2-Scénario du PAS : qui intègre les actions envisagées par le PAS. Le tableau ci-dessous montre les principaux aménagements prévus par le PAS.

Périmètres	Abidjan : 422 km²	
Horizon	2020	2090
Population (selon RGHP, 2014)	5 491 179	7 098 053
Taux de croissance de la population (RGHP)	2.6%	2.6%
Longueur de canalisation EP (Km)	1 600	1 748
Nombre de barrage et bassins érecteur	7	10
Longueur de canalisation EU (Km)	900	2 728
Nbre de Station de refoulement	52	146
Nombre de STEP	1 émissaire en mer	2+1 émissaire en mer
Nombre de STBV	3	11
Nombre de branchements	-	-
% de population ayant accès à l'ass. collectif	40%	75%
% de population ayant accès à l'ass. autonome	60% (2% R - 58% NR)	25% (2% R - 23% NR)
% de population effectuant la DAL	6% parmi les non raccordables (NR)	0%

ANALYSE FINANCIÈRE

L'actualisation de la différence des cash- flows de la situation au fil de l'eau et la situation avec le PAS, donne une VAN à 8% nettement négative. Ce qui indique que le projet n'est pas viable de ce point de vue. Cependant, lorsque les investissements sont supportés par l'Etat, les revenus issus des tarifs et des branchements équilibrent les charges d'exploitation à partir de l'année 2030.

L'Etat s'appuiera sur l'ONAD pour la recherche d'emprunt pour le financement des infrastructures.

Pour couvrir les coûts d'exploitation et de renouvellement, le coût moyen de la redevance devra être augmenté de 25% par an sur la période 2020-2030 pour atteindre 307 FCFA/m³ en 2030 pour les ménages raccordés (contre 33 FCFA/m³ en 2020).

Cette tarification permet d'assurer la pérennité du financement des coûts d'exploitation et de renouvellement.

Bilan économique direct

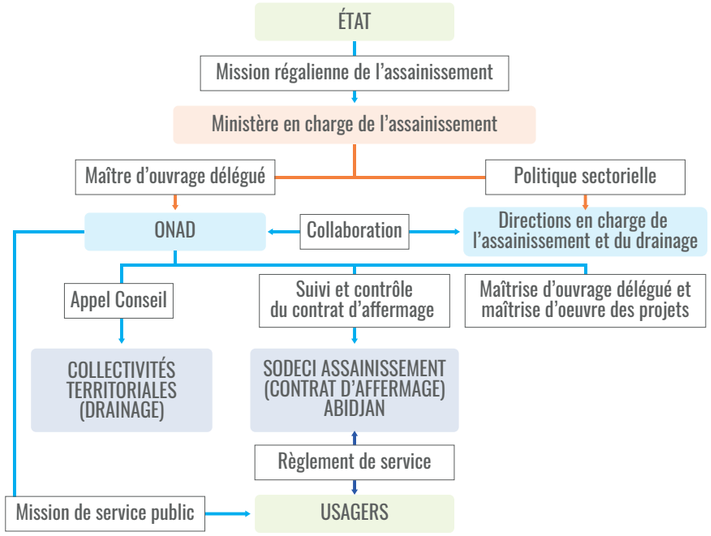
Le bilan économique direct du projet est déduit de la comparaison des avantages directs et des coûts directs du projet. Ainsi sur la période 2020-2030, en termes de VAN (8%) sur la période 2018-2030, le bilan économique direct du projet est négatif : -436 Md de Fr CFA constant.

Bilan économique indirect

En appliquant le ratio obtenu de 117,5 US$/hab./an-suite aux recommandations issues d'une étude de l'OMS- aux personnes bénéficiaires du projet, les avantages socio-économiques atteignent 1433 milliards de FCFA sur la période 2020-2030 en termes de VAN (8%).

Bilan économique global

Au terme de l'analyse économique globale du projet, le bilan économique direct du projet est nettement négatif, les coûts directs excédant les avantages de plus de 430 milliards de FCFA en termes de VAN (8%) sur la période 2020-2030. Cependant, l'importance des avantages socio-économique indirects (1433 milliards de FCFA) permettent de justifier la réalisation du projet d'un point de vue économique.



CHIFFRES CLÉS

Prix moyen m³ assainissement	0,07 € (2018)
Volume d' eaux épurées par jour	9 800 m³ (2018)
Nombre d' employés dans le service	60
Nombre d'abonnés eau	265 052

M. Dominique OGA

Chef de mission

Bureau National d'Études Techniques et de Développement (BNETD)

Avril 2020

EGYPT

HOLDING COMPANY FOR WATER AND WASTEWATER IN EGYPT

By Mr Mahmoud Abd Al Rahman MEHANY

- Number of served inhabitant: 100 Million
- Number of Water treatment plants: 2,711
- Drinking water production capacity: 26 Mm³/day (9 BCM/year)
- Length of the drinking water network: 165,000 km
- Water coverage: 97%
- Number of wastewater treatment plants: 400
- Wastewater treatment capacity: 10.5 Mm³/day (4 BCM /year)
- Length of the sewer system: 43,000 Km
- Coverage of wastewater treatment: 59% (98% in urban areas- 12% in rural areas)
- Total profit = 1 B€/year 2018
- Total net revenue = - 147 M€
- Average NRW 30%

OVERVIEW

Public water supply in Egypt used to be the responsibility of the municipalities in the governorates. As their performance deteriorated, a major reform of the water supply and wastewater sector was initiated in Egypt at 2004 as two Presidential Decrees (PD) were issued, both under the supervision and responsibility of the Minister of Housing, Utilities and Urban Development (MHUUD). One creates the Holding Company for Water and Wastewater (HCWW) and the other creates the regulatory body Egypt water Regulatory Agency (EWRA).

HCWW is responsible for managing 25 ACs (Affiliated Companies) to deliver drinking water and safe disposal of wastewater in 27 governorates covering all Egyptian territory with 98 million inhabitants.
HCWW as a national enterprise has incorporated 25 ACs, covering 27 Governorates. These water companies produce daily approximately 26 million cubic meters of potable water serving approximately 100 million citizens mainly about 85% of drinking water is from surface water resources, 10% from groundwater resources, and 5% for desalination.

This report of three-parts. part I, is dedicated for a supportive strategy for HCWW, which is necessary to ensure the feasibility of strategies of AWCo (part II) and LWCO (part III).

The following data are essential to understand the context:
- The number of affiliated companies (ACs): 25 Covering all the Egyptian contexts.
- Number of the staff: 130,000
- Number of Customers: 15 Million

DIAGNOSIS

In general, the level of maturity and performance for HCWW is between basic and good levels. This could be explained that from its start in 2004, HCWW has made a huge effort to raise the performance without developing a mature system to maintain it. This why this kind of good performance was degraded with time. The main weakness points in the framework of HCWW are in commercial and financial aspects but it mainly performs well in operation. The main strength that HCWW has a good maturity in financial aspects this could be explained by the fact that the state forces all the semipublic organizations to have a budget and financial statement according to Financial International Reporting System (FIRS).
The following infographic is a summarize of the explanation of the difference between the maturity and performance at the level of the HCWW:

"HCWW has made a huge effort to raise the performance without developing a mature system to maintain it"

"Improve the service delivered to customers through cross knowledge transfer between different ACs and alter to more efficient communication techniques with the customers together with recognition of the staff"

Organization & strategy
- Multiplicity of laws and lack of coordination between stakeholders
- Not updated vision and mission and organization chart with many overlaps
- Lack of support of some far ACs
- Partially implemented IT system with many associated problems in functioning
- HCWW is not autonomous
- EWRA is not fully independent but actually under the authority of Ministry of housing

HR Management
- Unharmonized distribution of staff, low number of staffs at rural and wastewater sectors
- Evaluation of staff is nominal and not actional one
- Lack of internal communication with the staff/No gender awareness
- Not updated and comprehensive training and no actual measurement of its impact
- Low engagement of staff in company activities
- Low staff motivation and satisfaction

Technical & commercial
- High percent of NRW (30.2 %) "Estimated"
- Not fully implemented maintenance plan
- Low wastewater coverage especially at rural areas
- Low customer satisfaction, survey indicated customer satisfaction less than 50% in some areas
- The data base of customers is present but not updated regularly
- Lack of integrated/digitalized customers database, low collection of bills 60%

Financial
- HCWW failed to cover its Expenses, 100 Million €/ year is the gap between Expenses and revenue
- The overall EBDITA for all the ACs is negative
- The financial situation of all ACs is controlled by the state. The budget and financial statements are prepared according to IFRS and reviewed by the Accountability State Authority (ASA). Using of digitalization of the data is limited
- Water tariff is low and cannot cover the expense

STRATEGY SYNTHESIS

This strategy is complementarity and supportive of the implementation of AWCo and LWCo strategy.

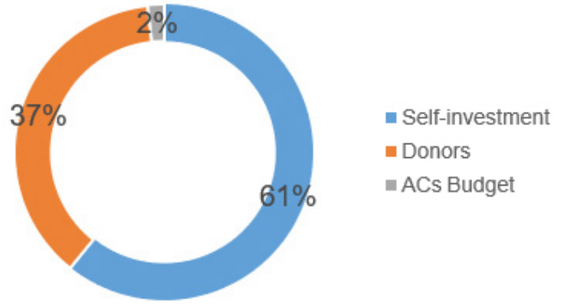
This supportive strategy for HCWW was build based on the fact that the role of the HCWW is to set up policies and organize relations between different departments in order to develop the maturity of the ACs.

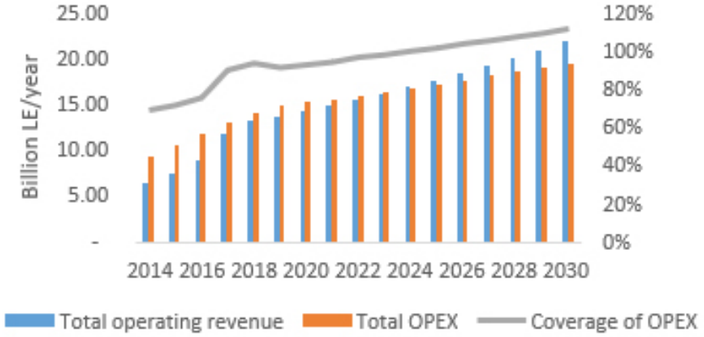
Based on the role of HCWW as a management hub for all the 25 ACs, as a point of view, the main objective of this supportive strategic action plan is to set up the policies that are essential to guarantee a smooth running of both strategies of AWCo and LWCo. These policies will allow the maturation of the system of the HCWW and its ACS to sustain the favorable performance of the HCWW and its ACs.

In general, the level of maturity and performance in HCWW and its ACs is in the level of good performing, except for financial and commercial it is in the level of basic, the proposed strategic plan is to increase the maturity and performance of HCWW and its ACs to the level of well-performing in 5 years. The main goal for this strategy is to be the best water utility hub in Africa by 2026, within the 5 years. The suggested strategic actions have been compensated into three main strategic objectives:
A. Enhance the financial situation of the HCWW by setup the required policies to strengthen the commercial and financial sectors
B. Improve the service delivered to customers through cross knowledge transfer between different ACs and alter to more efficient communication techniques with the customers together with recognition of the staff
C. Ensure long term sustainable service through the integration of IWRM policies in the framework of HCWW and its ACs and improve the institutional environment

STRATEGY FEASIBILITY

The total required investment for implantation of this supportive strategic plan is around 3 Million Euro., HCWW will reach equivalence point at 2024, the total profit for this year is anticipated to be = 7 M€/ year 2024.
The NPV (2030) = - 419 M€. However, this value will be positive above the year 2032. EBDITA for year 2030 = 10%. The coverage of OPEX for the year 2030 = 111%. The level of coverage of OPEX together with the source of investment is represented in the following figures





STRATEGY OUTCOMES

Organization
- Formulation of Egyptian Water Bureau
- Approval of the unified water law
- Create National Climate change committee

Human resources
- Enhance gender diversity
- Setup policies that increase the motivation and loyalty of the staff
- Encourage staff innovation

Commercial
- Digitalized database for customers linked with GIS
- Increase collection coverage %

Financial
- Have indexed tariff
- OPEX coverage 111% by 2030
- EBDITA = 10% by 2030
- Total profit 2024 = 7 M€

Technical
- Initiate the application of SSP at all the ACs
- Setup specific KPIs (NRW) linked with a system of incentives to be reduced to 25 %

KEY FIGURES

Average water tariff / m³	0,11 € (2019)
Average sanitation tariff / m³	0,08 € (2019)
Volume treated water per day	26 M m³ (Egypt)
Number of employees	130 000 (2019)
Number of water customers	15 M (2019)

Mr Mahmoud Abd Al Rahman MEHANY

Team leader of water safety plan team

HCWW

April 2020

EGYPT - ALEXANDRIA

HOLDING COMPANY FOR WATER AND WASTEWATER IN EGYPT

By Mr Mahmoud Abd Al Rahman MEHANY

OVERVIEW

It is the second-largest city in Egypt and a major economic center. With a population of 5,700,000, Alexandria is the largest city on the Mediterranean, the sixth-largest city in the Arab world, and the ninth-largest in Africa. The city extends about 40 km (25 mi) on the northern coast of Egypt along the Mediterranean Sea. Alexandria is a popular tourist destination, and also an important industrial center because of its natural gas and oil pipelines from Suez.

Number of inhabitants: 5.7 Million
Amount of drinking water produced: 1,017 Mm^3/year
Type of treatment: conventional surface water treatment
Area served: 2,679 Km^2
Length of the water distribution network: 9090 Km
Amount of wastewater collected: 660 Mm^3/year
Amount of wastewater Treated: 453 Mm^3/year
Length of wastewater distribution network: 3900 km
GNI/Cap/year: 2900 €

Water coverage 97%
Wastewater coverage 70%

"Alexandria is a popular tourist destination, and also an important industrial center because of its natural gas and oil pipelines from Suez"

AWCo is the water company of the city and the governorate (province) of Alexandria, Egypt. It was founded in 1860 as a private company and it operated as such for more than 100 years before it was nationalized under the rule of Gamal Abdel Nasser and named as water utility under public law. In 2004, through a country-wide sector reform, it became a commercially oriented company under private law. The sewerage and wastewater treatment functions were transferred to a separate company, the Alexandria General Organization for Sanitary Drainage (AGOSD), later renamed to Alexandria Sanitary and Drainage Company (ASDCO). The water utility became a company under private law, reverted to its old name AWCO and gained some operational independence. Both AWCO and ASDCO are part of the government-owned HCWW, which owns all utilities in Egypt. The city is heavily populated with a high percentage of population increase. There is no available freshwater resource for the expansion of the service.

"There is no available freshwater resource for the expansion of the service"

DIAGNOSIS HIGHLIGHT

Investigation of the main challenge

Comparison between performance and maturity shows that in general, the performance is higher than maturity. This could explain that the company was for a long-time private company and managed by the mentality of the private sector. However, this performance will not be sustainable due to the lack of policies that guarantee the sustainability of this good performance.

01 Higher priority

• The sustainability of the drinking water service aligns with the fact that there are no available water resources for extending the service (240,000 m^3/day is the forecasted demand for the upcoming 5 years

02 Priority

• Low coordination between stakeholders concerning water resources management
• Low water tariff - 0.1 €/m^3
• Lack of application of IWRM concepts

03 Priority

• Low level of dept coverage ratio- EBDITA = 4%
• Low level of available cash

04 Priority

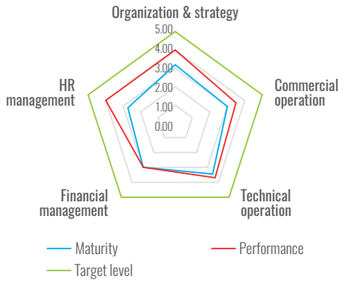
• Lack of connection between customer database and GIS
• Ineffective awareness campaigns
• Low collection of bills - 60%

05 Priority

• No measurement of staff satisfaction
• No gender diversity activities in the company-staff/1000 connection = 5

06 Priority

• Relatively high percentage of NRW -27.1%
• High per-capita consumption 356 l/cap/day
• Only 70% of collected wastewater is treated



Commented SWOT for AWCo

Strengths

• Competent CEO of the company
• Relative stable financial situation
• Competent and motivated staff
• Coverage of water 98% and for wastewater treatment 70%
• Presence of R&D department

Weaknesses

• NRW 27.1 %
• Irrational water consumption 356l/cap/day
• Low water tariff
• Uncomprehensive data base
• Lack of water resources required for expansion
• No clear policy for calibration and replacement of old meters

Opportunities

• Reuse of industrial wastewater
• Alternative water resources and technologies
• Adaptation of new strategy 2030 by the state aligned with SDG6
• Preliminary agreement of the state to change the tariff
• Presence of smart application and new technologies

Threats

• Water quality deterioration
• Lack of coordination between stakeholders
• Renaissance dam
• Tariff increase isn't affordable or acceptable by customers
• Climate change effect water resources

1- Strength/opportunity (Ability to proact or areas of influence)

• Competent staff/New and smart technology: Installing smart and prepaid meters
• Competent chairman/Innovation: Creating a department for innovation.

2- Strength/Weakness (Ability to act or areas of attention)

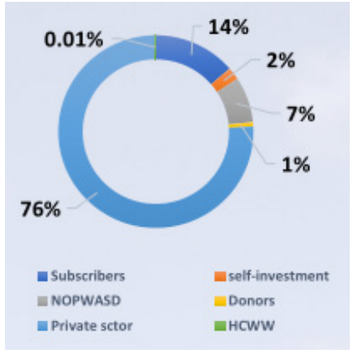
• Calibration laboratory for meters/NRW 27.1%: AWCo could create a policy for calibration andreplacement of old meter in coordination with HCWW.
• Awareness dept./High water consumption: Awareness campaign for children and women especially.

3- Weakness/opportunity (Use the chance or transformation)

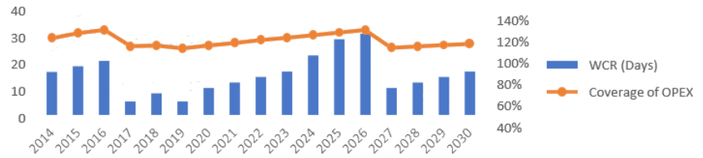
• Uncomprehensive database/ Advanced technology: Installing of a comprehensive database.
• Limited water resources/Alternative water resources technology: Desalination plant as PPP project.

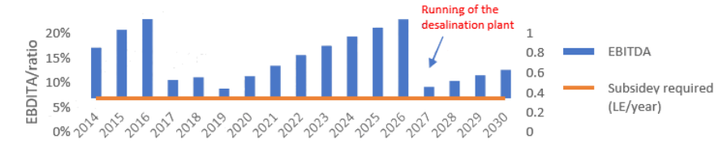
4- Weakness/threats (Adjust or mitigation)

• Limited water resources/Climate change: Formulating committee with stakeholders for climatechange and climate change mitigation measures setup.



"The main focus of the strategy is to ensure the sustainability of drinking water and enhance reuse efficiency as it is one of the main challenges of Egypt now"





STRATEGY SYNTHESIS

The strategy depends on improving the performance and maturity of the company from the current level to be world-class utility in a time interval of 5 years. The strategy for Alexandria is mainly depending on three main pillars (Objectives):

A. Secure the water service sustainability for all and allow its expansion. (Water coverage%)
B. Ensure long-term financial stability and strengthen the commercial sector. (Collection coverage%- OPEX coverage%)
C. Improve the reputation of the company in the mentality of customers and staff community. (Customer Sat.%)

STRATEGY FEASIBILITY

The total cost for AWCo strategy is around 327 M€ until 2030. A major part (76%) of the cost is paid for the implementation of a brackish water desalination plant in Mariout lake. This desalination plant will serve the commercial sector in Alexandria. The recovery of the cost seems to be achievable. Private sector financing could be attracted to such a project by facilitating the investment process and setup tariffs for a commercial sector that allow cost recovery. The role of AWCo in this framework as a delegator of the service to the private sector through PPP contract. AWCo will collect the tariff on behalf of the private part.

Other considerable costs will be financed through NOPWASD, HCWW, and AWCo.
• The main focus of the strategy is to ensure the sustainability of drinking water and enhance reuse efficiency as it is one of the main challenges of Egypt now.
• The strategy will allow the stability of the financial situation and maintain positive cash flow. The strategy will allow the coverage of demand by 100% for water. The strategy will increase the coverage of the treatment of wastewater from 70% to 85%.
• The linking with inflation is a must to allow cost recovery of OPEX and CAPMANX - tariff will be equal to 0.24€ for the year 2030 comparing to the GNI per-capita of 2018 of Egypt, this tariff for a family of 5 persons is still affordable.
• The critical tariff has also been anticipated through the module to be 0.18 € for the year 2030, (below this tariff the company will be financially unstable)
• The financial equilibrium in AWCo after implementation of the strategy:
• EBDITA/sales ratio (2026): 16%
• EBIT/sales ratio (2030): 8%
• Coverage of OPEX (2030):106.4%
• Total profit (2030): 10 M€ - 200 M LE (Used for renewal of assets and cross- subsidies for other financially straggling ACs)
• NPV (2030): 98.5 M€

KEY FIGURES

Average water tariff / m^3	0,11 € (2019)
Average sanitation tariff / m^3	0,08 € (2019)
Volume treated water per day	1 M m^3
Number of water customers	1,5 M (2019)

Mr Mahmoud Abd Al Rahman MEHANY

Team leader of water safety plan team

HCWW

April 2020

EGYPT - LOUXOR

HOLDING COMPANY FOR WATER AND WASTEWATER IN EGYPT

By Mr Mahmoud Abd Al Rahman MEHANY

OVERVIEW

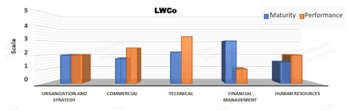
It is a city in Upper (southern) Egypt and the old capital of Egypt. The population numbers 1,600,000 million inhabitants with an area of approximately 2959.6 square kilometers. Luxor has frequently been characterized as the "world's greatest open-air museum", as the ruins of the temple complexes at Karnak and Luxor stand within the modern city. Immediately opposite, across the River Nile, lie the monuments, temples, and tombs of the West Bank Necropolis, which includes the Valley of the Kings and Valley of the Queens. Thousands of tourists from all around the world arrive annually to visit these monuments, contributing greatly to the economy of the modern city.

Number of inhabitants: 1.6 Million
Amount of drinking water produced: 105 Mm^3/year
Type of treatment: conventional surface water treatment
Length of the water distribution network: 3525 Km
Amount of wastewater collected: 29 Mm^3/year
Amount of wastewater Treated: 29 Mm^3/year
Length of wastewater distribution network: 500 km
GNI/Cap/year: 1900 €
Water coverage 98%
Wastewater coverage 34%

Luxor Water Company (LWCo), the water treatment plants in Luxor used to be under the local municipalities, at 2007 Ministerial decree 392, has established LWCo as an affiliated company of HCWW. The board of directors has ten members "two from the HCWW- two from the governorate - one employee representative - and the rest from the company members".

"Luxor has frequently been characterized as the "world's greatest open-air museum"

DIAGNOSIS HIGHLIGHT



Organization and strategy

• Lack of internal communication with the staff.
• LWCo chairman is more politically oriented and has lack in technical skills.
• IWRM management isn't developed
• Low autonomy and depends mainly on subsidies from HCWW.

Commercial

• No digitalized customer management system linked with GIS. Metering and collection are done manually. The coverage by metering is 60%.
• Lack of customer service center in 4 regions. The collection coverage of bills is 50%.
• No clear target for the collection of bills. No penalizing and incentives for collection

Technical

• NRW team is low competent in terms of expertise. Insufficient equipment for leak detection. Preventive maintenance isn't done regularly due to a lack of financial budget. NRW is 37.5%. Wastewater coverage 34% mainly in rural areas
• LWCo has no certified laboratory

Financial

• The budget and financial statements are prepared according to IFRS.
• LWCo failed to cover its expenses. OPEX coverage = 70%, negative cashflow, EBDITA/sales ratio = -30.61%, and DSCR = 0.5 for year 2018).

HR

• No HRMS in place and most of the data are recorded manually. There are no gender awareness activities due to lack of obligation policies from HCWW.
• The company is overstaffed staff/1000 connections=9. HR team lacks training.
• Staff is low motivated due to great difference in salaries among the ACs.
• The chairman has lack of competence in technical skills
• NRW 37.5 %
• Low competent and motivated staff
• No digitalization of activities
• Low coverage of wastewater treatment 34%
• High cost of new connection

Opportunities

• Internal training and cross-learning between ACs.
• Change of the CEO every 3 years.
• Adaptation of new strategy 2030 by the state aligned with SDG6
• Using of new technology and smart phone application.
• Presence of hotels/historical places
• Availability of low-cost technology (RBF).

Threats

• Rapid increase in population in the next future
• Lack of coordination between stakeholders
• Tariff increase isn't affordable or acceptable by customers
• Climate change effect water resources

1- Strength/opportunity (Ability to proact or areas of influence)

• Presence of NRW unit /Internal training and cross-learning between ACs.: AWCo staff could help in the training of LWCo staff.
• Presence of a training center/Change of CEO every three years: LWCo should use the training center to enable internal nominations of competent chairmen.

2-Strength and Weakness (Ability to act or areas of attention)

• Available human resources/Staff is demotivated: Motivation and recognition must be done to encourage the staff to apply the proposed strategy.
• Presence of training center/Low competent staff: Developing a training platform.

3- Weakness and opportunity (Use the chance or transformation)

• No digitalization of activities/Technology development.: LWCo should outsource the activity of designing and installing of comprehensive database system
• Lack of produced water/ RBF technology: Low-cost water production technology.
• Connection cost is high/City has many hotels: HCWW could propose tax the hotels over the tariff as cross-subsidy for the poor.

4- Weakness and threats (Adjust or mitigation)

• An unstable financial situation/City is growing: Reducing OPEX by increasing the efficiency of staff, optimize the power consumption, and increase the non-operational profit. Have an indexed tariff.

Commented SWOT for AWCo

Strengths

• Presence of NRW unit
• Presence of GIS department
• 98% of customers are covered by water pipes
• Presence of training center
• Availability of Human resources

Weaknesses

• Low financial stability, negative EBDITA.
• Low water tariff

STRATEGY SYNTHESIS

The strategy depends on improving the performance and maturity of the company from the current level (A basic) to be well-performed utility in a time interval of 5 years. The strategy is mainly depending on four main pillars (Objectives):

A. To balance the financial situation of the Luxor company to increase the coverage of OPEX from 70% to 100% within 5 years. (OPEX coverage%)
B. To develop an effective customer management system for the company. (Collection coverage%)
C. To increase the competence and motivation of the staff. (Staff Sat.%)
D. To enhance the overall service quality delivered to customers. (Customer sat. %)

Organization and strategy

• IWRM in place
• Selection of competent CEO
• More digitalization of the activities (Time taken to access data)
• Tariff linked with inflation (indexation)

Commercial

• 100% coverage of metering
• 100% collection of bills
• Policy to facilitate connection of poor. (coverage of the service%)
• Increase the customer satisfaction to 70%

Technical

• Reduce the NRW to 20% from 37.5%
• Increase the collection of wastewaters from 34% to 80%
• Ensure coverage by 24/7.
• Accreditation of the center lab for 17025

Financial

• Digitalization of the activities of the financial sector.
• EBDITA/sales ratio 20%
• Coverage of OP EX more than 100%.

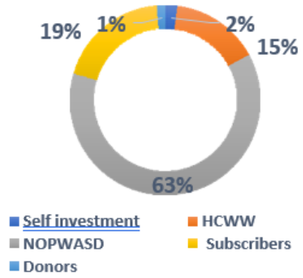
HR

• Policy for gender awareness activities
• Digitalization of HRMS
• Unified salary system (staff sat. 70%)
• Staff/1000 connection = 5 currently 9

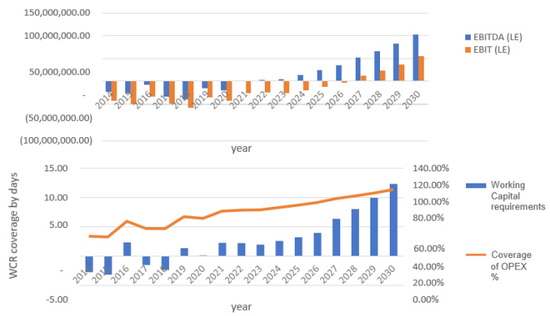
STRATEGY FEASIBILITY

• The total cost of the strategy is around 42.4 M€. According to the strategy, minimal part (2%) will be self- invested by the LWCo as a loan of 1% interest rate, if the company has trouble to be loaned, HCWW can afford to finance 17% (7.2 M€) of the strategy as total cross-subsidy from the other companies. The rest will be financed from NOPWASD.
• The critical tariff required for stabilization has been identified through the module to be (0.22 € for the year 2030). Step-up increase in the tariff was avoided to ensure the social acceptability of the increase of the tariff
• The strategy tackles the problem of staff and makes it a focal point to improve and enhance.
By applying the strategy, the coverage of water reaches 100 % due to the increase in the production and reduction of the NRW.
• The strategy covers also the poor and special needs customers try to cover all.
• Increase the coverage of the treatment of collected wastewater is predicted to reach around 80%- Which will be financed through NOPWASD with cost around (300 M EUR) come with activities to increase the tariff and to develop the technical expertise of the staff to ensure the sustainability.
• A mechanism for dealing with the stakeholders and develop a relationship with them has also been addressed.
• The financial equilibrium in LWCo after implementation of the strategy:

• EBDITA/sales ratio (2030): 21%
• EBIT/sales ratio (2030): 7%
• Coverage of OPEX (2030):114%
• Total profit (2030): 3.1 M€ -100 M LE
• NPV (2030): 2



Investment plan and source of investment



STRATEGY OUTCOMES

Organization and strategy

• Policy for connection of the poor
• Tariff linked with inflation
• Reduce the political interference in selection of chairman
• Integrated digitalization activities

Economic feasibility

• Lower the consumption of electricity by 20%
• Increase the opportunity for reuse of 100Mm^3/year
• Enhance the salary of the staff to be equal to average wage
• Cover the isolated and poor customers
Lower the carbon foot print by 20%

"Balance the financial situation of the Luxor company to increase the coverage of OPEX from 70% to 100% within 5 years"

KEY FIGURES

Average water tariff / m^3	0,11 € (2019)
Average sanitation tariff / m^3	0,08 € (2019)
Volume treated water per day	287 000 m^3
Number of water customers	250 000 (2019)

Mr Mahmoud Abd Al Rahman MEHANY

Team leader of water safety plan team

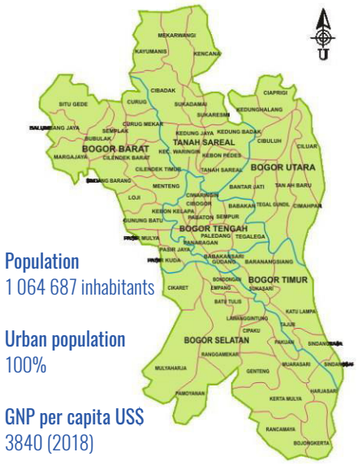
HCWW

April 2020

INDONESIA

STRENGTHENING AND IMPROVING THE PERFORMANCE OF WASTEWATER SERVICES IN BOGOR

By Mrs ULYANI



Population
1 064 687 inhabitants

Urban population
100%

GNP per capita USS
3840 (2018)

Growth rate
1.35% (2018)

Off-site
Sanitation tariff

CONTEXT

UPTD PAL has the jurisdiction to operate wastewater services under the municipality department public works and spatial planning of Bogor, which is responsible for new assets investments. This strategic action plan aims at transforming UPTD PAL to provide reliable and sustainable sanitation services, including effective and professional management for collection, transport and treatment of waste water.
Bogor City has problems in basic services and particularly in domestic wastewater services. These problems have resulted in high cases of diarrhoea, especially among children, and have contributed to environmental pollution, including the decline in the quality of groundwater and surface water.
With a population of over one million, more than 250,000 houses, it is one of the fastest growing cities in Indonesia . As a result, Bogor City needs infrastructure development in the urban environment. The improvement of sanitation systems is a major need.

DIAGNOSTIC

In Bogor City there is a gap between the coverage and the target in terms of Sustainable Development Goals (SDGs) and National Standard.
UPTD PAL, as the Institution in charge of domestic wastewater management, is the main factor for sustainability and continuity. Its efficiency and resources are limited on managerial, technical and financial matters. The capacity is built for small-scale wastewater operation and considering that most onsite units are in poor condition, the desludging possibilities are limited.
The awareness level of the customers to sustain the service is low.
Regarding financial performance, UPTD PAL is only a user of the budget set by the parent institution. It cannot manage its own income, and adjust the tariffs. The current tariff is very low and this makes the wastewater service financially unsustainable, without municipality continuous subsidies. UPTD PAL also struggles to develop the capacity of its employee due to a regular rotation of employees among municipal units. This prevents competent people from working in UPTD PAL for a long time. Efforts to improve staff competence will be ineffective. To facilitate the management of having reliable human resources there is a need for the recruitment of professional employees outside the State Civil Apparatus in order to create a solid team work.

STRATEGIC OBJECTIVE

The city of Bogor plans to establish a sustainable wastewater system through the UPTD PAL target, which is 56% for coverage service by the end 2030. The plan is consistent with the national target which requires cities to provide sanitation access (proper sanitation) to 100% of the population and safely managed to 54% by 2030.
To provide reliable sanitation services, including effective and professional management for wastewater by using sustainable principles in the next 10 years, the strategic objectives are as follows:

"UPTD PAL also struggles to develop the capacity of its employee due to a regular rotation of employees among municipal units"

SANITATION

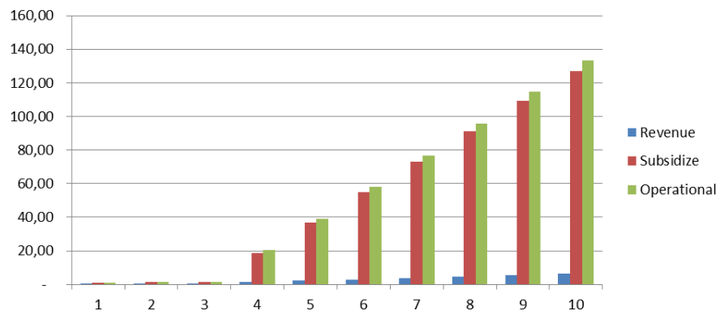
53.7% Target SDGS (2030)
100% improve access of sanitation
53.7% safety management of sanitation access

62.2% Bogor covered sanitation access (2018)
61% on-site sanitation access
1.2% off-site sanitation access

1.5% Bogor covered of safely managed (2018)
0.2% (around 449 HH) have safely managed septic tank
1.3% (around 3342 HH) of the population have access to centralised wastewater treatment in communal sanitation system

Parameter	STATUS 2018
The coverage rate of access safely managed sanitation	1.5%
Household connection to sewer network	422
Number of septic tanks maintained	489
Average consumption	>150 litre/pers/day
Wastewater treatment collected	47%
Sludge treatment collected	0.08%
Lengths of network	2km
Number of vacuum trucks	4 trucks, 2 pick-up and 2 moto rides

Parameter	Objective	Indicators	Current level	Target level	Time frame
Organisation & strategy and HR	Upgrade the performance is to the next institutional level of a local service delivery agency (BLU-D)	Recommendation of evaluation team (Mayor, regulation concerning BLU-D)	2 (basic)	4 (well performed)	2020-2029
Financial and commercial operation	Ensure long-term financial stability and provide strong commercial sector	50% decrease subsidies OPEX for on-site and 5% for off-site	2 (basic)	3 (good)	2020-2029
Technical operation	Improve access and quality of service for off-site and on-site system	56% target for safely managed sanitation	2 (basic)	4 (well performed)	2020-2029



FEASIBILITY

Economic feasibility

Economic feasibility for the development of off-site system is made by taking an assessment of 12% for the IRR then the tariff charged to customers per month is 143 USS.
The tariff of 143 US $ per month will not be affordable for the customer. Compared to the household water bill for a maximum of one month 21.43 US $ and the average per capita income of Bogor City in year 2020 is 3600 US $ per year or equivalent to 10 USS per day.
Economic benefits are calculated by some studies in Indonesia proving that with good domestic sanitation process at home and around, 357 US $ per Household and per year will be gained on expenditures for Health Care).

Financial feasibility

Financial feasibility is calculated on the basis of tariff accessibility by taking a comparative parameter (tariff of water or equity on the expenditure side).
The calculation of tariffs with the burden of return on investment is considerable, therefore the financial feasibility analysis is focused on the recovery of operational costs.

If the Bogor city, government contributes to total subsidies for operational financing of 127 MUS $ or 96% of operating costs, then this contribution will lower the tariff to 5, 7 US $ per customer per month (affordable tariff).

The feasibility assessment used two approaches in this strategy based on financial and economic perspectives. The project, or system, must (or can) be performed if it meets the following requirements:
• Economic feasibility: This condition is fulfilled if the economic level of the Internal Rate Return (IRR) hasreached 12%
• Financial sustainability: projects are not allowed if there is insufficient funding to operate and maintain the project adequately. Project sponsors (municipalities) must be willing to ensure the financial sustainability. For off-site, it is the municipal government (tariffs and subsidies). The vacuum truck operator (on-site service) is expected to bear full capital costs and O & M.

Conclusion

1. Based on the Economic Model use analysis of NPV, IRR and BEP this strategy by Implementation of schedule desludging (On-site) to achieve the objective regarding strong commercial system and increase coverage area and quality of service is ACHIEVABLE. Based on calculations on the Financial Sustainability, the strategy to provide strong commercial and large financial income by scheduled desludging program is profitable to implement.

2. Financially, it indicates that the investment in sewerage or off-site system requires high investment costs as well as necessary operational costs. Wastewater management investments are not commercially viable due to lower income than investment and operational costs.
But economically, sewerage investment is certainly necessary because it will help improve the public health condition in general.

3. With regard to the financial feasibility conditions, the contribution of central and local governments in funding required assets and operational costs is the optimal management of the capacity and customers.

"Economic benefits are calculated by some studies in Indonesia proving that with good domestic sanitation process at home and around, 357 US $ per Household and per year will be gained on expenditures for Health Care"

KEY FIGURES

Average sanitation tariff / m³	1,85 € / month (2016)
Volume treated wastewater per day	300 m³ (2018)
Number of employees	31 (2018)
Number of water customers	800 (2018)

Mrs ULYANI

Head of Technical Services
Unit of Domestic Waste Water Management

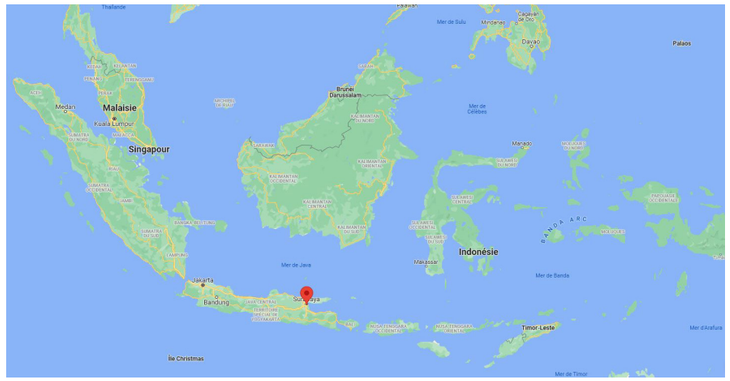
Department of Public Work and Spatial Planning

April 2020

INDONESIA

TRANSFORM SURABAYA WATER UTILITY INTO A SUSTAINABLE WORLD CLASS WATER COMPANY

By Mr WAFIYUDDIN



There are 7 dams with a total capacity of 386Mm³ in Brantas River Basin to ensure sufficient demand for raw water.
The dams and river basin are operated by Perum Jasa Tirta 1, a national river basin agency. Surabaya River and Downstream of Brantas River are set as Class 2 by Governor Regulation No 61/2010 (Determination of Water Classes in River). Even though it is known that the Surabaya River is intended to be used as raw water by SWU, the fact that it is set as Class 2 does not match with its end usage. This is further exacerbated by the fact that the Surabaya River water quality does not even meet class 2 criteria for DO (dissolved oxygen). SWU should take a position

OVERVIEW

With a population of 3.3 million, Surabaya, is a major port and commercial trading centre in Eastern Indonesia.
As the capital of the East Java Province, Surabaya is now one of the largest cities in Southeast Asia.
Currently, Surabaya's economy is soaring due to its dynamic industrial sector (foreign investments) as well as a strong urbanization leading to a growing real estate sector (buildings, malls, plazas, apartments and hotels).

To cope with these developments, the Surabaya City Government has produced a Spatial Plan presenting the current situation as well as the proposed future development plan. This plan has, of course, a direct impact on the development of the city drinking water utilities.

The plan indicates that the development of the City of Surabaya should maximize land use and optimize the potential of the coastal areas. Such developments should be supported by growing economic activities such as industry and trade as well as relevant service activities. In addition, it will also be followed by a movement in settlement growth that will lead to the West, Southwest, Northwest, East, Southeast and Northeast, while some residential areas located in the middle of the city tend to turn into trade and service areas.

Surabaya Water Utility (SWU) is a business unit of Surabaya City Government responsible for providing access to water in Surabaya, second largest city in Indonesia. While incorporating the City Development Plan, SWU has to transform into a sustainable world class Water Company focusing in providing potable water quality in a non-intermittent mode. This strategic action plan (SAP) aims at to lead to this transformation.

DIAGNOSIS

Surabaya Water Utility supplies intermittent water to 99% of the citizens of Surabaya. This is due to the limited capacities of the storage reservoirs and to the high rate of NRW (non-revenue water =31%) related to the lack of pressure management and to the small pipe replacement rate. Indeed, due to lack of human and ed every year which brings to more than 25 years the average age of 1000 km of network (out of a total of 5800 km). The supplied water is also not potable.
Indeed, most customers install their own private reservoir to ensure that their demand is always fulfilled. It is difficult to control the quality in customer's reservoirs as there is no proper maintenance and scheduled clean-up. It is recommended to boil the water before consuming it.

SWU has 6 upgrade-able water treatment plant to cover the increasing water demand for the city.

"SWU is currently building an asset management system. This system will help SWU to have a life-cycle cost analysis approach for each asset"

to lead a river basin revitalization campaign since it is not under SWU's responsibility and authority.

SWU is currently building an asset management system. This system will help SWU to have a life-cycle cost analysis approach for each asset. There is a Geographic Information System (GIS) to locate primary, secondary and tertiary pipes as well as customers. The GIS will need to be updated to increase the accuracy of the database.

Water 2018-2019

Production or Purchase	363 Mm³/year
No Customer	574 000 active
Metered Connections	99 %
NRW	31 %
Network	5800 km
Storage	49 500 m³
No Employee	1057
EBITDA	53 %
Collection rate	99 %

"It is difficult to control the quality in customer's reservoirs as there is no proper maintenance and scheduled clean-up. It is recommended to boil the water before consuming it"

Inhabitants in area	3 345 750
Urban population	100%
GDP per capita 2018	US$ 3840
Growth rate 2018	6.2%

3 STRATEGIC OBJECTIVES

1 - To provide non-intermittent water supply by 2024

To provide non-intermittent supply and cover 100% services It is identified that need 20 additional reservoirs and 50 km new distribution pipeline DN 400-800 mm are needed. The main objective is to deliver water to the northern and western areas (zones 3 and 4) where there is still some intermittent supply and low pressure.
The cost estimate for the new reservoirs is 11.4 million euro and it should cost around 20.7 million euro for the 50 km new distribution pipeline.

2 - To decrease NRW from 30% to 20% by 2029

Some actions are needed to reduce NRW in term of technical and commercial losses. Out of 5800 km of distribution pipeline, 370 km of have been identified for priority replacement based on condition, age and history of leaks. The pipes to be replaced are mostly DN 100-150 mm. The cost estimation for this project is 21.4 million euro.
DMA (District Metering Area) establishment and monitoring is focused in Zone 4 and 5 where the higher losses was identified there. The proposed action for commercial losses is water meter replacement using Class C water meter to get more accurate billing.

3 - To achieve full cost recovery of capital and maintenance expenditure

The current cash flow is not sufficient to cover all the investment presented above. Reducing the dividends and increasing the water tariff are two ways to cover the proposed CAPEX and needed maintenance costs. These actions need to be approved by Surabaya City Government.

PPP scheme. In order to support the implementation of PPP scheme and rise new projects that focus on public services, the Ministry of Finance established the Directorate of Government Support and Infrastructure Financing Management within the Directorate General of Budget Financing and Risk Management.

They manage a series of support such as:
- Project Development Facility
- Viability Gap Fund (VGF) partial contribution to PPP projects
- Infrastructure guarantee

FEASIBILITY

In 2012, SWU carried out an ability to pay (ATP) survey as well as a willingness to pay (WTP) survey. The results of these surveys show that the ability to pay is 1.86% of total income and willingness to pay for increasing water tariff is up to 80%. This indicate, there is a wide possibility to increase tariff in affordable rate. The dividend rate paid to the city government is currently of 52.25% whereas in the Surabaya City Government No 2/2009 states that the minimum distribution of dividends could be 30.25%. Hence, there is a legal framework opportunity to adjust the dividend rate and allocate it for investment projects.

PPP scheme should also be considered to cover the proposed investments. The Government of Indonesia is introducing Public-Private Partnership (PPP) in infrastructure provision to allow the government to cooperate with the private sector based on the principle of proportional allocation of risks. To support the implementation of PPP in Indonesia, the Ministry of Finance administer an innovative infrastructure financing through the provision of various facilities and fiscal support for projects with

KEY FIGURES

Average water tariff / m³	0,22 € (2018)
Volume treated water per day	994 000 m³ (2018)
Number of employees	1 057 (2018)
Number of water customers	574 000 (2018)

Mr WAFIYUDDIN

NRW manager

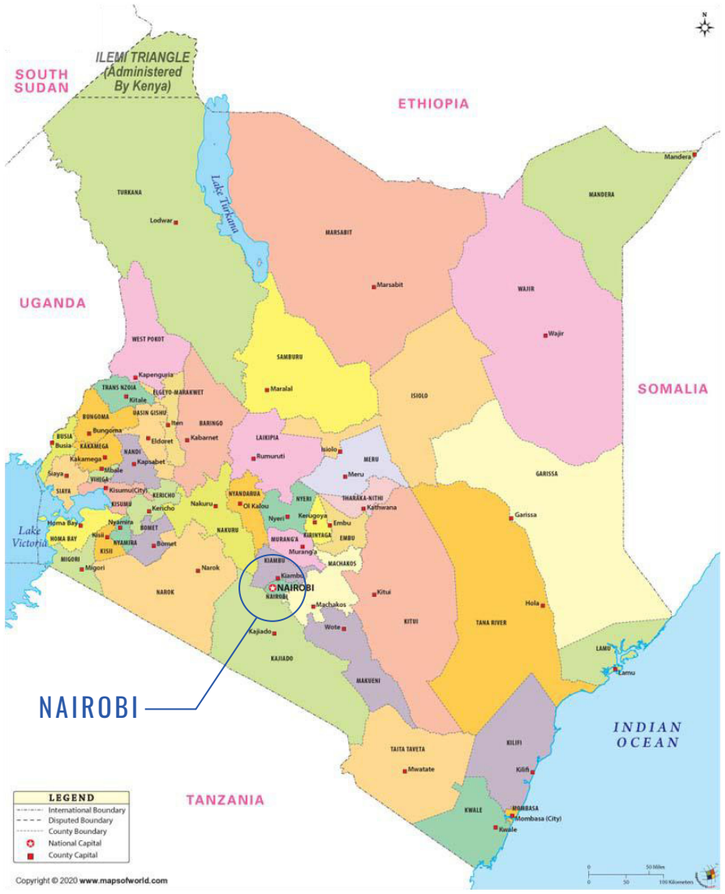
PDAM Surabaya Water Service

April 2020

KENYA

NAIROBI CITY WATER AND SEWERAGE COMPANY

By Mrs Lenah Mutwa NGUNGU



CONTEXT

According the UN Kenya has one of the llowest water replenishment rates in the world. The renewable water resources per capita is below 1,000 cubic meters, which means the nation is water-scarce. The management of its limited water resources is a huge challenge. The magnitude and severity of the water crisis cuts across most sectors of the economy, therefore water resources management is a high priority.

Continuous population growth, urbanization and industrialization increased water demand and strained the availability of water resources in Kenya. The water scarcity accentuated by uneven spatial distribution and degrading water quality.

WATER FIGURES 2017-2018	
Water coverage	80%
Sewer coverage	50%
N° of customers (water and sanitation)	550 707 actives
NRW	38%
Network length	4900 km²
Turn over USD (water and sanitation)	84 780 000
Litre per capita per day (lpcd)	53.3

Kenya's population is currently estimate at 48 million people. 21 million reside in urban areas currently served by 88 regulate utilities through 1.5 million connections. By year 2030, the total population will be 67 million with about 46 million living in urban areas.
Nairobi, the Capital City and economic hub of Kenya, contributes over 50% of the GDP. It is also an important regional centre for trade, commerce and regional integration. At present, the City has an estimated resident population of 4.4 Million people and an estimated daytime population of 6 Million people over a surface area of 696 km².

"Chronic water shortages are common in many parts of the City with hours of supply (6 hours per day). This has made supply unreliable and increased water rationing"

DIAGNOSIS

Kenya's vision for the water is to "ensure water and sanitation availability and access for all by the year 2030"

The creation of the Company after the Water Reforms of 2002 has significantly improved the institutional framework and service delivery. However, the City and its Satellite Towns still face large supply deficits, which magnified during years of drought. Chronic water shortages are common in many parts of the City with hours of supply (6 hours per day). This has made supply unreliable and increased water rationing; the price paid by consumers for water from vendors, the time spent queuing for water and the iincidence of water borne disease. To ensure the full realization of the right to water and sanitation and that every Kenyan reached, weighty investments must be committed into the Water and Sanitation Sector.
The budget provision required for universal access to water and sanitation by 2030 in Kenya is USD 17.6 Billion, which translates into annual requirements of USD 1Billion, of which only about USD 400Million is availed (GoK). In this regard, the financing gap is very wide and has to be bridge through innovative ways of funding, including Public Private Partnerships (PPPs), ring fencing revenues, commercial financing, and ODA support.
Operational Inefficiencies culminating in high NRW, High No. of staff/connections and high operating costs have continued to challenge the Company in realization if its' strategies.

This action plan proposes the attainment of this goal in a series of Short-, Medium- & Long-term actions within realistic timelines based on previous past experiences.

STRATEGIC OBJECTIVES

Increasing Water access and Coverage from 80% to 90% in the formal areas and 30% to 60% in the informal areas.
The Northern Collector Tunnel is part of a master plan development strategy for new water sources for Nairobi and 13 satellite towns up to the year 2035. The project includes construction of 12 km long water transfer tunnel, which will intercept three rivers to the north of Nairobi and transfer the intercepted water to the existing Thika Dam, the main water source for Nairobi. It consists of a series of intakes and tunnels and means to increase the total supply of water to Nairobi up to 1.2 million m³/day when fully implemented in 2035. The Projects considered as part of this proposed plan.

Reduction of NRW from 38% to 25%
Although the company established a fully-fledged department in 2012 to deal with NRW, remains a major challenge. In this Plan, specific actions proposed to reduce it to the regulator's acceptable benchmark of 25%. Some the actions include establishing a more accurate water balance within reasonable margins of error, effectively taking steps to address the apparent/commercial losses by changing faulty meters, carrying out a Customer Identification Survey, Installing PPDs in the Informal areas & upgrading the billing system among others.

"The renewable water resources per capita is below 1,000 cubic meters, which means the nation is water-scarce"

For the real/technical losses NCWSC must strive to prepare its' Network/infrastructure to receive an additional 140,000m³ per day once Phase 1 of the Northern Collector Tunnel Project is completed in 2021/22. As such network upgrading and rehabilitation should sustained, repair of leaks done within 24hours and optimize bulk flows meter management.
While the lowest levels of performance are noted to be in Financial and Technical aspects of the Company, other aspects in Organization and Strategy, HR management and Commercial Operations must be re-looked at with the ultimate result being better use of resources and institutionalizing of the successful initiatives in order to sustain performance in the long-run through effective policies.

To enhance financial sustainability, NCWSC envisages an upward tariff review by June 2021 to not only be able to adequately cover O&M costs but to supplement the sources of funds for the actions in the envisaged plan period. Additionally, given the structure of the Company, enhancing institutional capability to deliver effectively and efficiently through enhancing staff welfare, competence and skills as well as upgrading the infrastructure at the Company are critical for the achievement of the plan.

FEASIBILITY

Is the situation dire? Yes of course, but there is growing confidence that the water and sanitation sector is closer to the top of the government's list of priorities (Big 4 Agenda).

"...water, water, everywhere, not any drop to drink..."
Rimes from the poem
"The ancient mariner" by Samuel Taylor Coleridge

Of the two Scenarios presented herein based on the 'Run of the River' and the 'Strategic plan', it becomes quickly clear that significant capital investments must be made to meet the increasing demand and increase access to 90% while improving other operational efficiencies. In the strategic scenario, production efficiencies projected to improve by at least 5% per year. with significant CAPEX of USD 1.37 Billion expected to boost production, storage and transmission capacities, enhance treatment plants capacities and efficiencies as well as processes like recycling back wash water and extending networks.

The cumulative sum of the Discounted Net Present values between the two scenarios shows negative returns in the first 4 to 5 years. This is because of the high CAPEX outlay required, but ultimately yields positive results when extrapolated up to the year 2035 (With a positive end result of USD 560,000) thereby making this strategy sustainable and expected to add value to the Company, its' shareholders and ultimately in improving service delivery.

Political good will from both tiers of government and support of appropriate pricing to cover O&M while maintaining the principles of being pro-poor through a social connection policy will also make operations of NCWSC more sustainable in the quest to quench the city's thirst. I proposed 20% increase in the first year and 5% every year indexed to Inflation proposed herein.

Top Management support of proposed organizational and HR related aspects to spur change and increase staff productivity will ultimately yield better results not just for the company but more so towards enhanced service delivery and satisfaction of its customers.

KEY FIGURES

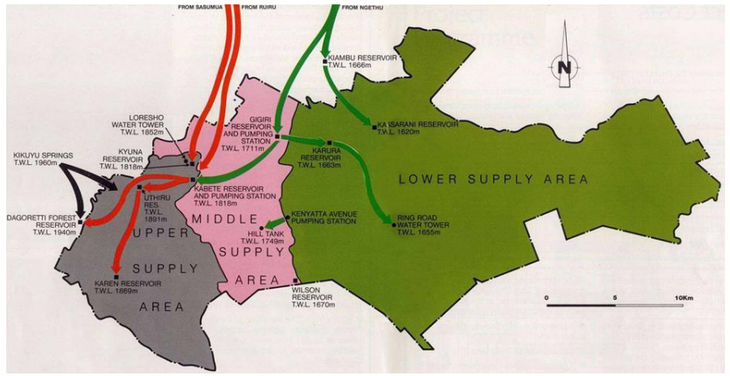
Average water tariff / m³	0,47 € (2018)
Volume treated water per day	540 000 m³ (2018)
Number of employees	3 554 (2018)
Number of water customers	308 612 (2018)

Mrs Lenah Mutwa NGUNGU
Western Region manager
NWSC
April 2020

KENYA

NAIROBI CITY WATER AND SEWERAGE COMPANY LIMITED

By Mr Peter Ndung'U WACHIRA



OVERVIEW

Nairobi is the capital city of Kenya, a country with an annual income per capita of USD 1,905, an average economic growth rate of 5.7%, and a population of 47 million inhabitants. The city has a population of 4.4 million people and faces enormous challenges in providing sustainable access to safe water, sewerage services and basic sanitation for its fast-growing population leading to mushrooming of informal settlements. About 40% of the city's population lives in the informal settlements.

Due to the high investments in hydraulic infrastructure, the city remained without any development of additional sources for water for a long time (about 20 years) straining the water supply situation in relation to the growing population. The current level of water service is only 12 hours per day with a coverage of 78% of the city's population. All the water sources fall outside of the county limits calling for consultations for shared resources.

Other challenges include dilapidated water and sewer infrastructure, a high non-revenue water, high operations and maintenance costs and different priorities by key players in the water and sanitation sector.
Based on the above challenges, this strategic plan sets out goals to change the current scenario over the next 10 years. The goals aim to increase access and enhancing operations to the benefit of city residents who will have access to clean, safe and affordable water in addition to basic sanitation.

"Due to the high investments in hydraulic infrastructure, the city remained without any development of additional sources for water for a long time (about 20 years) straining the water supply situation in relation to the growing population"

DIAGNOSIS

Nairobi City Water and Sewerage Company (NCWSC) was incorporated in December 2003. It is a wholly- owned subsidiary of Nairobi City County. The mandate of NCWSC is to provide safe drinking water and sewerage services to the 4.4 million people of Nairobi County, in a financially sustainable manner and according government regulations.

Apart from the county government, the company's operations are also regulated by the sector regulator Water Services Regulatory Board (WaSREB). The company mainly plays the role of operators and major infrastructural development works are under the asset development agency, Athi Water Works Development agency (AWWDA), which explains the challenge of autonomy in infrastructure development.
However, it is the company's mandate to undertake improvement works (rehabilitation and extension) with its budget.

Water supplied by NCWSC comes mainly from surface water sourced from three main dams and some springs (i.e. Thika dam, Sasumua dam, Ruiru dam and Kikuyu springs). These are located

at an average distance of 50km from the city. The combined average production capacity is 525,000m³/day against a demand of 760,000m³/day. The production capacity is not achieved at times due to changing weather conditions (drought) which negatively affects the sources and leads to reduced production levels.

The company has an approximative water pipe network of 3,000km and 2,000km for sewer network.
The coverage of water and sewer currently stands at 78% and 50% respectively with a customer base of 552,707 (water -308,612, sewer - 244,095). There is a staff capacity of 3554 employees distributed both for water and sewer services.

"Year 2030 is symbolic in Kenya's economic development blueprint, Vision 2030, sets a national goal to ensure availability and access to improved water and sanitation services to all by 2030"

STRATEGIC OBJECTIVES

This strategic plan aims to move the utility from the current performance to a good performing utility by 2030. Year 2030 is symbolic in Kenya's economic development blueprint, Vision 2030, sets a national goal to ensure availability and access to improved water and sanitation services to all by 2030. This will also be in line with Sustainable Development Goal (SDG) and especially the Kenya Number 6 on access to water and sanitation for all, on which our State is very involved to reach.

Key Performance Indicators	2016/17	2017/18
Water coverage %	79%	78%
Drinking water quality, %	95%	93%
Hours of supply per day	18	12.3
Non-revenue water %	38%	38%
Metering ratio	100%	100%
Staff productivity, staff per 1,000 connections	6.2	6.4
Personnel expenditure as % of O+M cost	56%	61%
O+M cost coverage %	100.6%	97%
Metering ratio, %	100%	100%
Meter reading efficiency	88%	88.4%
Billing efficiency	87%	88%
Revenue collection efficiency	100%	96%
Sewer coverage %	50%	50%

The strategic plan has considered five primary objectives mainly aiming at increasing access to water and sewerage and also enhancing operations for improved service delivery and financial sustainability.
They include:
a. Increase the percentage of the population with access to safe water in Nairobi from 78% to 90% by 2030.
b. Increase the percentage of the population with access to sewerage in Nairobi from 50% to 70% by 2030.
c. Achieve financial sustainability through increased operational efficiency.
d. Strengthen organisational governance and staff capacity.
e. Improve commercial operations.

Increasing access to water services

To achieve this objective, this strategic plan proposes the rehabilitation and extension of pipeline network in dilapidated sections and unserved areas in order to improve coverage. Likewise, infrastructure development for new water sources and bulk transfer systems is essential to achieve this goal. This will involve an aggressive engagement of the asset development agency and other relevant stakeholders in fast tracking of the proposed projects. Frameworks for private sector partnership in the proposed projects will also be considered.

Increasing access to sewerage services

In addressing the sewer coverage, NCWSC will also require to promote the non-sewer sanitation. Thus, NCWSC will have to prioritise the expansion of sewerage and the adoption of alternative technology for waste management to promote sanitation coverage. NCWSC will also address the aging networks, upgrading and expanding the sewerage systems and frequent maintenance. As with the water infrastructure development, intensive stakeholder engagement will be done alongside the development of partnership frameworks.

Achieving financial sustainability through increased operational efficiency

The objective aims to improve the current performance level of NCWSC's strategies on NRW reduction, cost cutting measures, debt management and strengthening innovation in operations to be adopted to reach the goal. Once this objective is reached, the NRW reduction achieved will make more water available, thus improving the level of service and revenue. Likewise managing staff, energy & chemical costs will see more funds available for reinvestment. GIS mapping as an innovation to be adopted will also assist in the customer data management whereas SCADA will improve the operational efficiency of the treatment plants.

Strengthen organisational governance and staff capacity

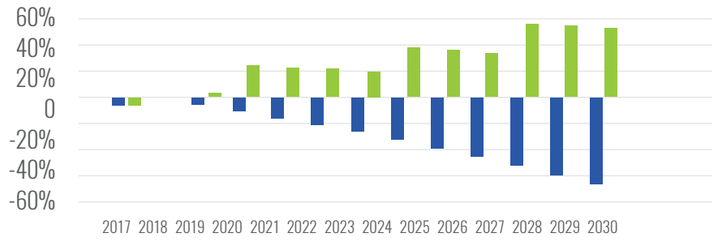
The objective will address governance and capacity issues, building and maintaining human resources needed to implement the strategies to achieve desired performance. This will help create a working environment that stimulates growth, a good working culture and motivation for employees. HR optimisation will be done through training and development, motivation and evaluation and rewards for achieved goals.

There will also be an objective to enhance customer operations through data management and improved communication.

FEASIBILITY

By achieving the proposed objectives, the gross operating profit (EBITDA) will grow from a negative value to 50% in 2028 before dropping to 42% by the end of the plan period (2030). With the objectives avhieved, it is evident that over the time, the company's expenditure (O&M cost) will be lower than the revenue (high EBITDA) being the first step towards full cost coverage that will ensure long-term financial sustainability.
On the other hand, a positive Net Present Value (NPV) of US$ 13.96 million implies that the proposed objectives are financially viable and therefore will yield a good return.

EBITDA MARGIN TREND



The total resource requirements for the plan period is USD 757.2 million, comprising of total Capex requirements of USD 742.55 million and OPEX requirements of USD 14.67 million.

KEY FIGURES

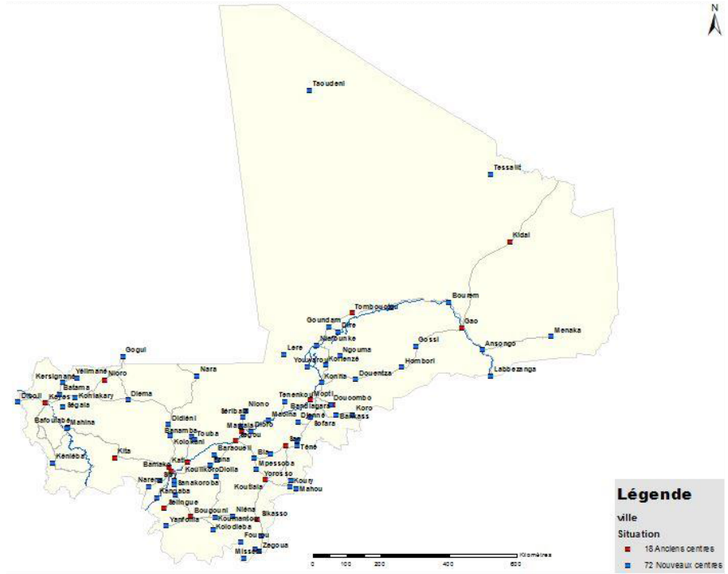
Average water tariff / m³	0,47 € (2018)
Volume treated water per day	540 000 m³ (2018)
Number of employees	3 554 (2018)
Number of water customers	308 612 (2018)

Mr Peter Ndung'U WACHIRA
Treatment works coordinator
NWSC
April 2020

MALI

ASSURER LE SERVICE DE L'EAU POTABLE À BAMAKO : BRANCHEMENTS ET BORNES FONTAINES

Par M. Abdoulkarim AROUGAYA



Population de Bamako en 2018	3,7 M
Taux de croissance moyen du PIB (2018)	5%
PIB/HAB	793€
Croissance démographique	6%

CONTEXTE

Le Mali est situé en Afrique de l'Ouest avec une superficie de 1 241 238 km², sa population est estimée à 20 Millions d'habitants (2018) avec un taux de croissance de 5 à 6%/an et le PIB/hab est de 793€ annuel.

Pour les sources en eau, il dispose de trois grands fleuves (le Niger, le Sénégal et la Volta) et leurs affluents. Selon la Direction Nationale de l'Hydraulique (DNH), le Niger et le Sénégal drainent en moyenne par année 70 milliards de m³ d'eau et les ressources d'eaux souterraines sont estimées à 2 700 milliards de m³ de réserves statiques.

Toujours selon la DNH, le taux national d'accès à l'eau potable est de 69% (dont 58% à Bamako la capitale) pour une cible de 71% selon les ODD.

Fort de ces constats, le Gouvernement a procédé dès 2010 à une réforme du secteur avec la création de la SOMAPEP (société de Patrimoine) et de la SOMAGEP (société d'exploitation). Le périmètre de la SOMAGEP comptait 18 centres urbains en 2015 (dont Bamako notre périmètre d'étude), avec une extension à partir de 2016 à 72 nouveaux centres.

SOMAGEP - SA/BAMAKO

Bamako est le plus grand centre urbain de la SOMAGEP, avec 782 agents et 132 000 abonnés en 2018. La superficie couverte est de 267 km² pour une population de 3,7 M d'habitants avec un taux de croissance de 6%/an. Le taux de couverture à Bamako est de 58%, avec une production annuelle de 74 M de m³ pour 2 250 km de réseaux et 28 M€ de chiffre d'affaires.

ÉLÉMENTS DE DIAGNOSTIC

1-Des forces et des opportunités qui comptent

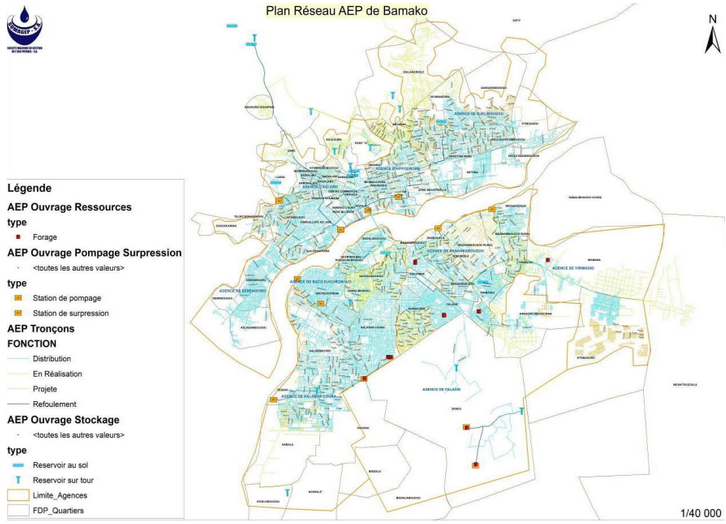
Le cadre institutionnel est bien bâti et repose sur des contrats qui définissent les rôles et obligations des acteurs et régulent les relations entre eux. Pour réussir notre Plan d'Actions Stratégiques (PAS), nous pouvons compter sur une organisation reposant sur un CODIR qui fonctionne, aidé en cela par un Système Informatique intégré et un engagement dans la démarche QSE. La mise en service de la 1ère tranche de Kabala, avec la mise à disposition de 144 000 m³/j et le début de la réalisation de 100 000 branchements sociaux, l'accompagnement des Partenaires Financiers sont des forces et opportunités qui comptent et qu'il faut saisir.

2-Des menaces à atténuer et des faiblesses à corriger

Des menaces comme le manque de dialogue entre acteurs et le manque d'indépendance de la CREE ayant conduit au gel des tarifs, pèse sur la SOMAGEP.
Parmi les faiblesses à corriger il faut noter :
- le faible taux de couverture (58%) exacerbé par le
- retard des investissements
- la discontinuité du service (17H/24) jouant sur la satisfaction clientèle et l'image de la SOMAGEP
- le long délai de recouvrement client : 221 jours
- la vision non partagée de la SOMAGEP
- la faible productivité du personnel (6 agents/1000) et sa satisfaction non mesurée

Il faut aussi noter la mauvaise situation financière de la SOMAGEP (EBE< 0)

Paramètres et indicateurs (2018)	SOMAGEP/BAMAKO (2018)	PROJECTION 2034
Population (million hab.)	3.7	7.6
Volume d'eau produit par an (Mm³)	74	232
Nombre d'abonnés	132 000	460 000
Branchements avec compteur (%)	100	100
Linéaire réseau (km)	2 250	6 300
Capacité de stockage (m³)	37 000	85 000
Nombre d'employés	782	802
Chiffre d'affaires (M€)	28	125
Taux de couverture (%)	58	95
Continuité de service (H/24)	17h/24	24h/24
Productivité du personnel (agent/1000 abonnés)	6/1000	<=3/1000
NRW (pertes) en %	26	<=18
Délai de recouvrement des particuliers (jours)	221	<=60
Tarif moyen de l'eau (€m³ d'eau)	0.48	>=0.75
EBITDA %	<0	>20
Qualité de l'eau (taux de conformité) en %	94	>=99
Taux de satisfaction clients (enquête) en %	67	>=85



STRATÉGIE ET OBJECTIFS

La stratégie adoptée appelée "notre stratégie", vise à l'extension et à l'amélioration du service d'eau potable sur Bamako à travers les BP et BF, par l'extension de la production des réseaux et des branchements sociaux. Elle vise aussi à l'amélioration des performances du personnel, l'association de toutes ces institutions pour cette réussite et l'aboutissement à l'amélioration de la santé économique et financière de l'entreprise.

Objectif 1 : Rendre la SOMAGEP plus performante techniquement à Bamako

Il faut booster le taux de couverture par l'augmentation de la production, des réseaux et des branchements à caractères sociaux, tout en maîtrisant les pertes physiques par la mise en place d'actions adaptées.

Objectif 2 : Rendre la SOMAGEP plus performante sur le plan commercial à Bamako et satisfaire ses clients

Augmentation de la satisfaction clientèle par l'amélioration des procédures commerciales, la réduction du délai de recouvrement clients et l'utilisation des NTIC, pour améliorer les services offerts aux clients et la maîtrise des pertes commerciales.

Objectif 3 : Impliquer le personnel et améliorer ses compétences

Implication du personnel avec le partage de la vision de l'entreprise et de ses résultats d'une part, par sa formation, sa motivation et la mesure de sa satisfaction d'autre part.

Objectif 4 : Associer toutes les institutions à la réussite du Plan Stratégique

Amélioration de la communication et de la sensibilisation sur la mission du secteur à travers les résultats des indicateurs atteints par la SOMAGEP- SA et utiliser ces résultats pour faire comprendre les résultats des simulations du modèle de la Commission de Régulation de l'Electricité et de l'Eau, pour que la notion de tarif soit comprise, par toutes les parties et son réajustement accepté.

Objectif 5 : Améliorer la santé économique et financière de la SOMAGEP-SA.

Bonne maitrise des charges d'exploitation, bon contrôle de l'allocation des ressources financières à travers un bon outil interne de suivi et une recapitalisation de la société pour résorber les pertes cumulées.

"Le Mali dispose de ressources en eau pour assurer le service d'eau potable sur le périmètre de Bamako par les branchements et les bornes fontaines, le défi reste leur protection et la mobilisation"

FAISABILITÉ DES PROJECTIONS

Faisabilité Financière

Les simulations financières, à partir du modèle de simulation de "Antoine Grand d'Esnon" font ressortir 479 M€ de CAPEX sur 15 ans (32 M€/an) et 792 M€ d'OPEX (soit 53 M€/an) sur la même période, pour la mise en œuvre du PAS. Le financement de ces montants nécessite une augmentation du tarif moyen actuel (0,4€/m³) de 53 à 58% soit 0,61 à 0,64€/m³ ou à défaut l'octroi d'une subvention égale à 25% des OPEX.
Ces augmentations et/ou subventions sont à la portée du Gouvernement et du secteur au regard des enjeux socio-économiques et sanitaires de l'accès à l'eau potable.
Pour le tarif proposé par notre PAS, il est jusque-là en deçà de celui appliqué au niveau des certaines sociétés similaires de la sous-région ONEA (0,7€/m³) et SDE (0,8€/m³).
Avec une bonne communication et un bon partage des données du secteur, il devrait obtenir l'adhésion des parties prenantes.

Faisabilité Socio-Politique et Environnementale

Socialement, Bamako a besoin d'un service d'eau efficace pour soutenir sa vie sanitaire et économique, sa croissance démographique et urbanistique étant exponentielle. Le PAS sera soutenu dans ses actions d'augmentation de la couverture du service, par la réalisation des branchements sociaux (30€/branchement).
Sur le plan politique, l'augmentation du tarif ou l'octroi de subventions, demande de la communication et du plaidoyer, mais l'une ou l'autre est nécessaire pour garantir le service. Sur le plan environnemental, notre PAS ne présente pas d'éléments susceptibles de l'impacter, pour Kabala l'étude d'impact étant déjà faite. Un des facteurs de risques non maitrise est l'insécurité entraînant des instabilités politiques.

"Des menaces comme le manque de dialogue entre acteurs et le manque d'indépendance de la CREE ayant conduit au gel des tarifs, pèsent sur la SOMAGEP"

PROJETS EN COURS OU PROGRAMMÉS

• Station de pompage et de traitement de Kabala : 2ème et 3ème tranche pour 427 M€,
2*144 000 m³/j ; 2 700 km de réseau

• Renforcement de l'usine de Djicoroni Para (10 000 m³/j)

CHIFFRES CLÉS

Prix moyen eau par m³	0,42 € (2018)
Volume d' eau traitée par jour	202 700 m³ (2018)
Nombre d' employés dans le service	782 (Bamako)
Nombre d'abonnés eau	132 000 (2018)

M. Abdoulkarim AROUGAYA

Ancien Directeur commercial et clientèle

Avril 2020

SOMAGEP - S.A. SOCIETE MALIENNE DE GESTION DE L'EAU POTABLE - S.A.

MALI

SOUTENIR L'ÉLARGISSEMENT DU PÉRIMÈTRE ET ASSURER L'ÉQUILIBRE FINANCIER DE LA SOMAGEP-SA

Par M. Ibrahim OUOLOGUEM

CONTEXTE

La République du Mali est classée, sur l'échelle de l'Indice de Développement Humain, à la 182ème au niveau mondial. Le rapport d'activités 2018 de la Direction Nationale de l'Hydraulique indique un taux d'accès global à l'eau potable au niveau national de 69 % (66% au niveau rural et 76% au niveau urbain et semi-urbain), contre un objectif cible ODD de 71%. Sur le périmètre urbain de la SOMAGEP-SA, le taux sus visé est de 64%.

Après deux décennies d'une gestion décentralisée du sous-secteur eau à deux niveaux, (i) délégation aux collectivités locales en milieu rural et semi-urbain et (ii) concession en milieu urbain, les résultats escomptés, en termes de taux d'accès et de qualité du service, demeurent fortement en deçà des attentes.

Dans la perspective d'améliorer ces taux, le Gouvernement du Mali a décidé, en 2016, dans le contexte d'instabilité socio-politique et sécuritaire que connait le pays depuis 2012, d'élargir le périmètre concédé de 18 à 90 centres, nonobstant l'absence d'études/évaluation préalables.

Taux de croissance moyen (2018)	5.1%
Croissance démographique	5%
PIB/Hab	901 $US

"Après deux décennies d'une gestion décentralisée du sous-secteur eau, les résultats escomptés, en termes de taux d'accès et de qualité du service, demeurent fortement en deçà des attentes"

La SOMAGEP (Société Malienne de Gestion de l'Eau Potable) opérateur du périmètre concédé, constitue, de par son statut et son savoir-faire technique, l'outil principal des autorités pour l'atteinte des objectifs de qualité de service et taux de couverture. Elle est épaulée par la SOMAPEP, concessionnaire en milieu urbain. A fin 2018, le personnel de la SOMAPEP-SA est de 1425 agents dont dans les nouveaux centres.

"Mettre l'accent sur le levier de la jeunesse du personnel"

DIAGNOSTIC

1-FORCES

Le cadre institutionnel repose sur une architecture de textes et contrats faisant ressortir les acteurs et leurs missions. Pour atteindre ses objectifs, la SOMAGEP-SA mettra à profit, entre autres, les documents de gestion RH disponibles (code éthique, règlement intérieur, accord d'établissement), et les acquis de la gestion par le SMQ, du système informatique intégré (Finance, GMAO, SIG, SIC, GRH), du contrôle qualité. Elle mettra également l'accent sur le levier de la jeunesse du personnel. Enfin, elle exploitera toutes les opportunités de financement (BM, Waternet, AFD.) et d'extension du service (Station de Kabala) qui s'offrent à elle.

2-POINTS SENSIBLES ET FAIBLESSES

Deux menaces majeures pèsent sur la SOMAGEP-SA, en l'occurrence, le gel du tarif de vente de l'eau et l'altération de la relation avec ses fournisseurs, due principalement au non-respect des délais de paiement.

Concomitamment, le ratio de productivité du personnel (6) est moyen, l'évaluation de la satisfaction du personnel et la mesure de son

"Élargir le périmètre concédé de 18 à 90 centres, nonobstant l'absence d'études/évaluation préalables"

Indicateurs	2018	2030
Population du pays (Mhab)	20.3	27.4
Population du périmètre (MHab)	7.1	13.7
EBE/CA en %	2.9	40
Résultat net/CA en %	-16.9	15
Trésorerie net (Md FCFA)	-3.9	>15
Délai fournisseur (mois de CA)	8.9 mois	2 mois
Taux d'accès dans le périmètre en %	64	>90
Continuité du service - H24	15h	24h
NRW en %	25.19	18
Nombre de clients	239 645	>705 000
Taux de satisfaction clientèle en %	67	90
Délai client (en mois CA)	8.7	2
Productivité personnel (agent/1000 abonnés)	6	<3.5

"Deux menaces majeures pèsent sur la SOMAGEP-SA, en l'occurrence, le gel du tarif de vente de l'eau et l'altération de la relation avec ses fournisseurs, due principalement au non-respect des délais de paiement"

engagement ne sont pas encore effectuées.

Aussi, faut-il noter le faible niveau de dialogue avec les parties prenantes externes (clients et autorités) et la médiocre qualité du service, traduite par des taux d'accès (64%), de disponibilité (H24 - 62,5% ou 15h), et de satisfaction clientèle (67%) faibles qui impactent les actions de recouvrement de factures de consommations (délai client >220 jrs).

Par ailleurs la faiblesse dans le pilotage axé sur l'équilibre financier se traduit par des résultats médiocres (EBE/CA=3%) et trésorerie <0

Enfin, est-il utile de noter une gestion encore centralisée (malgré les tentatives de décentralisation), une faiblesse dans le déploiement des outils de gestion et procédures à l'échelle du périmètre, avec une acuité sur le sous-périmètre SGEP72-Centres (nouveaux centres).

Mon plan d'action vise l'atteinte des cibles suivantes :

STRATÉGIE ET OBJECTIFS

La stratégie adoptée "YELEMA 2032" repose essentiellement sur une extension des infrastructures, précédée impérativement par du personnel recruté de façon maîtrisée, sans faire exploser la masse salariale, ou une mobilisation interne pour participer activement à la définition des projets d'extension, leur mise en œuvre pendant les travaux et enfin garantir une exploitation efficiente des nouveaux ouvrages Tout ceci en limitant les embauches, faisant progresser la productivité, et en s'appuyant sur des entreprises sous-traitantes de qualité et contrôlées.

Objectif 1 : Mobiliser le personnel autour des missions et valeurs, tout en garantissant, leur créativité et leur épanouissement. Il vise à valoriser, responsabiliser, engager, recentrer et sensibiliser chaque agent sur le rôle de la SOMAGEP-SA dans l'accès à l'eau potable sur le périmètre, et sa part de contribution individuelle.

Objectif 2 : Satisfaire les clients et susciter leur implication volontaire aux résultats de la SOMAGEP-SA. Il vise, à travers l'écoute des clients pour satisfaire leurs attentes, à développer l'empathie et la sympathie vis-à-vis de la SOMAGEP- SA.

Objectif 3 : Accroître l'accès au service et la qualité du service, tout en garantissant leur pérennité et la durabilité des infrastructures. Il vise à étendre, de manière soutenue, la couverture réseau sur l'ensemble du périmètre, en se reposant sur les opportunités de partenariat et de financement, d'une part ; et d'autre part, à améliorer l'exploitation via l'utilisation poussée des TIC.

"La stratégie adoptée "YELEMA 2032" repose essentiellement sur une extension des infrastructures, précédée impérativement par du personnel recruté de façon maîtrisée, sans faire exploser la masse salariale, ou une mobilisation interne"

Objectif 4 : Atteindre l'équilibre financier et soutenir le développement du service. Il vise à restaurer la confiance des partenaires financiers et commerciaux, pour assurer la mobilisation des fonds nécessaires au développement des infrastructures et du service ; et requiert impérativement le rétablissement de la solvabilité de la SOMAGEP-SA.

Objectif 5 : Réduire la rigidité de la gouvernance, et maintenir un contrôle efficient. Il vise à assouplir le processus de prise de décision sur les aspects techniques et financiers, en rapprochant le centre de décision du lieu de conduite de l'activité, par un transfert des compétences utiles.

Objectif 6 : Constituer un groupe de plaidoyer pour porter les messages de la SOMAGEP-SA aux Autorités. Il vise à sensibiliser les hautes autorités sur les problématiques cruciales que traverse la SOMAGEP-SA, telles que l'augmentation tarifaire ou l'autonomie de gestion.

FAISABILITÉ

Financière

Des simulations effectuées, il ressort que la mise en œuvre du PAS nécessite la mobilisation de près de 55 Milliards de FCFA (94 millionsS) par an, sur 10 ans, dont moins de 30 milliards FCFA (51 millionsS) en subventions d'Etat. Ce montant est largement à la portée du gouvernement au regard des enjeux de santé publique et de sécurité que représente l'accès à l'eau potable.

Les ressources propres reposent sur une augmentation tarifaire de 70% sur 10 ans. Le tarif qu'il est envisagé d'appliquer sur le périmètre concédé à l'horizon du plan, est du même ordre que celui qui prévaut en milieu rural. Avec un bon plaidoyer et une amélioration de la qualité du service, les populations devraient adhérer au projet.

Socio-culturel

Au regard de la qualité du service et du taux de couverture, le PAS, de par les actions qui corrigent ces faiblesses, aura un impact positif sur la société. Toutefois, des actions de sensibilisation méritent d'être menées à l'endroit du personnel afin que l'utilisation des TIC ne soit pas perçue comme un vecteur de chômage et d'inactivité, ou un moyen de coercition sur eux.

A l'échelle nationale, l'action à fort impact social est l'augmentation tarifaire.

Politique

Le PAS comprend deux actions à forte sensibilité politique ; il s'agit de la valorisation du tarif et l'autonomie du régulateur et de la SOMAGEP-SA.

Toutes les autres actions ne devraient pas être confrontées à des pesanteurs politiques.

Ainsi, dispose-t-il d'une marge de manœuvre satisfaisante pour faire aboutir la révision tarifaire impérative pour assurer la viabilité du secteur de l'eau potable.

"Les ressources propres reposent sur une augmentation tarifaire de 70% sur 10 ans"

CHIFFRES CLÉS

Prix moyen eau par m³	0,42 € (2018)
Volume d' eau traitée par jour	105 000 m³ (2018)
Nombre d' employés dans le service	1 429 (hors Bamako)
Nombre d'abonnés eau	240 000 (2018)

M. Ibrahim OUOLOGUEM

Directeur des études et des travaux

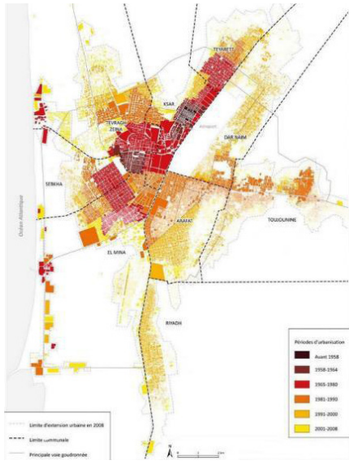
Avril 2020

SOMAGEP - S.A. SOCIETE MALIENNE DE GESTION DE L'EAU POTABLE - S.A.

MAURITANIE

DÉVELOPPEMENT DE L'ASSAINISSEMENT COLLECTIF ET NON COLLECTIF DE NOUAKCHOTT

Par M. Mohamed Mansour DIA



Superficie	1 000 Km²
Population 2020	1 149 000
Taux de croissance	3%
Nombre de région	3
Nombre de Départements	9
Nombre de communes	9
Densité	1 100 hab/km²
Nbre abonnés en eau potable	114 231
Tx de desserte en eau potable	64%
Consommation moyenne eau	60
Taux inflation	3.8%
PIB/habitant	1 300$
Pluviométrie annuelle	50 à 100 mm

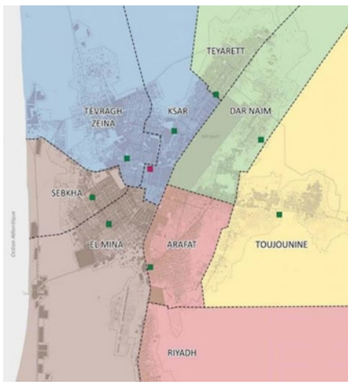
CONTEXTE ET ENJEUX

La ville de Nouakchott, capitale de la Mauritanie, est sous équipée en infrastructures d'assainissement. En effet, l'exode rural des années 70, causé par la forte sécheresse et l'urbanisation rapide de la ville de Nouakchott a échappé au contrôle de l'État, augmentant les besoins en eau et assainissement.

La croissance de la population de Nouakchott au cours de cette période est supérieure à la croissance nationale. Cette croissance s'explique par l'attraction qu'exerce le standing de vie dans la capitale, les offres d'emplois et d'autres services et aussi par les conséquences de la sécheresse.

Face à cette situation difficile à maîtriser, le gouvernement a accordé la priorité à l'accès à l'eau potable au détriment de l'assainissement.

Le développement de la ville n'a donc jamais été accompagné par l'extension des infrastructures d'assainissement propres à répondre aux besoins de la population et aux normes de protection environnementale.

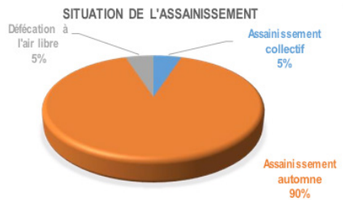


CHIFFRES-CLÉ DE L'ASSAINISSEMENT

Le taux d'accès au réseau d'égouts est aujourd'hui de l'ordre de 5%. Les installations en place sont obsolètes : elles datent des années 1965 et quelques réhabilitations ont eu lieu en 1988 et 1993 avec la mise en place d'un réseau de 32 km.

Le taux d'accès à l'épuration est évalué à moins de 12% (dépotage de boues de vidange pris en compte). Pourtant, le taux d'accès des ménages aux latrines est supérieur à 90% dans la ville, mais aucun traitement n'est proposé.

Cela signifie que les habitants ne sont pas déclarés comme étant raccordés à un service d'assainissement. Ils font appel à des opérateurs privés ou à l'ONAS, l'Office National d'Assainissement (pour les quartiers du centre-ville) pour évacuer les boues de vidange. Le taux de couverture des établissements scolaires en latrines est de l'ordre de 80% et de 90% pour les structures sanitaires.



"Le développement de la ville n'a donc jamais été accompagné par l'extension des infrastructures d'assainissement propres à répondre aux besoins de la population et aux normes de protection environnementale"

GESTION DES EAUX USÉES ET EXCRETA

Une enquête a été réalisée par la Direction de l'Assainissement auprès des ménages de deux quartiers différents de la ville sur la gestion des eaux usées domestiques et excréta. Les principaux résultats sont les suivants :

Mode de vidage	Quartier Basra	Quartier SOCOGIM PS	Observation
Devenir des eaux usées grises	Rue : 90% Fosse : 5% Puisard : 2%	Rue : 72% Fosse : 19% Puisard : 9%	Les eaux grises sont généralement rejetées dans la rue
Fréquence de vidange	Plusieurs/an : 58% Une fois/an : 20% A plus d'un an : 7%	Plusieurs/an : 70% Une fois/an : 22% A plus d'un an : 10%	La fréquence de vidange est importante en particulier dans le quartier SOCOGIM
Mode de vidange manuelle	81%	17%	Les ménages à faible revenu ont recours à la vidange manuelle
Mode de vidange mécanique	19%	88%	Dans le quartier à revenu acceptable (classe moyenne), les ménages sont prêts à payer pour le service assainissement
Devenir des boues vidangées manuellement	Dans un trou à 100%	Dans un trou à 100%	Toutes les boues vidangées manuellement sont enfouies à côté de la parcelle (transfert de pollution)

L'ASSAINISSEMENT COMME PRIORITÉ POLITIQUE

Ces dernières années, le gouvernement mauritanien a accordé une importance particulière à la résolution des problèmes d'assainissement liquide. Cette attention s'est traduite par la création de :

- La Direction de l'Assainissement
- L'Office National de l'Assainissement
- La Cellule chargée du Projet de l'Assainissement collectif de la ville de Nouakchott

Les missions de chaque structure :

2008

- Direction de l'Assainissement (DA) chargée de la politique et de la stratégie du sous-secteur et des études des programmes assainissement à l'échelle nationale. Elle est leadership de l'assainissement autonome à travers de mise en œuvre de l'ATPC qui se limite à nos jours en milieu rural et semi urbain.

2009

- Office National de l'Assainissement (ONAS), chargé de la gestion des eaux usées et pluviales à l'échelle nationale en milieu urbain. Toutefois il est déployé uniquement à Nouakchott pour la gestion des réseaux d'assainissement et la station d'épuration qui couvre une infime partie de la ville.

2013

- Cellule chargée du Projet d'Assainissement collectif de la ville de Nouakchott (CPAN) pour le contrôle et suivi de mise en œuvre du Plan Directeur de l'Assainissement récemment actualiser (2017). Il faut noter que le plan d'assainissement collectif de la ville a fait l'objet de plusieurs actualisations sans que les financements les suivent à l'exception d'une partie des zones bases pour les eaux pluviales réceptionnées fin 2018.

"Toutes les boues vidangées manuellement sont enfouies à côté de la parcelle (transfert de pollution)"

STRATÉGIE INNOVANTE DE L'ONAS A L'HORIZON 2030

En cohérence avec les Objectifs du Développement Durable (ODD) votés par l'Assemblée Générale des Nations Unies en 2015, la Direction de l'Assainissement en étroite collaboration avec l'ONAS a élaboré une stratégie portant sur trois objectifs stratégiques complémentaires. Plus de 30 actions ont été identifiées pour permettre la réalisation des activités prévues et atteindre les objectifs fixés à l'horizon 2030. Le plan a été chiffré et le montant nécessaire pour sa mise en œuvre est présenté dans le graphique de droite

Les objectifs sectoriels du présent plan d'action stratégique visent à améliorer l'accès à l'assainissement pour l'ensemble de la population de Nouakchott, en tenant compte des disparités d'accès au service mises en évidence dans le diagnostic. Elle vise également à améliorer l'hygiène de la population par la promotion de la construction et de l'utilisation d'équipements d'assainissement durables adaptés au contexte urbain mais aussi à la promotion du lavage des mains au savon.

Par ailleurs, l'amélioration de la Gouvernance sectorielle est un facteur clé, voire un prérequis, pour l'atteinte des objectifs stratégiques (OS). Elle peut être regroupée en 3 volets :

1. un volet lié au renforcement du cadre institutionnel, légal et normatif sectoriel et à la planification stratégique
2. un volet lié à l'efficience de l'ONAS dans ses missions d'exploitant
3. un volet visant à renforcer l'équité et la durabilité de l'accès au service public de l'assainissement.

103,8 M€
- OS1: Améliorer la couverture de l'assainissement collectif

25,96 M€
- OS2: Mettre en place un service public d'assainissement non collectif

103,80,62
- OS3: Améliorer la gouvernance du secteur et la performance économique et managériale de l'ONAS

STRATÉGIE DE L'ONAS EN MATIÈRE D'ASSAINISSEMENT NON COLLECTIF

L'ONAS ambitionne d'élargir son champ de compétence afin de suivre des activités de vidange et mettre en place un système de licence pour une organisation de la filière. La gestion des boues de vidange prendra en compte l'évacuation, le déversement, le traitement, puis la réutilisation ou l'élimination de l'effluent et des solides restants. L'amélioration des services de vidange consistera à terme à stopper les rejets "sauvages" des boues et à assurer le transport hygiénique de l'ensemble des boues produites dans l'agglomération vers les sites de traitement ou de stockage en offrant aux ménages un service de qualité à un coût accessible. Cependant la Direction de l'Assainissement appuiera l'ONAS dans le renforcement de la gouvernance, le financement et la budgétisation, le développement des capacités et l'évaluation. Elle veillera à améliorer la réglementation et son application, en particulier la fixation des tarifs, les normes, les autorisations, le suivi et la supervision, le contrôle et l'audit.

Les facteurs clefs de réussite de cette stratégie passe par :

- la réorganisation et le renforcement de l'ONAS
- la mise en place d'un code de l'assainissement liquide
- la révision du système tarifaire de l'assainissement
- la mise en place un véritable plan de communication et coordination entre les différents acteurs

CHIFFRES CLÉS

Prix moyen m³ assainissement	0,033 € (2018)
Volume d' eau traitée par jour	-
Volume d' eaux épurées par jour	-
Nombre d' employés dans le service	-
Nombre d'abonnés eau	140 231 (2018)

M. Mohamed Mansour DIA

Chef de la division "Traitement des eaux"

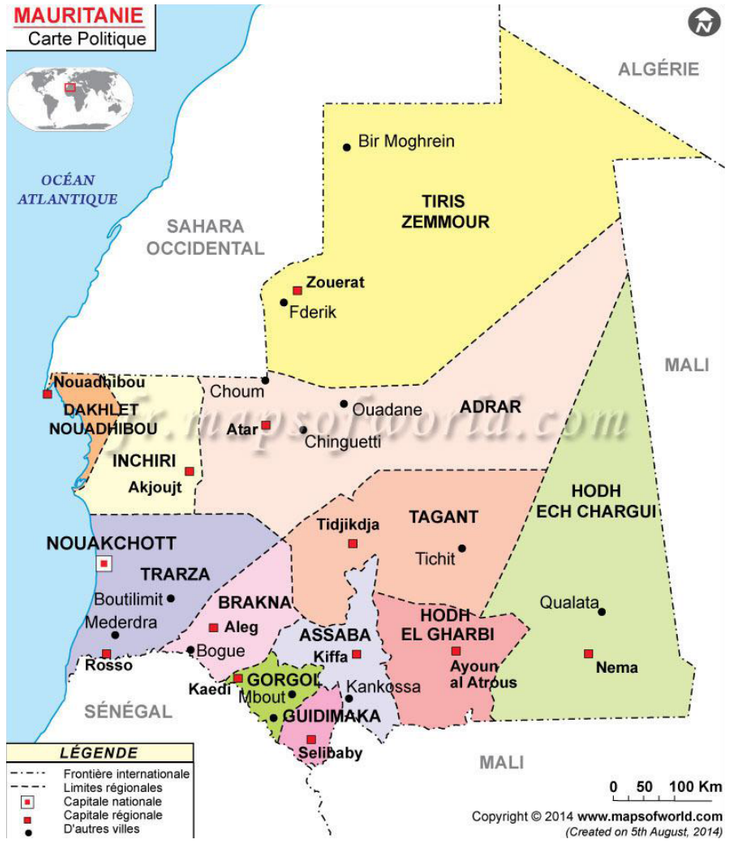
Direction Assainissement du Ministère de l'Hydraulique et de l'Assainissement

Avril 2020

MAURITANIE

AMÉLIORATION SUR LE PLAN OPÉRATIONNEL ET FINANCIER DU SERVICE D'EAU DE NOUAKCHOTT

Par M. Abdellahi DEDI



Croissance démographique	2,8
Croissance du PIB	7,5%
PIB par habitant	$1300

CONTEXTE

La Société Nationale d'Eau (SNDE) est une entreprise publique à caractère industriel et commercial. Son capital social est détenu en totalité par l'État Mauritanien. La SNDE, suivant son décret de création a pour objet "la production, le transport, la distribution et la vente de l'eau.

A cet effet, elle installe et exploite les installations de production, transport, distribution et vente d'eau : elle est habilitée à exercer, conformément à la réglementation en vigueur toutes autres activités qui se rattachent directement ou indirectement à son objet" (article 4 du décret n°2001- 88/PM du 29/07/2001). En l'état actuel du droit, la SNDE est considérée à la fois comme une société de patrimoine et une société d'exploitation.

La SNDE totalise 247.000 abonnés actifs et elle est présente dans 49 villes à travers 63 centres implantés dans le pays. Ces villes sont, Nouakchott, Nouadhibou qui représentent plus de 76% de l'activité, et 47 villes de l'intérieur.

Nouakchott, capitale de la Mauritanie, s'est considérablement agrandie pour devenir une métropole africaine importante. La population s'est accrue de 4.2% par an entre 2000 et 2013 selon le dernier recensement et la ville compte aujourd'hui 1.100.000 habitants.

Nouakchott consomme 65% de la production totale de la SNDE en eau potable et compte 52% de l'ensemble des abonnés actifs. Le chiffre d'affaires de la SNDE est réalisé à 69% par Nouakchott.

"La sécurisation des installations de l'AEP de Nouakchott n'est pas complètement assurée"

DIAGNOSTIC

Forces et opportunités

• De l'eau produite en quantité suffisante pour la ville de Nouakchott. (Taux d'utilisation des moyens de production est de 69%)
• Tous les points de livraison sont dotés de compteurs
• Réseau de distribution neuf et couvre 80% de la ville
• Parc de compteur renouvelé à hauteur de 60%
• Climat politique favorable aux réformes bénéfiques pour le sous-secteur de l'eau en milieu urbain
• Croissance prévisible du PIB réel par habitant
• Appui financier des partenaires techniques et financiers (PTF) au profit de la SNDE.
• L'État paye ses factures de consommations d'eau
• Arsenal juridique incriminant le vol de l'eau
• La suspension de fourniture est normale en cas de non-paiement

Faiblesses et menaces

• Instabilité de l'organisation interner
• Mauvaise qualité du service (la satisfaction client n'est pas une préoccupation)
• Manque de fiabilité d'indicateurs de mesures de la qualité du service
• Mauvaise qualité de la base de données Client (introduction des données erronées)
• Absence de solutions diversifiées et innovantes pour les règlements clients
• Mauvaise gestion technique des installations et des ouvrages hydrauliques (maintenance et entretien)
• Eaux non facturées élevées et absence d'une stratégie intégrée pour réduire les pertes
• Personnel pléthorique et non qualifié
• Coût élevé de la maintenance des installations de production Nouakchott
• Système d'information moderne nouvellement acquis connaît des problèmes qui perdurent
• Structure tarifaire qui entraîne diminution du prix moyen et baisse du chiffre d'affaire
• Faiblesse de la gestion financière (retard des états financiers 2018)
• Forte dépendance de la tutelle en matière d'investissements
• Offre nationale très limitée en matière d'expertise technique (ingénieur-conseil et entreprise de travaux)
• Contrat programme obsolète

La sécurisation des installations de l'AEP de Nouakchott n'est pas complètement assurée
• Forte demande en extension de réseau et développement de la ville de Nouakchott

"Nouakchott consomme 65% de la production totale de la SNDE en eau potable et compte 52% de l'ensemble des abonnés actifs"

OBJECTIFS STRATÉGIQUES

Le service de l'eau de la ville de Nouakchott à l'horizon 2030.
"Service performant sur le plan opérationnel et financier et un modèle pour la SNDE"
Le Service de l'eau de Nouakchott sera autonome, moderne et performant. Il sera orienté vers sa clientèle en leur offrant un service efficace et de proximité. La politique de management du personnel sera axée principalement sur la motivation et la mise en valeur des compétences.
Le plan stratégique 2020-2030 s'articule autour des 4 objectifs structurants qui sont :

1) Assurer une gestion clientèle performante à Nouakchott
2) Assurer la performance opérationnelle du service à Nouakchott
3) Permettre à la SNDE d'atteindre l'équilibre financier (durabilité financière)
4) Assurer un accès à un service de qualité de l'eau potable pour tout le périmètre de Nouakchott

Indicateurs	Situation Nouakchott 2019	Situation Cible 2030
Production en Mm³/an	40	82
Taux utilisation moyens de production	69	100
Linéaire réseau (km)	1730	2674
Total abonnés	115 032	230 057
Taux de desserte (%)	64	100
Continuité de service	15	24
Productivité personnel	9 agents pour 1000 abonnés	3
NRW (%)	44	20
Taux de recouvrement (%)	72	97
Tarif moyen (€/m³)	0,36	0,51
EBITDA (%)	<0	>20
Qualité de l'eau (%)	na	100
Taux satisfaction Client	na	90

"La faisabilité du plan d'actions est possible avec une mise en œuvre continue du suivi des indicateurs opérationnels de l'entreprise (dont le NRW si critique), la mobilisation des financements du programme d'investissement et la révision du mécanisme tarifaire"

FAISABILITÉ

La réalisation de notre vision rentre dans le cadre d'une stratégie d'amélioration de la performance opérationnelle et commerciale et exige des efforts en matière de maitrise des charges d'exploitation.
La faisabilité du plan d'actions est possible avec une mise en œuvre continue du suivi des indicateurs opérationnels de l'entreprise (dont le NRW si critique), la mobilisation des financements du programme d'investissement et la révision du mécanisme tarifaire. Cette dernière est proposée sous forme de variante au scénario 2 du plan stratégique 2020-2030 : cette révision épargne les ménages des quartiers pauvres à consommation inférieure à 10m³ par mois et en même temps améliore le revenu de l'entreprise par la facturation de toute la consommation à la dernière tranche pour les foyers de famille à moyen et haut standing.
L'approbation par la tutelle du mécanisme tarifaire du scénario 2 est tributaire de la qualité et de la pertinence du plan d'actions et aussi de l'engagement et du soutien du projet par les partenaires techniques et financiers de la SNDE.

PROJETS

• Extension du réseau de distribution de Nouakchott et branchements : 59MSUS
• Adduction et usine de traitement : 49 MSUS
• Ouvrage stockage : 30MSUS
• Recherche et réparation des fuites et déclassement de l'ancien réseau : 932KSUS
• Recensement des abonnés et mise à jour de la base clients d'ici 2022 : 900KSUS

CHIFFRES CLÉS

Prix moyen eau par m³	0,061 € (2018)
Volume d' eau traitée par jour	110 000 m³ (2018)
Nombre d' employés dans le service	742 + 1142 saisonniers ou prestataires
Nombre d'abonnés eau	221 485 (2018)

M. Abdellahi DEDI
Conseiller du Directeur Général de la SNDE
Avril 2020

MYANMAR

WATER DISTRIBUTION SECTION WATER AND SANITATION DEPARTMENT (WSD)

By Ms AYE AYE KHAING

Essential data to catch the context

Mandalay water supply project (1983-1992)	Performance indicators existing water supply system 2018	
0.68 million	Population	1.25 million (2014 census)
64km² (4 townships)	City area	314.69 km² (3 townships)
71%	Pipe water coverage	55%
24h/7days a week	Service continuity	< 10h/7days

CONTEXT

The Republic of the Union of Myanmar, also known as Burma in ancient time, is bordering with India, Bangladesh, China, Laos and Thailand. It composes of 7 states and 7 Regions. Myanmar has 4 main rivers and 59 small rivers. Ayeyarwady River is the country's largest river (2210 km long) and the most important commercial waterway. Available water resources are allocated based on the appropriate water prioritisation criteria.

Mandalay City, the largest economic and cultural centre, is the Regional and international "HUB City". It is composed of (6) townships with grid mesh pattern 96 wards. With an average population growth rate of 1.7 %, Mandalay is one of the most promising Smart Cities in ASEAN.

WSD relies on 80% ground water and 20% surface water and produced 68.88 Mm^3 annually. NRW rate is around 52%. 44% of total water production is leaked and 48% of water is unbilled consumption. The volume of real losses is nearly 26 Mm^3/year which is a huge quantity when looking for the improvement of service continuity. The percentage of apparent losses such as illegal connection is about 18.8%.

"WSD has very low credibility, accountability, and autonomy. The poor performance can originate from internal factors as well as dysfunctional political economies"

DIAGNOSIS AND TRACKS TO ADDRESS CHALLENGES

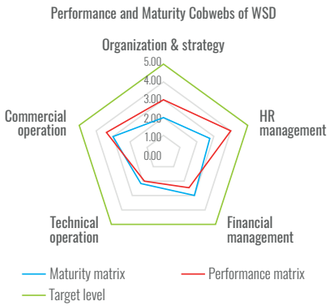
BY COBWEB

The maturity and performance of WSD are compared as synthesis diagnosis. In these Cobweb, five main sections are considered and classified into five classes with a point system. All sections are analysed and marks are assigned and then average of individual marks.

Taking a global view of the Cobweb results, WSD has very low credibility, accountability, and autonomy. The poor performance can originate from internal factors as well as dysfunctional political economies. A systematic, coordinated, and prioritised approach will be proposed to improve operational and managerial capacity

Firstly, WSD must increase the credibility and autonomy by making the best possible use of the space for change and available resources.

Therefore, WSD has to take a series of prioritised and well-sequenced actions to increase operational and managerial capacity and then require long-term SAP to be a Well performing utility.



BY ROOT CAUSES ANALYSIS

By identifying root causes or strategic gaps, WSD can address minor actions through broad problem areas and target specific issues. The poor performance or initial maturity of WSD has the possible root causes for each 5 areas:

- Unsustainable improvement
- Less staff productivity
- No multiyear capital improvement plan
- Low water coverage
- Customer unsatisfaction

DATA ENTRY

Internal benchmarking among three city development committees, MCDC's performance and KPIs indicate the middle rank. Although MCDC has good water coverage, it only serves 55 % of the total population. Inadequate coverage, very high NRW and very low tariff are mainly threatening to MCDC.

Water Utilities performance and KPIs of Indonesia, Vietnam, Cambodia and Myanmar are benchmarked. MCDC has the highest NRW %, population per water customer, density per connection and the lowest collection rate. Although water tariff structure of MCDC is higher than the internal benchmarked City Development Committees, it is lower than the external benchmarked water utilities.

Tariffs and other services income can cover operating expenses but do not include electricity consumption expenses. According to internal and external benchmarking, WSD must consider strategies to increase water coverage, reduce NRW ratio, set up the new tariff structure, increase tariff collection rate, increase capacity building program for qualified staff, then WSD must move on to corporatisation for sustainable improvement.

"Tariffs and other services income can cover operating expenses but do not include electricity consumption expenses"

STRATEGY

The Strategic plan of WSD is "By 2030, MCDC will provide 24/7 hr/d reliable, affordable and good quality water to 70% of the population through an Autonomous Water Supply Services Limited".

According to the Strategic Action Plan (SAP), water coverage of WSD will be increased from 55% to 70% by increasing water production. The service continuity will also increase from ≤ 10 hr/d to 24 hr/d.

The cost of electricity consumption is around 45.81 % of total expenditure. By setting up an energy saving program, the cost will be reduced by up to 28%.

The range of Non-Revenue Water volumes is between 102,000 m^3/day and 129,000 m^3/day, which is equivalent to a range of 37.2 to 47.1 Mm^3/year.

The SAP will reduce the NRW ratio from 52% to 20%. Mandalay Smart Pay System (MSP) is implemented for accurate customer billing. Comprehensive management information systems (MISs) will be in place, which is crucial to monitor performance and adjust plans of WSD.

The billing and collection systems must be linked to a comprehensive customer database and must be integrated with the MISs.

The information systems that will digitalise commercial functions and will improve integration between billing and collections, will help to increase the collection rate from 85% to 100%.

The existing water tariff per unit is too low according to the local and international benchmarking. It will be set up at 400 MMK (0.24 €/m^3) and will be a win-win for WSD and the customers.

An important first step consistent with the multiyear strategy will be a staffing plan. This plan will consider outsourcing initiatives, the introduction of new technologies and competitive compensation.

The result will be gains in labour productivity through training and development.

Staff evaluations and training will contribute to develop and retain the staff.

Employees' performance will be evaluated annually by performance-based compensation. That important incentive will increase staff productivity and efficiency.

ACTION PLAN

WSD has a low productivity of services, lack of revenues generated, no cost control methods and therefore the performance of WSD is developed unsystematically. The proposed action includes impact level, duration and responsible person. In addition, financing method, cost and progress measurement are considered in preparation of the action plan.

The actions are chosen by looking at a number of contextual, political, social, or economic factors, such as low cost, high impact in the short term, requiring low political capital, having no negative effect on the service quality, not requiring more decision-making autonomy.

For operation and maintenance cost, according to SAP, 1.44 million € will be borne by WSD and 0.039 million € by MCDC.

Moreover, SAP needs the investment cost of 3.024 million € to be borne by WSD, 0.975 million € by MCDC and 86.92 million € by government subsidies (loan and grant projects).

Embedding external alliances also plays a role in sustaining successful utility reform. The total cost of 10 years SAP is 91.52 million €. The commitments are evaluated annually with specific indicators. Adequate monitoring and reporting systems can sometimes be established without a central oversight body or regulatory authority. MISs are considered central to successful utilities and for optimising operations that are core to the business, including HRM, network operations, metering, billing, and collecting.

ECONOMIC AND FINANCIAL FEASIBILITY

MS-Excel based program is used to examine the economic and financial feasibility of proposed strategy.

After applying the hypothesis for Run-of-the-River scenario, the EBITDA/Sale of WSD is playing around - 88.41%.

If WSD plays with the same performance and maturity until 2030, other 12 departments under MCDC must subsidise WSD annually.

After implementing the SAP, starting from 2020-2021 budget year, the EBITDA/Sale of WSD indicates increasing trend and will be positive value 19.16 % in 2030. Then, financial performances of WSD can be considered efficient.

2018	KPIs	2030
55 %	Coverage area	70 %
10 hr / day	Supply Duration	24 hr / day
< 1 bar	Supply pressure	≥ 2 bar
100670	Number of connections	184087
4.14	Staffs/1,000 Connections	2.4
52	NRW	20
45.81 %	Power and Electricity Cost	28 %
< 85%	Collection ratio	100 %
0.52	OCCR	1.24
-92.57 %	EBITDA/Sale	19.16 %
Loss	Financial situation	Profit

KEY FIGURES

Average water tariff / m^3	0,12 € (2018)
Volume treated water per day	180 000 m^3 (2018)
Number of employees	438 (2018)
Number of water customers	100 670 (connexions) (2018)

Ms AYE AYE KHAING

Sub

Assistant engineer in charge of the water distribution section

Mandalay City Development Committee

April 2020

MYANMAR

TOWARD THE SAFE AND INTEGRATED SUSTAINABLE SANITATION SERVICES OF MANDALAY

By Mrs MYA KHWAR NYO

OVERVIEW

The Republic of the Union of Myanmar, also known as Burma in the previous time, is located in South East Asia. Mandalay is the last royal capital of Myanmar and located in the centre of the country. The total area of the city is 314.7 km^2 and consists of six townships, further divided into 96 wards, 42 village tracts and 170 villages. According to the 2014 census, the population is now about 1.2 million and by 2030 will reach 1.6 million and 1.8 million in 2040.

MCDC (Mandalay City Development Committee) is a government body and it takes the various efforts to provide the urban services to the city population in Mandalay. WSSD (Water Supply and Sanitation Department) is one of the engineering departments under the umbrella of MCDC. WSSD carries out the water distribution system in the city and provides the sanitation services to the city dwellers

Sanitation is at an early stage of development in the city because of low investment for a long time. MCDC's own financial capacities are limited to implement new infrastructure projects and to manage efficiently urban environment and services in a context of rapid urban growth. The City is developing on-site sanitation and no centralised sewerage system. The emptying service is provided by MCDC and private operators are not allowed.

According to sanitation section data, 4938 tanks were emptied in 2018 and it concerns about 30% of Mandalay's 240,000 households.

Sanitation Infrastructure is very limited especially WWTP and separated drainage system. As there is currently no domestic wastewater treatment plant in Mandalay, the supernatant and other effluents mixed up in the storm water drains and flow back to nature untreated. Currently, MCDC is implementing the Mandalay Urban Services Improvement Projects (MUSIP) to improve the water supply system and sanitation system in the Mandalay City with AFD financing and ADB loans. This ADB loan (55 million euros) for the improvement of waste water and drainage management cannot cover the investment needs for the entire city.

MCDC needs to carry out the work by phase approach to meet the requirement of the city in the future.

"The emptying service is provided by MCDC and private operators are not allowed"

DIAGNOSIS

The operational management of water supply and sanitation is shared between many departments under MCDC. This results in lack of planning, inefficient operation and maintenance and uncoordinated actions of different departments. WSSD is little aware of the importance of Human Resources management. Roles and responsibilities are unclear, leading to overlap and/or gaps in responsibilities within the department.

Long and complex working process can lead to delays and unclear mandate at the decision-making level. Management is a hierarchical system. WSSD has low ability to use IT system due to limited staff and unclear responsibilities.

"There is neither a communication strategy for the waste water service nor customer satisfaction monitoring in WSSD"

There is no sanitation master plan and strategy to improve sanitation services.

There is neither a communication strategy for the waste water service nor customer satisfaction monitoring in WSSD.

Sanitation coverage is approximately 94% and is provided by on-site system. Flush toilets and septic tanks, ventilated pit latrine, are the most widely used sanitation systems in Mandalay.

There is no pipe sewerage system and no centralised treatment system.

Overflows from septic tank are usually connected to open drains and then discharge directly into open channels designed to convey storm water in the city. Septic tanks are emptied by vacuum trucks and transported to the oxidation pond which does not work well.

Due to solid waste disposal, sedimentation process and drain bottleneck, drains often clog and overflow. Most drains are also shallow and narrow to carry heavy rains. It frequently creates floods during the rainy season. Stagnant water bodies, often loaded with wastewater and swarmed with mosquitoes, threaten the health of urban dwellers on a daily basis. Groundwater sources, polluted by percolating black water, are widely used for drinking purposes. Consequently, both vector-borne and waterborne diseases occur frequently.

A further risk to ground water sources is posed by the industrial waste water.

There is no monitoring of the situation and a lack of disclosure required by the polluters.

The main revenue of sanitation section is very low and cannot be financially balanced.

There is no tariff for waste water although MCDC invests in the drainage system for the whole city.

"There is no tariff for waste water although MCDC invests in the drainage system for the whole city"

CONTEXT

- Number of inhabitants: 1.2 Million
- Population focusing by 2030: 1.6 Million
- Develop on-site sanitation
- Sludge treatment: oxidation pond which does not work well
- No centralised sewerage and treatment system
- Not enough drainage network
- Combined drainage system
- No waste water tariff
- Share responsibilities
- Poor customer management
- Low awareness on HR management

access to sanitation	% of population
Septic tank	62%
Pit latrines	32%
Open defecation	6%

Wastewater is discharged into open channel waterways without any treatment. These waterways have their outlet in the rivers.

STRATEGIC OBJECTIVE

Establish effective sanitation system

Technical equipment is at the top of the strategy to ensure the effective sanitation services to the city's population. Domestic and industrial waste water treatment plants are urgently needed for the city. The optimisation of drainage system extension according to the fiscal year is also a part of the objective. The provision of public toilets, mobile toilets and vacuum trucks will increase the services to the city. Improving coordination with other department can approach the effective operation management. To achieve effective sanitation services, MCDC has to formulate a sanitation policy and strengthen existing MCDC's sanitation rules and regulation.

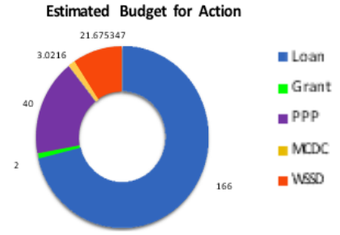
Set up an effective management system

Most of WSSD staff are overloaded but they do not know what is their responsibilities are and what their tasks are. They do not know the Vision of the Department and the target of their works. Although WSSD provides many capacity trainings with international trainers, it seems to have not much effect on the staff. WSSD has to enhance staff productivity and strengthen the institution. A performance evaluation program should be done. It is necessary to mobilise the staff with competent managers according to their background, performance and their inspiration.

The job description is essential for all staff to clearly understand and evaluate their performance. WSSD should evaluate the effectiveness of the training and actively involve the staff. To improve the HR system in the Department, the staff satisfaction program may start by knowing the weakness of the system. Moreover, WSSD has to share the Vision with the staff to achieve the goals of the Departments.

Approach the financial stability

WSSD does not have financial autonomy and not all revenues are transferred to WSSD since payments are made through the channel of the Department of Revenue and Finance. The sanitation section has a small amount of revenue from vacuum truck service, hiring mobile toilets, fines for waste water discharging and selling application form. This cannot cover the operation and maintenance costs. In the specific case of wastewater tariffs, there was no centralised waste water treatment services in Mandalay until recently, although treatment facilities exist (canals, oxidation ponds, pumping station...). In the future, a Waste Water treatment Plan (WWTP) will be constructed and another one is needed in the industrial area. In such a context, wastewater has never been charged to consumers but such charges are likely to make the financial stability for Sanitation services in the future. Another point is making the staff familiar with the financial statement of the Department.



2018	Improve investment and some KPI	2020
10 nos	Vacuum truck	20 nos
-	Waste Water Treatment Plants	2 nos
50 nos	Mobil toilets	150 nos
10 nos	Public toilets	52 nos
50%	Drainage coverage	100%
20 nos	Pumping stations	21nos
83 nos	No of staff	413 nos
-	Waste water tariff	3.5 €/month/HH
-	Treatment coverage	80%
	Sewerage network @ Industrial zone	45 KM
30%	Vacuum Truck Service coverage	100%
-	Separate canals	59 KM
-	Dredging detention ponds	3 nos
-3.68	EBITDA	0.24

Improve commercial sector

MCDC can serve only about 30% of the demand. Moreover, customers who want to empty their septic tank have to wait 2 days or more. Customer satisfaction is relatively low about the service. Each year, expenses of WSSD is higher than revenues. In order to increase the revenue, WSSD should have a plan to increase the service and also septic tank coverage. Customer data base and creating a platform for easy payment system are also an essential part of the commercial management.

FEASIBILITY

All decisions come from the Mayor and Executive Committee whether financial or regarding project implementations. The investment required to implement the actions is estimated at 232.7 million Euros up to 2030. The majority of the MCDC funding comes from its own sources. There is a little doubt that the sanitation improvement is closed to the top of MCDC's list of priority. Public Private Partnership (PPP) is considered as being a key and integrated element of sanitation sector growth via BOT and others. Even if MCDC invests on sanitation infrastructure such as a waste water treatment, it could hardly operate with its own revenue. For those reason, MCDC has to introduce polluter pay system to the city households.

KEY FIGURES

Average sanitation tariff / m^3	No
Volume treated wastewater per day	No
Number of employees	83 (2018)

Mrs MYA KHWAR NYO

Project manager

Mandalay urban services improvement

April 2020

NIGERIA

OWERRI WATER SUPPLY

By Mr Ikechukwu Silas NZEAKOR

Inhabitants in the area	500,001
Households	83,000
GNP/capita	$3,527

OVERVIEW

Water is one of the most important natural resource and Nigeria considered abundantly blessed with water resources. The Nigerian water sector has not been successful in meeting more than a small portion of the demand for water and sanitation of residential and commercial users. Services are critically short supply. For example, out of 100 million people living in urban and semi-urban areas, less than half have reasonable access to reliable water supply. Many households, often the poorest, end up, purchasing water from private vendors much more expensively than the public supply. Water supply services, where they exist, are unreliable and of low quality and are not sustainable because of difficulties in management, operation and present failure to recover cost.

Owerri, Imo state capital, comprises three LGAs with a total population of about 450,000 people in an approximate area of 550 km^2.In recent years, the city expanded rapidly with a population growth rate of more than 3% per annum and this, amongst other factors, has constrained the provision services, including water supply to city dwellers.

The main water supply from Owerri comes from the water works constructed under the Otamiri regional water scheme. Although the plant built with a design capacity of 66,000 cubic meters/day, its currently supply is in the region of 12,000 cubic meters/day. Currently much of this is lost through leakages at the plant and in the distribution network, illegal connections and theft by water resellers.

WATER 2017/2018

Production	4.32 Mm^3 per year
Number of customers	32,048
Metered connections	0%
NRW	40%
Network	608 km
Storage	50,000 m^3
Number of employees	183

"Many households, often the poorest, end up, purchasing water from private vendors much more expensively than the public supply"

DIAGNOSIS

Presently, the utility confronted with a number of operational, technical, financial and institutional challenges. Water tariff have been (and continue to be) minimal, and have not been determined on either a full cost recovery basis or for profit. Many consumers not billed and many default on paying their bills and therefore, revenues tend not to cover even operating expenses. The current average tariff is 150 Nigerian naira (0.40$/m^3). Tariff based on a flat rate system according to the size of customer property.

The sector has conflicting statutory powers and lacks inter-sectoral coordination. The water coverage is currently at 20%, NRW is about 40%, metering ratio is 0% and plant capacity utilization is less than 20%; The average production is about 12,000 m^3/day against an estimated demand of 27,500 m^3/day. Total length of water pipe network is about 600 km. The majority of the older network about one-third, is subject to frequent leaks and damage, requiring expensive repair works. Owerri water scheme draws surface water from Otamiri River with raw water abstraction pumps, but 80% of existing abstraction pumps are broken.

Commercial service is poor. The utility does not have an accurate database of the number of formal paying customers who receive water. About 32% of the water connections are off supply and are not billed unviable peri-urban schemes. Customers charged average flat rate of 150 naira per month. The utility is inadequate commercially oriented and the cost of critical plant inputs is high at about 34% of total cost.

The customer base is small and the total number of connections is about 32,000. All the customer connections are unmetered. The utility has 5 staff per 1000 connections.

There is no managerial and operational autonomy as operations influenced more by state government. The financial performance is very poor with an O&M cost recovery of less than 10%.

STRATEGIC OBJECTIVES

The objectives of the strategy action plan is:

- To improve quantity of water produced by the water treatment plant
- To improve commercial viability of the urban water utility
- To improve governance
- To improve human resources
- To improve customers care service

The strategic action plan is implemented under four components:

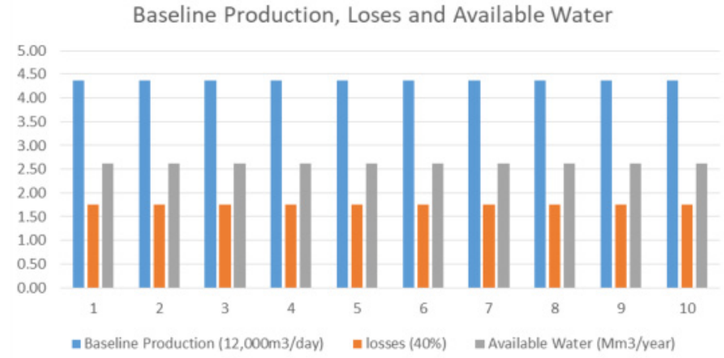
1. Revenue improvement through the resuscitation of commercial services aiming particularly at installing a new customer data base and billing system, metering all commercial customers and conducting a pilot metering of residential customers, improving billing and collection efficiencies and reducing non-revenue water

2. Improvement plant capacity utilization to increase access to water supply services by repairing and re-commissioning production pump and instituting preventive and corrective maintenance procedures

3. Service sustainability through improved government and human resources management to create a working environment that stimulates growth, good working culture and motivation for the employees

4. Improvement in customer care services and satisfaction to restore customer's confidence on the ability of the utility to provide adequate water supply services to them and willingness to pay for services by the customers.

"The average production is about 12,000 m^3/day against an estimated demand of 27,500 m^3/day"

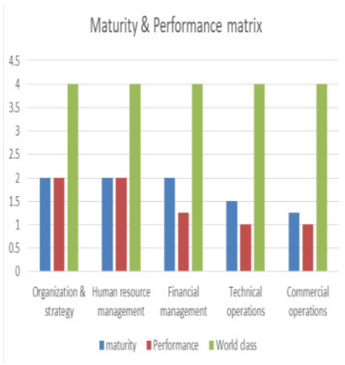


FEASIBILITY

The plan aim to generate sufficient financial resources to cover or even exceed operating costs of the utility. It will however require external financial resources to finance the necessary upfront capital expenditure (water plant rehabilitation, customer information systems, meters), the additional costs (staff, services, equipment's and materials) arising from priority actions, and cover operational shortfalls in the first years.

The plan considers CAPEX of 1.7 billion naira (4.72 million US$) to be spent in the first 3-4 years, and a total support financing of 2.9 billion naira (8.05 million US$) to be obtained from government grants or international development agencies loans.

Careful preparation, timely resourcing and execution of the plan, and appropriate support funding, will enable to reform the utility and turn it around from a deficient utility into a financially sustainable one, able to provide safe water services to the population, to repay its loans and to undertake further service expansion.



KEY FIGURES

Average water tariff / m^3	0,26 € (2018)
Volume treated water per day	11 800 m^3 (2018)
Number of employees	183 (2018)
Number of water customers	32 048 (2018)

Mr Ikechukwu Silas NZEAKOR

Water projects Director

April 2020

PAKISTAN

WATER AND SANITATION AGENCY IN LAHORE

By Mr Usman BABAR

CONTEXT

Lahore is the second largest city of Pakistan and is the capital of the province of Punjab with a population of about 11 million as per the census of 2017.

This city is situated in the north eastern part of the Punjab Province and is considered one of the more developed cities of Pakistan.

Water and Sanitation Agency (WASA) Lahore was established in 1976 as an Agency of LDA for the planning, designing, development and maintenance of water supply sewerage and draining system in Lahore.

The salient functions of the Agency are:

• Planning & Design, construction of new water and supply, sewerage and drainage schemes, rehabilitation of existing run down and decrepit systems.

• Operation and maintenance of water supply, sewerage & drainage system.

• Billing related services in order to collect fees for the services provided to consumers.

WASA Lahore has a total of 700,000 water and sewerage connections. At present the population coverage of water supply and sewerage services is about 65%.

"Below Basic in Commercial Management, Basic in Human Resource and Financial Management, and above basic in Technical Management and it required a tremendous effort to push the utility towards improvement in these areas"

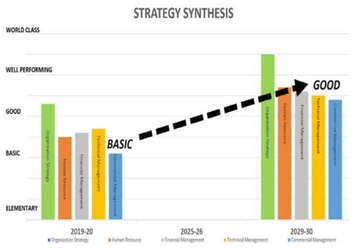
STRATEGY SYNTHESIS

As the reference position of utility is below Basic in Commercial Management, Basic in Human Resource and Financial Management, and above basic in Technical Management and it required a tremendous effort to push the utility towards improvement in these areas. The targeted performance of the utility has been taken as 'Good' till 2025 and sustain that position, as excelling from basic to well-performing is a tedious and more difficult to attain. In terms of organization and strategy, the reference position is at good, however, it is target to reach well-performing till 2029-30.

The Following 2 strategies have been devised:

1. Ensure financial sustainability of company by controlling and strengthening its management and operations

2. Efficient management of existing water supply and sanitation infrastructure and its enhancement to meet future demand for better serviceability



ACTION SYNTHESIS

In order to implement strategy, priority actions have been defined as short, medium- and long-term actions in each of the concerned areas.

ASSESSMENT OF THE ECONOMIC AND FINANCIAL FEASIBILITY

The financial feasibility of various scenarios has been worked out, the outcomes of which are shown in the graphs. The following scenarios have been considered in the report, however, most important ones are highlighted in this section.

The most important aspect of the feasibility is that the utility would have to rationalize its tariff. As it can be seen that even after making good improvements by the utility, it is now in a position to meet its costs of sales.

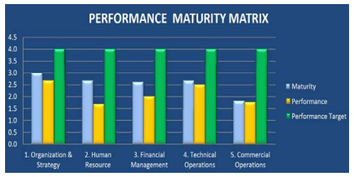
There are many other actions that have been mapped on the impact chart which could cause good impact on the progress of the utility. It has been analysed that the utility has a huge HR which is a main financial burden. And the utility is not in an environment to fie the staff. Therefore, a strategy could be proposed to increase the coverage of the utility. It will increase the number of customers and hence help in improving the HR ratios. However, this action is not a priority area by the government.

DIAGNOSIS

The performance and maturity of the company "Water and Sanitation Agency" has been analysed using five axes including:

I. Organization and strategy
II. Human resource management
III. Technical operations
IV. Commercial operations
V. Financial operations

The Bar graphs given here illustrates the maturity and performance of the utility:



Analysis of root causes

The Fish-bone analysis tool was used to identify the root causes of the weak areas in tiers of organization & strategy, Human, Resource Management, Financial management, Technical & Commercial Operations. These shortcomings are deeply analysed on all axes including the 12 highlighted axes of the 360° to figure out the basic root cause of these issues.

Analysis of SWOT MATRIX

This section of the report illustrates about the internal strengths and weakness of the utility and external opportunity and threats.

Strengths

• Published and share vision and mission
• Master plan for 2040
• Multi-year business plan
• Charismatic leadership
• Rich infrastructure
• Moderately good water and sewerage coverage

Weaknesses

• Less autonomy
• No waste water treatment
• No integrated water resource management
• High NRW
• Poor operational management for maintenance
• Very few metered connection
• No updated record of assets and its valuation
• Absence of precise IT based customer data

Opportunities

• National water policy 2018
• Municipal water act
• New political government's will be to bring positive change
• Capital city of province will explore the chances for govt. to set IT as a benchmark in respect of development partners
• Increasing interest of international and private development partners
• Foreign training opportunities and higher education

Threats

• National no specific/precise legislation on sanitation
• Less ambitious regulatory body for tariff setting, validation et revision
• Public acceptance toward new tariff
• Availability of existing water resource to cope with exponential water growing demand
• Potential dishonesty and corruption
• Resistance to change management principle by staff and labour union
• Water policy 2018

LIST OF PRIORITY ACTIONS

Organization & strategy

• Efficient determination and follow up of KPIs

Human resources & commercial operations

• Develop and implement an efficient and cost-effective staff rationalization and restructuring plan (HRM plan to limit recruitments and manage available staff)
• Rejuvenate training centres & develop core training modules (training of field staff)
• Establish R&D division & Build consortium with Academia

Financial management

• Use financial management tools (FMIS) & develop financial business plan model
• Tariff revision road map
• Cost control measures

Technical operations

• Regulate supply hours, sue of VFD, renewable energy & energy audit report
• Outsourcing various operation and maintenance functions to the private sector
• NRW reduction through zoning
• Increase water production through surface water treatment
• Construction of waste water treatment at Babu Sabu
• Laying of truck infrastructure through tunnel boring method in central Lahore

STRATEGY OBJECTIVES AND SUB OBJECTIVES

The diagnosis is based on the maturity and performance of the utility in the domains illustrated in the 'Success Pyramid'.

The utility was analysed for its maturity and performance in the domains of Organization & strategy, Human Resource, Financial Management, Technical Operation and Commercial Operations.

The overall synthesis of the performance and maturity as per the holistically developed maturity and performance matrices is presented in the cobweb as shown.

The maturity and performance of the utility is nearly at basic level in all the corners of the Cobweb.

The highlighted features of all the tiers due to which the utility lags in the maturity and performance are as follows.

OBJECTIVE 1:

To uplift the utility by attaining financial sustainability

- Strengthen Financial Management System
- Effective utilization of Human resource
- Efficient management of technical operations
- Enhance Revenue generation from improvements in Commercial Operations

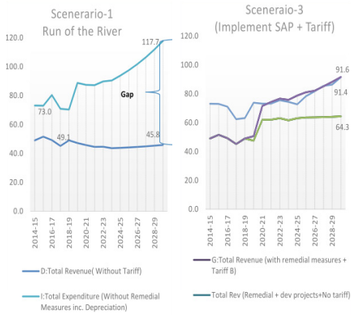
OBJECTIVE 2:

Manage W&S infrastructure effectively & efficiently to meet future demand for better serviceability & to ensure environment Protection

- Strengthen Organization through Performance Monitoring
- Effective utilization of Human resource
- Efficient management of technical operations
- Improvements in Commercial Operations

FINANCIAL MODELING

The financial model depicts that the implementation of the action plan will reduce the gap between the operating expenditures and revenue. However, increase in tariff is mandatory to cover the gap.



"The most important aspect of the feasibility is that the utility would have to rationalize its tariff"

• Installation of SCADA system on tube wells and disposal
• Develop and implement improvement in emergency maintenance of water leakage
• Commercial management

Commercial management

• Customer computerized data base to reduce commercial losses and strict monitoring with bottom up approach

Technical management

• Exploitation of ground water resources, no WWT, limited NRW reduction practices, limited practices on cost effective operation of installations

KEY FIGURES

Average water tariff / m³	0,02 € (2018)
Volume treated water per day	2,45 M m³ (2018)
Number of employees	9 027 (2019)
Number of water customers	689 005 (2018)

Mr Usman BABAR

Director of Operation and Maintenance

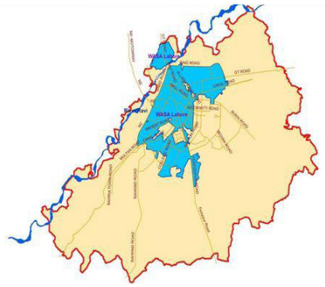
WASA Lahore

April 2020

PAKISTAN

IMPROVING SERVICE DELIVERY AND SERVICE SUSTAINABILITY OF L-WASA

By Mr Zohaib BUTT



CONTEXT

WASA Lahore is the second largest water utility of Pakistan serving a population of 8 million, operating in an area of 350 km² through about 6000 km of water and sanitation network along with a force of 8 642 personnel. Established since 1976, and is responsible for planning, design, construction, operation and maintenance, billing collection of water and sanitation of Lahore.

WASA's current jurisdiction within the district of Lahore contains a significant portion of its urban population. In accordance with the mapping of institutions, L-WASA falls under Micro institution level, headed by HUD&PHED and LDA at mesa level. In macro level, Ministry HUD &PHE Government Probation exists which is liable for policing and its approval from cabinet.

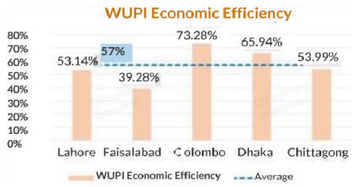
Population	11.13 millions
Area	1 772 km²

"Improving service delivery and service sustainability while providing equitable service to the population under utility's jurisdiction along with assurance environment protection"

WASA LAHORE DIAGNOSIS

BENCHMARKING

This emphasizes the comparison of the different utilities of developing countries with LWASA in respect of single and cluster indicators as defined under WUPI (Water Utility Performance Index) to assess the utility's performance within regional level.



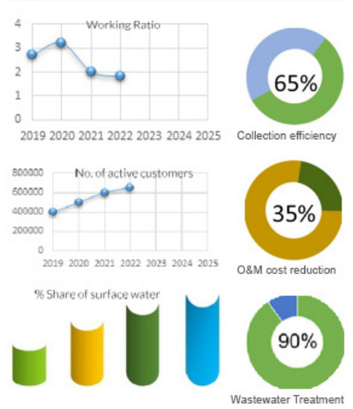
TARGET AND OBJECTIVE

Detail diagnosis with the help of Maturity and performance matrix revealed that a reference position, utility is around Basic level in almost every tier of success pyramid.

After knowing the core problems and their root causes, realistic strategy horizon with its objectives and sub-objectives was designed. Impact of the proposed actions envisaged that the implementation of the actions will uplift the utility from basic level to well performing until 2030.

Further, to monitor the performance in the line of set objectives resultantly strategic targets, quantified indicators will be established for every objective and actions with nominated targets of time line.

A proper dashboard comprises different indicators will be developed for performance monitoring.



PERFORMANCE ASSESSMENT

The overall assessment/crux revealed that performance of the utility needs to be uplifted in nearly every domain especially economic efficiency & operational sustainability

"Awareness-rating and well dissemination of the inevitability of implementation of strategic action plan for utility survival"

	KPI	Lahore	Faisalabad	Colombo	Dhaka	Chittagong
Quality of services	Water coverage	92.04%	70%	95.50%	100%	54.01%
	Sewerage coverage	92.38%	72%	91%	30%	20%
	Water quality	95.93%	98%	97%	100%	100%
	Hours of supply	16	16	22	22.5	15
Economy efficiency	O&M cost coverage	0.42	0.55	1.46	1.41	1.02
	Collection efficiency	84.12%	51%	100%	88.21%	71.20%
	Staff cost vs O&M costs	38.48%	46%	42.32%	37%	42.32%
Operational sustainability	Staff/1000 W&S connections	12.64	8.2	3.4	7.20	10.58
	NRW	37%	46%	41.20%	21.33%	23.21%
	Metering ration	31%	14%	100%	87.69%	100%

Good Acceptable Poor

STRATEGY AND OBJECTIVES

Objective 1: Assurance of service sustainability by controlling of existing Operations & Management.

- Tariff rationalization / revision besides strengthening of financial management
- NRW reduction & effective technical management
- Rationalization /restructuring for effective utilization of staff
- Increase revenue potential

Objective 2: efficient improvement in service delivery by enhancement of infrastructures & resources to come up with future demand and environment ease.

- Establishment of performance improvement & monitoring systems
- Improvement in technical operations
- Improvement in HR management
- Commercial operation improvement

FEASIBILITY ASSESSMENT

Run-of-the-river scenario

It is anticipated that company will not practice any extraordinary works except small curtailments in OPEX, endeavour for improving revenue potential, etc.

Strategic action plan scenario

It is anticipated that all remedial service sustainability and other development actions to improve service delivery with affordable increase in the tariff will be implemented

Economic & financial analysis

Summary of the F&E analysis establishes the viability of the instant strategic action plan illustrating positive NPV and more than 1% of benefit cost ratio in all the possible cases of benefit reduction and cost run over. EIRR value for the most critical case is recorded as 12%

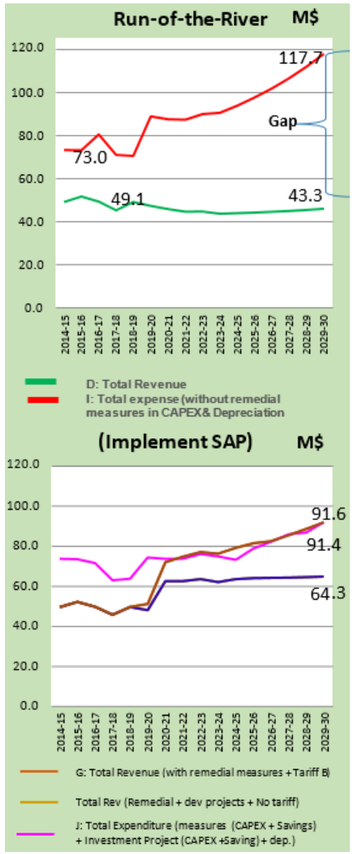
Communication strategy

"Awareness-rating and well dissemination of the inevitability of implementation of strategic action plan for utility survival"

FINANCIAL MODELING

The strategic action plan scenario through graph, establishes the need of implementation. It will reduce the gap between operating expenditure and revenue. It further envisages that without the instant action plan, the situation will be more vulnerable in forthcoming years.

However, if the tariff revision, which is part of the SAP, is not acceptable to the Government then the timely and justified instalments of the subsidies has to be granted to the utility for its survival = tariff B: 10% increase/2 years



ACTION PLAN

The action plan is the process of development, implementation monitoring and evaluating actions.

It established in the line of set strategy for attaining the financial sustainability besides to meet ever-growing demand of metropolitan city. The following figure illustrates the priority action and the comparison between the cost of actions with their impact on overall serviceability & sustainability of the utility.

The actions with the highest impact and lowest cost along with easy to implement are categorized as "Quick win actions".

KEY FIGURES

Average water tariff / m³	0,02 € (2018)
Volume treated water per day	2,45 M m³ (2018)
Number of employees	9 027 (2019)
Number of water customers	689 005 (2018)

Mr Zohaib BUTT

Deputy Director Procurement and senior construction engineer

WASA Lahore

April 2020

PAKISTAN

WATER & SANITATION AGENCY FAISALABAD

By Mr Adnan Nisar KHAN

Total Population of City	**3.4 Million**
Ground Water	86%
Surface Water	14%
Water Treatment Plants	03
Tube wells	86
Drinking Water Production Capacity	85 million m^3/year
Water Connections	132000
Sewerage Connections	290000
Total Water Supply	1500 Km
Total Sewerage Network	1800 Km
Disposal Stations	38
NRW	48%
Water meters	18000
Storage Capacity	76000 m^3
Average system pressure	10 psi
Water charges	0.025 Euro/m^3
No. of Employees/1000 Connection	3.95 water 6.57 sewer

CONTEXT

Faisalabad city, the third largest city of Pakistan with a present population of 3.4 million inhabitants is located in the central part of the Punjab Province and has developed as an Industrial City.

Water and Sanitation Agency (WASA) was created in 1978 as an Agency of Faisalabad Development Authority (FDA) and is responsible for water supply, sewerage and storm water drainage services.

Major achievements

In order to minimize the NRW, an initiative has taken under French project to enhance the efficiency of water supply network through Distribution Network Optimization, Hydraulic Modelling, Network Zoning, Pressure Regulation, Bulk Metering, Leak detection. Accordingly, 1600 km water supply network of 111046 consumers is divided into 16 district metering zones (DMZs) ranging 100-150 km.

Other achievements

- Water bottling plant 3000 litre/hour capacity
- Tracking system on all operational vehicles
- Creation of pilot zones for reduction of NRW
- SCADA controlled water treatment plant & distribution network for entire city
- Updated Master Plan 2018-38
- Donor support in implementation of investment projects

"No Integrated Water Resource Management"

DIAGNOSIS - KEY ISSUES

Organization & strategy

- Lack of autonomy in decisions making.
- Multiple institutions performing regulatory functions
- No water regulator in the sector
- No Integrated Water Resource Management
- Business Plan needs updating
- Low sector prioritization
- Enterprise Resource Planning (ERP) is not available

Human resources

- No Human Resource Management System
- No updated job description of key posts
- No performance base contract system
- Employees annual evaluation system is not based on performance
- Training calendar for staff is not available
- Employees satisfaction survey never done

Financial management

- No financial management Information system available
- Utility cannot cover the operational cost (Opex)
- Tariff only covers 35% of Opex
- Utility has to rely on government subsidy
- No financial management Information system available

Technical operations

- Low service coverage
- High Physical and commercial losses i.e. high NRW
- Low pressure, Intermittent supply, service is not 24 hours a day
- Low storage capacity
- No asset management system
- Very limited waste water treatment i.e. only 6% of total waste water generated

Commercial operations

- Huge account receivables. Delay in collection of receivables
- Only 14% domestic connections have been installed with meters. Billing on area basis no metered billing
- Tariff only covers 35% of Opex
- Utility has to rely on government subsidy
- Utility cannot cover the operational cost (Opex)
- Commercial department not lined with GIS & IT departments
- Very low tariff i.e. average tariff 0.025 Euro/m^3 (water) & 0.038 Euro/m^3 which cannot cover O&M of utility

"Low prioritization by Government on water and sewerage sector"

BENCHMARKING

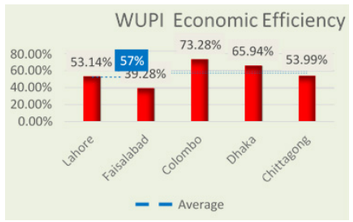
The bench marking of the utilities shows the performance of utility in regional context. The utilities from within country and of the region have been selected and compared using Water utility Performance Indicator WUPI. The se set of indicators under quality of service, economic efficiency and operational sustainability have been analysed and performance in each area has been compared.

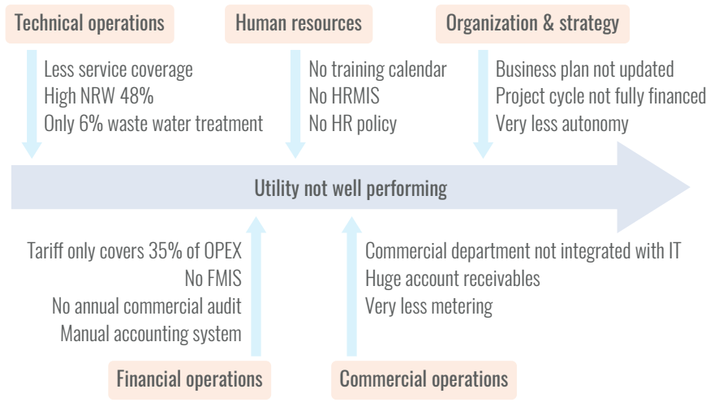
"Very few successful PPP projects in water and sanitation sector"

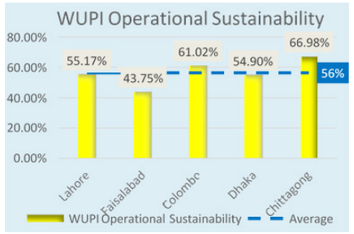
ROOT CAUSE ANALYSIS

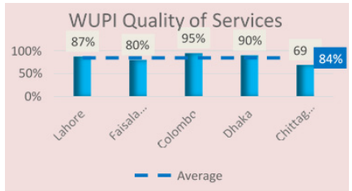
The root causes of the situation to identify the weak areas in Organization & Strategy, Human Resource, Financial Management, Technical Operations and Commercial Management and reasons for low maturity and performance in these areas.

Following Fig. Shows Root cause and main reasons of gaps in maturity and performance:









The results of Benchmarking analysis show that utility needs improvement in all the SWOT MATRIX performance indicators to become sustainable.

Strengths

- Development of new water resources by using ground and surface water
- Updated Master Plan-2038 for water supply, sewerage and drainage. Project cycle well defined
- NRW cell established for management of NRW activities
- Good distribution SCADA enabled water supply network with DMZs & DMAs
- Establishment of Customer relation centre

Weaknesses

- Low service coverage i.e. 70%. Discontinuous water supply service with low pressure
- Project cycle not fully implemented due to financial constraints. Tariff cannot even cover Opex
- Huge commercial losses & no metering
- Low pressure due to extension of network and visible leakages at tanks and valves
- Longer response time in handling of consumer's complaints

Opportunities

- National Water Policy 2018 in place with aim to develop & secure water resources
- Trust and support of foreign donors
- Water and Sanitation Policies support priority actions in sector
- Political support in decision making
- Establishment of dedicated PPP cell to facilitate Private Firms

Threats

- Water Scarcity due to no water in rivers & canals in dry weather
- Potential risk of corruption in development projects
- Low prioritization by Government on water and sewerage sector
- Bureaucratic environment. Too much political involvement
- Very few successful PPP projects in water and sanitation sector

STRATEGY SYNTHESIS

Strategy statement

"To improve the service delivery, access to service, availability, reliability & affordability, enhancement of revenue in order to achieve financial sustainability and customer satisfaction up to 2030."

With following objectives:

- To develop & implement a long-term organizational strategy of the utility to sustain in the external environment
- To achieve revenue enhancement by improvement in human resource and commercial operations
- To achieve financial sustainability by increasing financial strength of the utility
- To improve in technical operations to enhance service delivery & increase access to service

PRIORITY ACTIONS

Organization & strategy

- Keep aware all staff of vision mission of utility & create motivation
- Setup of Enterprise Resource Planning for utility
- Setup of Up-dated Business plan & implementation
- Develop secure water resources for future

Human resource & commercial operations

- Setup human resource policy
- Setup of fully trained Human Resource with clear job description
- Implement Customer Management System
- Monitor efficiently customer connections

Financial operations

- Updated financial accounting system
- Rationalization of tariff to cover operational expenditures
- Yearly Commercial audit by chartered accountancy firm
- Improved Working ratio
- Multi year's budget forecasting, investment planning

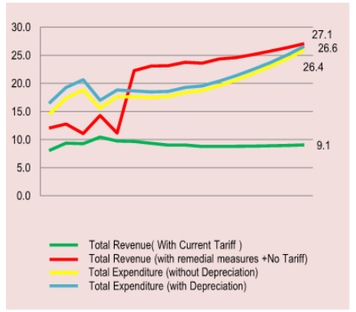
Technical operations

- Reduction of NRW from 48% to 25%
- Access to service for 100% population

FINANCIAL FEASIBILITY

Selected scenario: this scenario has been proposed with corrective/remedial measures with gradual tariff increase and subsidies.

The simulation results show that the utility can become sustainable after implementation of Strategic Action Plan up to 2030.



KEY FIGURES

Average water tariff / m^3	0,025 € (2018)
Average sanitation tariff / m^3	0,038 € (2018)
Volume treated water per day	232 900 m^3 (2018)
Number of employees	3 100 (water & sanitation)
Number of water customers	132 000 (2018)
Number of sewage customers	290 000 (2018)

Mr Adnan Nisar KHAN

Director Planning & Design

WASA Faisalabad

April 2020

PAKISTAN

WASA LAHORE ACTION PLAN

By Mr Hisham Pervaiz VASEER

Employees	over 9 000
Customers	0.7 M
Sewer	5 140 km
Staffing	11.74
WS Length	5 984 km
Population	8 M
Tubewells	596
Coverage	92% W&S
Working	ratio 1.29
Filtration	440 plants
WWT	0%
NRW	50-60%

CONTEXT

WASA is responsible for planning, design, construction, operation & maintenance and billing & collection of water supply, sewerage and drainage systems in Lahore, which is a metropolitan city of Punjab known for its rich cultural and historical background.

MAJOR OUTCOMES OF DIAGNOSIS

By accessing risks of current situation and understanding the constraints that WASA is facing, the following chronic problems have been diagnosed in each sector.

Commercial management
- No metering
- Low collection efficiency
- Limited focus towards customer satisfaction

Financial management
- Lack of FMIS
- Limited focus on curtailing expenditures

Technical management
- Exploiting ground water resources
- No WWT
- Limited NRW reduction practices
- Less cost effective installation operation

Human resources management
- High staffing ration
- Absence of mechanism to restructure HR
- Unstructured capacity building program

Organization and strategy
- minimal performance monitoring practices
- low tariff
- weak regulator

The overall assessment of maturity and performance of utility reveals that WASA is at Basic level.
It requires laborious effort to transform it into Good to Well-performing utility till 2030.

"The overall assessment of maturity and performance of utility reveals that WASA is at Basic level"

STRATEGY OBJECTIVES AND ACTION PLAN

OBJECTIVE 1: To uplift the utility by quickly attaining financial sustainability by 2023-2025

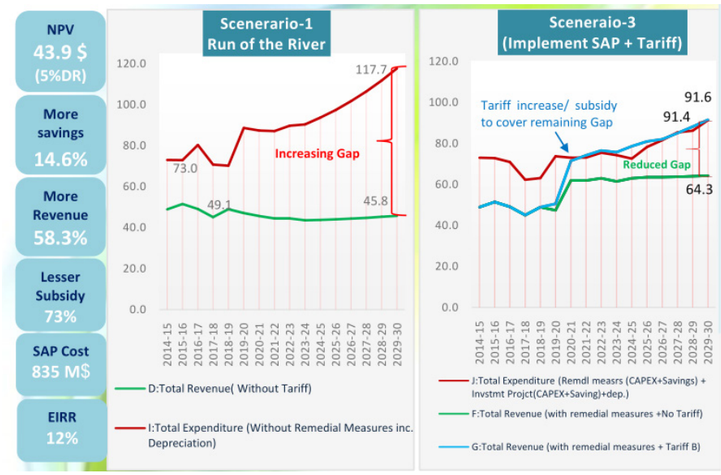
Sub-objective	YEAR 1	YEAR 2	YEAR 3	YEAR 3-6-9	CONTINUOUS
Improve financial management to enhance credibility and control Prepare to organize	Prepare tariff revision road map	Implement FMIS and it integrate			Implement cost control measures
HR to handle future interventions	Prepare HR restructuring road map Ban future recruitments				
Bring improvements in infrastructure and its management to operate it in efficient and cost effective manner	Start regulating water supply hours	Install VFDs on all tube wells	Pilot solar powered tube wells (5No) Install SCADA on TWs to reduce staff	Zoning of WS infrastructure Ph1,2,3	Energy audit of all installations
Strengthen control on customers to enhance revenue generation	Metering on large customers	Update customer cadastre & CMIS		Year 6 100% metering on consumers	Target defaulters & non-payees
Create performance oriented environment through KPI monitoring	Develop KPI monitoring system				Monitor & control performance

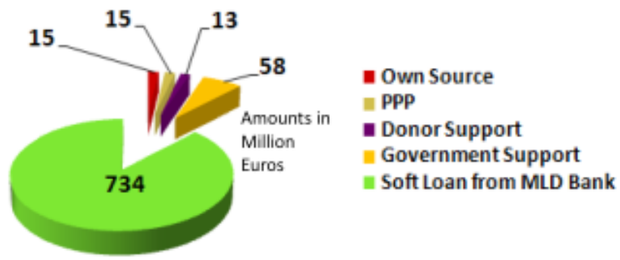
OBJECTIVE 2: improve W & S infrastructure to meet future demands for better service ability and safe environment by 2026-2030

Sub-objective	YEAR 1	YEAR 2	YEAR 4	YEAR 5-6-7	CONTINUOUS
Improve customer satisfaction level for long-term sustainability	Introduce customer care centre & customer satisfaction index				Introduce customer care centre & customer satisfaction index
Prepare to utilize staff effectively	Identify, prepare and extend training	Rationalize staff as per HR plan			Gauge performance of employees
Improve water supply, sewerage and their treatment infrastructure in order to effectively meet future demand			Induct surface water through SWTP Laying of trunk sewer through TBM to enhance drainage capacities	Threat wastewater to save environment through 3 WWTPs	Improve emergency maintenance

RESULT OF FINANCIAL MODELING

This strategic action plan (SAP) will reduce the gap between the operating expenditures and revenues. Increase in tariff is mandatory to cover the gap otherwise it will be covered by subsidies from Government. SAP will reduce subsidy for up to 73% due to savings and added revenue.





"SAP will reduce subsidy for up to 73% due to savings and added revenue"

KEY FIGURES

Average water tariff / m³	0,02 € (2018)
Volume treated water per day	2,45 M m³ (2018)
Number of employees	9 027 (2019)
Number of water customers	689 005 (2018)

Mr Hisham Pervaiz VASEER

Deputy Director of planning and design directorate

WASA Lahore

April 2020

RÉPUBLIQUE CENTRAFRICAINE

L'ACCESSIBILITE DE L'EAU POTABLE POUR TOUS D'ICI L'AN 2030 DANS LA VILLE DE BANGUI EN REPUBLIQUE CENTRAFRICAINE CONTRAINTES - MODALITES - PERSPECTIVES

Par Mme Yako KAROUA-YAMINDI

CONTEXTE

Gouvernance et autorités organisatrices du service
Sous la tutelle technique du Ministère du Développement de l'Énergie et des Ressources Hydrauliques, la Société de Distribution d'Eau en Centrafrique (SODECA) est une société d'économie mixte créée en 1991 avec un capital social de 500 millions de FCFA (763.359 euros), détenu à hauteur de 97,44% par l'État et 2,56% par Ecobank Centrafrique.

Sa mission principale est l'alimentation en eau potable en milieu urbain en République Centrafricaine. Ses activités se déroulent dans 8 villes du pays dont Bangui, la capitale, objet de la présente étude.
Cette mission est accomplie sur la base d'un contrat d'affermage la liant avec le Gouvernement.

Caractéristiques de la ville

Située au Sud-Ouest de la RCA, la ville de Bangui couvre une superficie d'environ 67 km². Subdivisée en 8 arrondissements, elle concentre 16 % de la population du pays et 42 % de sa population urbaine. Sa population est estimée aujourd'hui à 1.100.000 habitants, selon les projections réalisées à partir du recensement de 2003 qui prévoyait un taux de croissance démographique annuel de 2,5%

SODECA

La SODECA dispose à Bangui d'une usine de traitement d'eau potable d'une capacité de production de 36.000 m³/j et d'un réseau de distribution de 437 km avec un rendement de 46%. En réalité, elle ne produit qu'environ 30.000 m³ d'eau par jour à cause de multiples difficultés essentiellement techniques, impactant négativement sa capacité à satisfaire constamment les besoins en eau potable de Bangui.

La SODECA compte en 2018 environ 21.000 abonnés, 19.108 branchements actifs particuliers, 416 Kiosques Bornes Fontaines, 471 branchements pour les Administrations et 1 948 pour les commerces. Une grande partie de la population de Bangui s'approvisionne en eau de puits améliorés et de forages (sans recensement effectif...). Le taux d'accès à l'eau potable du service dans la ville de Bangui est estimé à 36% en 2018.

"Une grande partie de la population de Bangui s'approvisionne en eau de puits améliorés et de forages (sans recensement effectif...). Le taux d'accès à l'eau potable du service dans la ville de Bangui est estimé à 36% en 2018"

DIAGNOSTIC

Forces et opportunités

- la longue expérience de la société en matière de production et de distribution d'eau potable
- l'existence de compteurs à tous les points de livraison des abonnés
- l'abondance des ressources en eau (réseau hydrographique couvrant l'ensemble du pays)
- le schéma directeur 2015-2030 du système d'adduction eau potable de Bangui qui rassure les partenaires (traditionnels ou nouveaux) pour la planification des investissements
- le secteur Eau et Assainissement est dans les priorités du Gouvernement

Points sensibles et faiblesses

La situation actuelle de la SODECA est caractérisée par :
- la vétusté de nombreux équipements de production et distribution d'eau potable
- la rupture récurrente de stock de matériels d'extension du réseau (la RCA est un pays enclavé et dépendantes des pays et ports voisins pour bien des équipements et matériaux).
- le niveau élevé des eaux non facturées
- la carence persistante de la maintenance préventive
- la tension de trésorerie persistante
- le service discontinu de 7 à 8 h/jour
- le faible taux d'alimentation en eau potable de Bangui (36 %)
- des clients disposant de leurs propres ressources en eau souterraines, hors service public, voire des approvisionnements parallèles vu la faible efficience actuelle du service...A ce titre, il faudra batailler et faire preuve de professionnalisme pour les faire revenir au réseau en démontrant l'intérêt que cela comporte pour eux (économique, temps, durabilité, qualité de l'eau,...)

STRATÉGIE

Notre stratégie s'inscrit dans la vision suivante :
"Rendre accessible l'eau potable pour plus de la moitié de la population d'ici l'an 2030 dans la ville de Bangui avec une entreprise publique dont les comptes sont assainis et dans une dynamique vertueuse de progression."

La concrétisation de cette vision passe par les objectifs suivants qui ont été estimés :
- Garantir la performance de l'entreprise par l'amélioration de la gouvernance de la SODECA et en rendant efficaces les structures de gouvernance du secteur, pour atteindre un taux de couverture de 54% pour un coût équivalent au global de 600 euros/ foyer urbain (tout investissement production et distribution compris). Notons que le retour de 100 % des citadins à l'approvisionnement par le réseau public est un objectif qui nous parait inatteignable pour 2030
- Promouvoir un personnel investi et attaché à la productivité (Productivité : de 11‰ à 6‰ par milliers d'abonnés donc) en renforçant les compétences techniques et managériales du personnel
- Améliorer l'efficacité opérationnelle technique et commerciale, en réduisant le taux des ENF de 54% à 23%, en augmentant les heures de desserte à 13h/jour au moins, même si certains quartiers pourraient atteindre un service 24H/7 jour et en développant la capacité de production pour un coût de 22 M €.
- Optimiser la relation Client en créant des services répondant à leurs attentes (taux de conformité 98%, taux de traitement des réclamations 80%, rapidité de branchement), par l'intensification des branchements sociaux et des kiosques bornes fontaines qui nécessitent des extensions du réseau tout en garantissant la potabilité de l'eau distribuée pour un montant de 23 millions €
- Développer une rentabilité économique par l'amélioration du taux de facturation à 90% (défaillante actuellement et avant 2019 à cause de l'insécurité dans certaines zones) et un recouvrement à 95%, tout en redéfinissant la structure tarifaire (études et réorganisation de la facturation pour 0,5 million d'€)

Grands projets programmés dont certains déjà lancés :

Banque Africaine de Développement

- 1500 branchements sociaux
- Construction station exhaure
- Construction château d'eau de 1000 m³
- Réhabilitation de 27 km de conduites en amiante ciment
- Remplacement conduite d'adduction
- Construction de deux postes d'eau autonomes

Banque Mondiale

- Assistance technique pour l'amélioration du management de la SODECA
- Réalisation de 3600 Branchements sociaux

Fonds Saoudien

- Remplacement de 51 km de conduites en amiante ciment
- Augmentation de la capacité de production de 750 m³/h
- Réalisation de 1000 Branchements sociaux
- Construction d'un château d'eau de 2000 m³

Indicateurs	Référence 2017/2018	Projections 2030
Taux des ENF (Eaux Non Facturées)	54%	23%
Continuité de service	8h/24	13h/24
Chiffre d'affaires	2 954 794 €	7 300 000 €
Nombre d'abonnés	20 955	35 955
Ratio de productivité	11‰	6‰
Taux de couverture	36%	54%

PLAN D'ACTIONS

Pour atteindre les objectifs cités ci-dessus, les actions ont été planifiées et organisées dans le temps et en fonction de leur impact avec un coût total des actions clés (en investissement et en fonctionnement) qui s'élève à 46 millions d'euros environ sur 10 ans.
Outre les actions liées aux objectifs énumérés ci-haut, il convient de prendre en compte le renforcement des capacités opérationnelles par l'acquisition des moyens de mobilité du personnel pour le service, des équipements informatiques et de connexion internet et enfin des formations ciblées relatives à la conduite des réformes qui s'élèvent à 1,2 million €.

"Rendre accessible l'eau potable pour plus de la moitié de la population d'ici l'an 2030 dans la ville de Bangui avec une entreprise publique dont les comptes sont assainis et dans une dynamique vertueuse de progression"

FAISABILITÉ FINANCIÈRE

La faisabilité financière de ce plan d'action repose sur deux scénarii simulés par un modèle financier. En parallèle d'un scénario sans imaginer de changement par rapport aux activités SODECA ante 2019, notre scénario stratégique prend en compte les actions identifiées pour l'atteinte des objectifs avec une subvention ou prêts souverains de l'État à 100% pour les investissements et 5% au plus en subvention d'exploitation sur les années difficiles potentiellement. Nous ne pourrons pas imaginer couvrir, avec nos recettes, nos investissements sur ces 10 ans à venir sauf en imaginant d'accélérer ses investissements de l'Etat pour avoir des retours positifs plus rapidement, et ainsi imaginer de contribuer à notre CAPEX avec des excédents. Cela semble compromis avec l'émergence du COVID qui chahute économie et investissement ces 2 dernières années.

Les résultats des simulations à l'horizon 2030 sont résumés dans les tableaux suivants :

Fil de l'eau si rien n'est fait	EBE/CA	REX/CA
2030	-2%	-2%

Plan stratégique proposé	EBE/CA	REX/CA	RNC/CA
2030	53%	42%	52%

En comparant les valeurs des ratios de ces deux scénarios, on peut conclure que notre plan stratégique est faisable financièrement à l'horizon 2030 car les ratios sont positifs et avoisinent 50%.

PILOTAGE

Le suivi des projets sera assuré par un comité de pilotage interne à la SODECA et auquel certains bailleurs pourront prendre part à travers des revues mensuelles afin de vérifier l'état d'avancement, par une gestion des informations et données terrain, et tenir la cadence même si des problèmes et aléas surgissent.

CHIFFRES CLÉS

Prix moyen eau par m³	0,51 € (2018)
Volume d'eau traitée par jour	30 000 m³ (2018)
Nombre d'employés dans le service	228 (Bangui) (2018)
Nombre d'abonnés eau	20 957 (Bangui) (2018)

Mme Yako KAROUA-YAMINDI

Chef de service production et Chef de projet

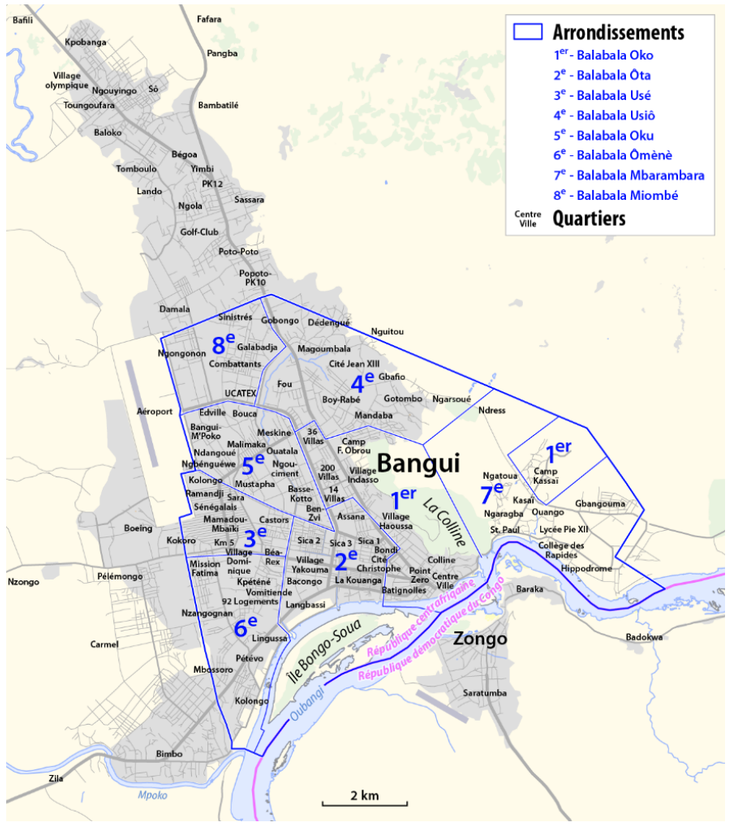
SODECA

Avril 2020

RÉPUBLIQUE CENTRAFRICAINE

AMÉLIORER LES CONDITIONS D'ACCÈS À L'EAU POTABLE DE LA POPULATION DE BANGUI

Par Mme Delphine KONDJI



"Bangui héberge plus d'un million d'habitants dont beaucoup vivent dans des quartiers très peu urbanisés"

CONTEXTE

Située au cœur de l'Afrique, la République centrafricaine (RCA) est un pays enclavé, avec une population d'environ 4 500 000 habitants, et une superficie d'environ 623 000 km².
Il est bordé par le Cameroun, le Tchad, les deux Soudan et les deux Congo.
Classé 188ème sur 189 pays au classement 2019 de l'Indice de développement humain de l'ONU, la RCA est l'un des pays les plus pauvres au monde avec de nombreux défis à relever, le tout dans un climat d'instabilité chronique.

BANGUI CAPITALE DE LA REPUBLIQUE CENTRAFRICAINE (RCA)

Bangui se situe sur la rive droite du fleuve Oubangui, qui marque la frontière entre la Centrafrique et la République Démocratique du Congo. Créée en 1889, Bangui est devenue un poste colonial, puis en 1906 le chef-lieu de l'Oubangui Chari. Elle a été érigée en commune en 1911 et devenait en 1958, la capitale politique et économique de la République centrafricaine (RCA). Elle héberge plus d'un million d'habitants dont beaucoup vivent dans des quartiers très peu urbanisés.
Les infrastructures urbaines (électricité, voirie, assainissement, réseau d'eau), sont souvent dans les nouvelles zones d'extension en mauvais état voire inexistantes.

Population d'environ 1 100 000 habitants et d'une superficie de 67 km² et d'un taux d'accès à l'eau potable de 36%.

Créée en 1991, la SODECA était à l'origine une filiale de la SAUR, l'État étant actionnaire à 22%.
Au désengagement de la SAUR en 2000, l'État est devenu le principal actionnaire avec 97,48% du capital sans que le statut de la société et son contrat d'affermage ne soient modifiés.
A cette ambiguïté institutionnelle, s'ajoutent l'insécurité chronique prévalant dans le pays.
Aujourd'hui, malgré des ressources en eau abondantes, la SODECA gère à Bangui seulement 20 955 abonnés avec un réseau de 437 km consommant environ 4.5 millions m³ par an. La population est desservie en eau potable à hauteur de 36% par des branchements individuels et des kiosques bornes fontaines. Cette situation très dégradée doit être redressée afin d'atteindre les objectifs du DSRP (Document Stratégique de Réduction de la Pauvreté) édité par le gouvernement Centrafricain pour l'horizon 2030.

Compte tenu des résultats de nos travaux de recherche et d'analyse, la situation cible du plan d'action stratégique fixée à 2025 est la suivante :

Les indicateurs de performances		
Indicateurs	Situation actuelle	Horizon 2025
Taux d'accès à l'eau potable	36%	58%
NRW	54%	35%
Continuité de service (h/24)	8h	14h
EBE/CA	Mal connu	Tendre vers 1 à 2030 et avec des chiffres validés

DIAGNOSTIC

Le diagnostic de la SODECA met en évidence des faiblesses d'ordre institutionnel et organisationnel depuis la gouvernance politique jusqu'au robinet :
• Manque de ressources financières
• Vétusté et entretien insuffisant des installations
• Taux de pertes en eau très élevés (54%)
• Alimentation en eau discontinue (8 heures/24)
• Ressources humaines insuffisamment qualifiées

Forces sur lesquelles la SODECA doit s'appuyer :

• Abondance des ressources en eau
• Disponibilité d'un schéma directeur valable jusqu'en 2030 qui donne des orientations sur les investissements à réaliser pour couvrir le besoin en eau potable à Bangui.
• Systèmes d'informations (SIG et SIC) permettant de traiter les données commerciales et techniques. Ces systèmes sont opérationnels mais déconnectés et peu relié à la prise de décision...
• Disponibilité des partenaires financiers pour soutenir le secteur : Banque Mondiale, BAD, BADEA, Fond Saoudien, CICR, UNICEF et ONG.

Faiblesses à régler :

• Vieillissement des réseaux et ouvrages, problèmes de coupures fréquentes de l'électricité, taux élevés des pertes dans les réseaux et faibles capacités de production et de distribution.
• Politique tarifaire et faible taux de recouvrement affectant négativement les ressources financières et en conséquence la maintenance et le renouvellement des équipements.
• Insuffisance du personnel qualifié, avec un taux de productivité de 11 employés pour 1000 branchements.

Les menaces à prévenir :

• Les crises répétitives en Centrafrique, et l'insécurité qui en résulte, affectent négativement la programmation et la réalisation des investissements, d'où la nécessité de sécuriser au mieux les financements ainsi que les zones d'exécution des projets.

FAISABILITÉ

La volonté de l'État centrafricain à travers le RCPCA (Relèvement et Consolidation de la Paix en Centrafrique) et la présence de partenaires financiers (Banque Mondiale, BAD, BADEA, Fond Saoudien, CICR, UNICEF, ONG) peuvent permettre d'atteindre la cible fixée à l'horizon 2025 avec un impact financier positif comme l'illustre le tableau ci-dessous.
Toutefois la réussite de ce plan d'action stratégique dépend des dispositions et des mesures que le gouvernement prendra pour assurer son bon financement.

Scénario fil de l'eau (actuel)

Année	2020	2021	2022	2023	2024	2025	Total (K US $)
Revenus (chiffre d'affaires)	2 930	2 937	2 944	2 951	2 958	2 965	**14 848**
Coûts d'exploitation	3 256	3 261	3 259	3 264	3 369	3 270	**19 679**
Coûts d'investissement	91	91	91	91	91	91	**546**
Différence	-417	-415	-406	-404	-411	-396	**- 4 831**

Scénario stratégique

Année	2020	2021	2022	2023	2024	2025	Total (K US $)
Revenus (chiffre d'affaires)	4 152	4 819	8 060	9 094	10 122	10 463	**46 710**
Coûts d'exploitation	3 266	3 285	3 855	3 896	3 908	3 919	**22 129**
Coûts d'investissement (avec prêts et subventions)	62 (réalisés)	4 107	5 408	6 199	6 201	6 179	**28 156**
Différence	824	1 427	3 797	4 999	6 013	6 365	**23 425**

"Les crises répétitives en Centrafrique et l'insécurité qui en résulte, affectent négativement la programmation et la réalisation des investissements, d'où la nécessité de sécuriser au mieux les financements ainsi que les zones d'exécution des projets"

OBJECTIFS STRATÉGIQUES

Nous proposons un plan d'action stratégique à l'horizon 2025. Cette échéance plus courte de 5 ans que celle du schéma directeur nous semble réaliste tout en ayant un caractère ambitieux. Nous avons évalué à 28 Millions $ le montant de l'investissement nécessaire à sa réalisation sur 5 ans et environ 50 Millions sur 10 ans pour atteindre nos objectifs et un service quasi continue H24 sur la ville.

Ce Plan d'Action Stratégique contient par ordre de priorité, quatre (4) objectifs :

1. Améliorer la performance du service d'eau potable :
L'atteinte de cet objectif qui sera mesuré à travers le taux des eaux non facturées (de 54% à 35%) et la continuité de service (de 8h /jour à 20h - 24h/jour), s'articule autour de deux sous objectifs à savoir : améliorer la performance technique et améliorer la performance commerciale

2. Renforcer la capacité humaine de la SODECA :
Ce renforcement se fera à travers la réorganisation des services en mettant en place un nouvel organigramme, des nouvelles procédures, et par la formation du personnel.
L'atteinte de cet objectif permettra d'améliorer le taux de productivité. La valeur ciblée pour l'année 2025 est de 7agents /1000 abonnés contre 11/1000 en 2017.

3. Augmenter le taux de desserte en eau potable :
L'augmentation du taux de desserte se fera par le renforcement des infrastructures hydrauliques : Augmenter la capacité de production, faire une extension du réseau en périphérie et des travaux de réhabilitation des anciens réseaux, augmenter le nombre des branchements individuels, construire des kiosques Bornes Fontaine dans les quartiers non desservis et éloignés.

4. Revoir la gouvernance de la SODECA :
Contractualiser la relation entre l'État et la SODECA, et réexaminer la politique tarifaire, la dernière révision datant de 1998.

CHIFFRES CLÉS

Prix moyen eau par m³	0,51 € (2018)
Volume d' eau traitée par jour	30 000 m³ (2018)
Nombre d' employés dans le service	228 (Bangui) (2018)
Nombre d'abonnés eau	20 957 (Bangui) (2018)

Mme Delphine KONDJI

Chef de section Études et Projets

SODECA

Avril 2020

RÉPUBLIQUE DE DJIBOUTI

OFFICE NATIONAL DE L'EAU ET DE L'ASSAINISSEMENT DE DJIBOUTI, UNE RESSOURCE CONFORTÉE, UNE VISION CONCRÉTISÉE

Par M. Daoud IBRAHIM MOHAMED

CONTEXTE

Djibouti est un pays aride, sans ressources en eau de surface pérenne et reposant presque entièrement sur les eaux souterraines pour l'approvisionnement en eau potable et l'irrigation. La région reçoit depuis peu des pluies diluviennes à cause de cyclones se formant dans l'Océan Indien (changement climatique). Djibouti présente l'intérêt stratégique d'être située sur le détroit de Bab-el-Mandeb, un des corridors maritimes les plus fréquentés au monde qui contrôle, entre Afrique et Asie, l'accès à la Mer rouge et à la Méditerranée.
Cette situation a permis au pays de miser sur ses ports et à la particularité d'attirer des bases de nombreuses puissances étrangères (France, États-Unis, Japon, Chine, Espagne, Italie, Allemagne). Cette position géostratégique permet un essor économique du pays et une stabilité rare dans la sous-région. Djibouti a ainsi accès aux marchés de l'Éthiopie voisin enclavé (87 millions d'habitants) ainsi qu'au marché commun de l'Afrique orientale et australe (COMESA, 21 pays).

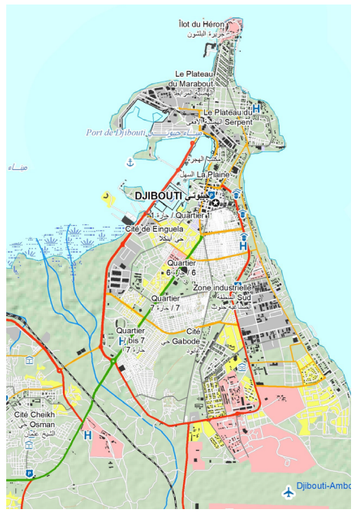
"Djibouti présente l'intérêt stratégique d'être située sur le détroit de Bab-el-Mandeb, un des corridors maritimes les plus fréquentés au monde qui contrôle, entre Afrique et Asie, l'accès à la Mer rouge et à la Méditerranée"

CONTEXTE DE L'ENTREPRISE

L'Office National de l'Eau et de l'Assainissement de Djibouti (ONEAD) est une entreprise publique à caractère industriel et commercial responsable du service d'eau potable et d'assainissement en milieu urbain. L'office opère dans les centres urbains (dont la capitale) et assure le service d'eau potable et la gestion des réseaux d'assainissement.

DIAGNOSTIC

Djibouti profite de sa position et de sa stabilité pour attirer les investissements directs étrangers pour ses infrastructures notamment ceux en provenance de la Chine (rails/aqueduc AEP/port polyvalent/port miniers). La monnaie nationale indexée sur le Dollar Américain permet de rassurer les entreprises étrangères. Le taux de croissance économique est de 7,5%/an. Le pays est membre de plusieurs organisation politique et économique régionale (COMESA-IGAD).



Les principales forces sont :
- Le statut de la société
- L'investissement en infrastructure en cours
- La nouvelle politique de la Direction Générale
- La stabilité
- L'indexation de la monnaie sur le Dollar Américain
- Le taux de croissance éco. satisfaisant (7,5%)
- L'intégration politique et économique régionale (COMESA-IGAD)
- La nouvelle clientèle à potentiel : ports, zones industrielles et bases militaires étrangères

Points sensibles et faiblesses :
- Le personnel en sur-effectif est peu performant
- Le faible taux de couverture en eau et assainissement
- La faible capacité financière
- L'absence de gestion des risques
- Le changement climatique
- L'endettement important
- L'urbanisation incontrôlée
- Les faibles ressources en eau dans le pays
- L'interdépendance avec l'Éthiopie (eau/électricité)
- La grille tarifaire inadaptée
- La baisse de la ressource traditionnelle
- La non-maîtrise des risques liés à l'adduction transfrontalière Éthiopie-Djibouti

Vision - l'ONEAD en 2032
"Une ressource confortée, une vision concrétisée"
M. Mohamed FOUAD ABDO DG

OBJECTIF ET STRATEGIE

Objectifs Structurants
- Sécuriser la ressource afin de garantir l'approvisionnement en eau
- Couvrir la demande en eau
- Intégrer l'assainissement à l'ONEAD
- Pérenniser : assurer le recouvrement des frais de fonctionnement, d'entretien, de renouvellement et d'extension
- Cadrer la gouvernance

L'approvisionnement en eau doit être assuré avec prise en compte des risques de criticité liés aux ouvrages de production.
OBJECTIF 2 : les ventes doivent se développer grâce à la fiabilité du réseau d'eau potable et à la nouvelle clientèle des zones franches, du port et des bases militaires.
OBJECTIF 3 : l'ONEAD va homogénéiser le statut de son personnel et hisser le métier de l'assainissement au même niveau que le métier de l'eau.
OBJECTIF 4 : La société doit se focaliser sur la pérennisation des infrastructures en organisant leur entretien régulier et leur renouvellement
OBJECTIF 5 : La société doit faire évoluer son cahier des charges avec la signature d'un contrat de concession actualisé pour répondre à la réalité des services. La mise en œuvre de ce contrat de concession est assortie d'un contrat de performance construit pour répondre aux défis et à la réalité économique d'un nouvel opérateur.

CHIFFRES-CLÉS

Nombre d'habitants (Capitale)	576 686 soit 59% de la population totale
% de la population en situation d'extrême pauvreté	17.1
% des ménages disposant d'un branchement d'eau potable	40
% de la population raccordée au réseau assainissement	25
Nombre d'abonnés au réseau d'eau potable	42 132
Km de réseau assainissement	120
Km réseau eau potable	1 072
Volume d'eau vendu en 2018	21 millions de m^3
Tarif moyen (eau et assainissement)	316 FDJ/m^3 soit 1.59€/m^3
Tarif moyen eau	270 FDJ/m^3 soit 1.35€/m^3
Tarif social	74 FDJ/m^3 soit 0.37€/m^3

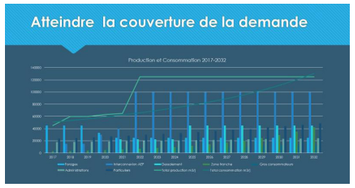
EAU 2020/2032 PROJECTION

Volume produit ou acheté (en Mm^3/an)	21 Mm^3/an	45 Mm^3/an
Nombre d'abonnés	42.132	87.132
Branchement avec compteur	80%	100%
Eau Non Facturée	37%	30%
Linéaire Réseau	1.072	4.149
Capacité de stockage	105.460 m^3	120.000 m^3
Nombre d'employés	1014	940
Taux d'accès en eau	55%	86%
Recouvrement	70%	87%

Marges de progression à l'horizon de 2032

24 employés pour 1.000 branchements	Atteindre 12 employés pour 1.000 branchements
Statut spécial de l'assainissement	Intégrer pleinement le personnel de l'assainissement dans les RH et le management
Pas de maîtrise de l'adduction transfrontalière avec l'Éthiopie (champs captants sur hauts plateaux)	Créer une cellule de pilotage technique, financière et gestion des risques
Maintenance préventive inexistante	Mettre en place des procédures de maintenance préventive
37% de pertes physiques sur le réseau	Être au moins inférieur à 20%
20H de service au mieux dans le centre-ville pas dans la périphérie	Atteindre le H24
Taux de recouvrement 70%	Atteindre 87%
Réseaux vieillissants	Mettre en œuvre le renouvellement
Faible capacité d'autofinancement	Augmenter le Tarif et l'indexer à l'inflation
Faible autonomie face à la tutelle (tarifs/embauches)	Nouveau contrat de concession associé à un contrat de performance
Dettes importantes	Renégocier les dettes FADES/AFD/Exim Bank (Chine)

L'entreprise devra évoluer au niveau des pertes physiques en raison de l'arrivée de l'eau produite par l'adduction, actuellement à 30% de capacité, et la mise en service de la première tranche de l'usine de dessalement début 2021.
Une révision tarifaire est indispensable de même que l'indexation du tarif moyen à l'inflation.
La fixation du tarif de l'eau et de l'assainissement est déterminée par le compte de résultat prévisionnel de l'ONEAD dont la bonne réalisation est soumise à un suivi dans le cadre du contrat de performance.
Ainsi l'entreprise devra réduire son sureffectif.
Un nouveau contrat de concession en réflexion sur le périmètre ONEA ou pilote précisera le cahier des charges de l'entreprise et conduira d'une part à l'autonomie financière et opérationnelle, et d'autre part à la planification des investissements nécessaires pour couvrir la demande et capter des clients nouveaux actuellement non desservis (zone franche/port/nouveaux quartiers).



Exemples d'investissements actuels à l'ONEAD : Volet Eau et Assainissement (USD)

Volet Eau

Description	Financement	Montant
Adduction transfrontalière Éthiopie-Djibouti	Chine	408 M
Construction d'une usine de dessalement	UE	70 M
Réhabilitation du réseau AEP	FADES	65 M

Volet Assainissement

Description	Financement	Montant
Doubler les capacités de traitement STEP de Douda	UE	11 M
Construire 1 nouvelle STEP à Balbala	UE	13 M
Réseau assainissement renforcé et étendu	UE	8 M

Totalité des projets programmés ONEAD :
Eau : 568 300 000 €
Assainissement : 51 900 000 €
Total : 620 200 000 €

Vision - l'ONEAD en 2032 "Une ressource confortée, une vision concrétisée"
M. Mohamed FOUAD ABDO DG
- Distribuer une eau de qualité
- Assurer l'assainissement pour 80% des clients
- Préserver l'environnement
- Renforcer les capacités de pilotage
- Aboutir à l'autonomie opérationnelle et financière

CHIFFRES CLÉS

Prix moyen eau par m^3	1,35 € (2018)
Prix moyen m^3 assainissement	0,24 € (2018)
Volume d' eau traitée par jour	57 000 m^3 (2018)
Nombre d' employés dans le service	1 014 (2020)
Nombre d'abonnés eau	42 132 (2018)

M. Daoud IBRAHIM MOHAMED
Chargé de projets auprès du Directeur Général

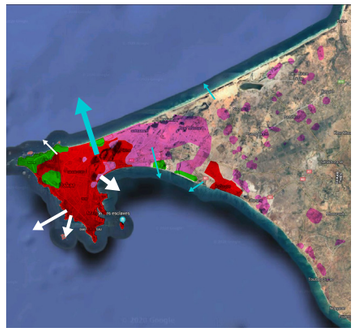
Avril 2020

ONEAD

SÉNÉGAL

AXE DAKAR - THIES - PETITE COTE

Par M. Ousmane COULIBALY



Assainissement non collectif
Réseau d'égout conventionnel
Mini égout
Rejet d'eaux épurées
Rejet d'eaux usées brutes

CONTEXTE

En 1996, le gouvernement du Sénégal a défini et mis en œuvre une réforme du secteur de l'hydraulique et de l'assainissement qui avait pour principaux objectifs la délégation des missions :
• de production
• de distribution
• de vente de l'eau à un opérateur privé

Cette réforme a ainsi conduit à la création de trois structures :
• La Société Nationale des Eaux du Sénégal (SONES), responsable de la gestion du patrimoine et des investissements du secteur de l'eau potable urbaine, liée avec l'État du Sénégal par un contrat de concession de 30 ans
• La Sénégalaise des Eaux (SDE), société privée en charge de l'exploitation (production et distribution) du service de l'eau potable ; avec laquelle un contrat d'affermage a été conclu pour une durée initiale de 10 ans, par la suite prorogée à plusieurs reprises par dix (10) avenants jusqu'au 31 décembre 2019 (plus de 23 ans)
• La création de L'Office Nationale de l'Assainissement du Sénégal (ONAS), société publique nationale responsable du patrimoine et de l'exploitation du service d'assainissement des eaux usées

"Cette zone représente 83% du PIB car elle regroupe 80% des activités économiques du Sénégal"

Le Sénégal, dans son plan de développement, ambitionne de faire du triangle DAKAR-THIES-PETITE-COTE un pôle de développement durable et compétitif, tête de pont du Sénégal émergent.
Le triangle DAKAR-THIES-PETITE COTE, occupe une superficie de 7220 Km², soit 4% de la superficie du territoire national, concentrant près de 40% de la population nationale, estimée à 5 524 337 (ASND 2017), avec une croissance démographique de 3.5%/an (ASND, 2013).
Durant les quatre (04) dernières décennies la superficie urbanisée a presque doublé avec une croissance de plus de 72% (GHS-BUILT).
Cette zone représente 83% du PIB car elle regroupe 80% des activités économiques du Sénégal.

Taux de croissance/3 ans	6.8%
Croissance démographique	3.5%
PIB/Habitant	1033US$

"Le Sénégal, dans son plan de développement, ambitionne de faire du triangle DAKAR-THIES-PETITE-COTE un pôle de développement durable et compétitif, tête de pont du Sénégal émergent"

Gouvernance du Sous-Secteur Hydraulique en milieu Urbain

Le sous-secteur de l'hydraulique est la tutelle financière du Ministère en charge des Finances et du Budget et la Tutelle Technique du Ministère en charge de l'Eau et de l'Assainissement à travers la Direction de l'hydraulique et est chargée de :
• élaborer la politique sectorielle- orientation et planification
• fixer les tarifs
• assurer la régulation du sous-secteur

Situation de la SONES

La Société nationale des Eaux du Sénégal (SONES) gère le patrimoine pour le compte de l'État du Sénégal avec 118 agents ayant son siège à Dakar. Elle monte les projets, cherche les financements, planifie les investissements et bâtit les ouvrages.
La réforme du secteur de l'hydraulique de 1996 fut un succès et le modèle Sénégalais est plébiscité.
Comme points de succès nous pouvons noter :
• l'atteinte de l'équilibre financier dès 2003
• l'atteinte des OMD en 2014 avec un taux d'accès proche de l'universel 98%
• le nombre d'abonnés à connu une hausse de 193% en 23 ans grâce à la politique de branchement sociaux
• la production est passée de 96.3Mm³/an en 1997 à 191 Mm³/an en 2018 grâce à l'extension du patrimoine par un volume d'investissement de près d'un milliard d'Euros.

Données-clés de la zone d'étude

Le périmètre affermé est réparti sur 68 centres. L'axe Dakar-Thiès-Petite Côte abrite 12 centres reparties en cinq (05) Directions Régionales. Les 60% des abonnés du sous- secteur sont sur cet axe soit 4 400 000 sur les 7 400 000 du sous-secteur. La production annuelle de la zone est de 159.5Mm³/an soit 83% de la production totale de l'ensemble du sous-secteur de l'hydraulique urbain.

ÉLÉMENTS DE DIAGNOSTIC

Les points d'appui :

A l'issu de l'exercice de diagnostic mené sur les différentes activités de la SONES, il ressort plusieurs points d'appuis, sur lesquelles la SONES pourra s'appuyer pour relever les nouveaux défis assignés au Sous-Secteur pour l'atteinte des ODD en 2030.

• Population 4.4 millions d'habitants
• La SONES entend être à l'horizon 2028, une société de Patrimoine de référence d'Afrique résolument tourner vers la modernité et l'innovation
• Un personnel compétent fort d'une expérience de près de 30 ans dans la maitrise d'ouvrages
• la volonté affichée par les puissances publiques à accompagner la SONES par le financement de son plan d'affaire à l'horizon 2030 à hauteur de 70% et la révision de la grille tarifaire restée gelée depuis 2006
• la mise en concurrence du contrat du délégateur permettant d'avoir un nouveau contrat plus en phase aux nouveaux défis du secteur et un prix exploitant de 18% moins cher avec un partenaire stratégique parmi les leaders en exploitation des services d'eau

"La réforme du secteur de l'hydraulique de 1996 fut un succès et le modèle Sénégalais est plébiscité"

Données	2018	Projections 2028
Volume produit ou acheté	191 millions m³/an	343 million/an
Nombre d'abonnés actifs	778 240	1 052 276
Branchement avec compteur	93%	100%
Eau non facturée	20%	15%
Réseau linéaire	13 922 km	24 842 km
Capacité de stockage	210 000 m³	280 000 m³
Nombre d'employés (SONES)	118	143
Chiffre d'affaire	38.6 M€	80 M€
EBE	32 M€	53 M€
Résultat	4 (10.3% CA)	9 (17% CA)
Recouvrement	97%	97%

PROJETS STRATÉGIQUES

• Projets KMS3 : stations de traitement de 200 000 m³/j horizons 2020 et 2021 ;
• Stations de dessalement d'eau de Mer des mamelles 50 000 m³/j extensible à 100 000 m³/j 2023 et 2026
• Station de dessalement de la grande cote 300 000 m³/j 2030
• Amélioration de la qualité de l'eau

Les Points d'attentions et de vigilance

Comme point faible, nous notons :
• Le vieillissement du personnel au niveau des directions opérationnelles
• le déficit de production, l'étude du schéma directeur a fait ressortir que le déficit de production serait de l'ordre 300 000 m³/j en 2035 si rien n'est fait
• 22% de la production ne sont pas conforme aux recommandations de l'OMS en termes de qualité physico-chimique

En outre, nous devons être vigilant face :
• aux menaces sur la dégradation des ressources souterraines, menacées par l'intrusion saline
• à l'instabilité du poste de DG empêchant de développement d'une stratégie à long terme
• un équilibre financier menacé par la part très élevée (63%) de la facture de l'administration dans le CA de la SONES

OBJECTIFS STRATÉGIQUES

OS1 : Étendre le service, couvrir le déficit de production, contribuer à l'amélioration de la qualité de l'eau distribuée dans le périmètre affermé (Taux de desserte 100% et service H24)

OS2 : Améliorer la performance opérationnelle des activités de la SONES (rendement réseau 85% et taux exécution budgétaire 85%)

OS3 : Renforcer l'organisation, l'engagement et la satisfaction du personnel

OS4 : consolider et soutenir l'équilibre financier du sous-secteur dans un cadre institutionnel stable et réguler, tout en bénéficiant de la confiance des partenaires (Etat, PTF,etc)

"L'eau c'est la vie et l'eau potable c'est la longue vie"
Abdoul NIANG - coordonnateur technique de la SONES

FAISABILITÉ

Faisabilité Politique et sociale

Le plan Stratégique pour l'atteinte de ODD et faire de la SONES une société de patrimoine de référence nécessité un plan d'investissement de plus d'un (1) milliard d'eau ce qui impliquerait pour préserver l'équilibre du secteur une augmentation tarifaire de plus de 300%. Le Sénégal à travers le Plan Sénégal Emergent s'est engagé à atteindre des ODD. Cet engagement s'est traduit par une subvention de plus 500 millions d'euros à la SONES pour alléger son service de la dette et maintenir le tarif de l'eau socialement supportable.

Autres Facteurs de faisabilité

La mise en concurrence du contrat du délégataire a permis de faire baisser le prix exploitant de 18%, ce qui pourra compenser la hausse tarifaire de 27% nécessaire à la mise en œuvre de notre plan. Aussi, le nouveau délégataire fort de son expertise mondialement reconnu pourra aider à développer des stratégies nouvelles et innover dans la réalisation des branchements particuliers afin d'atteindre le taux de réalisation de 40 000 branchements particuliers par an.

CHIFFRES CLÉS

Prix moyen eau par m³	0,225 € (SONES) 0,55 € (SDE) (2018)
Prix moyen m³ assainissement	0,105 € + 0,03 € de surtaxe hydraulique
Volume d' eau traitée par jour	523 587 (2018)
Nombre d' employés dans le service	118 (SONES) 1 200 (SDE) (2018)
Nombre d'abonnés eau	778 240 (2018)

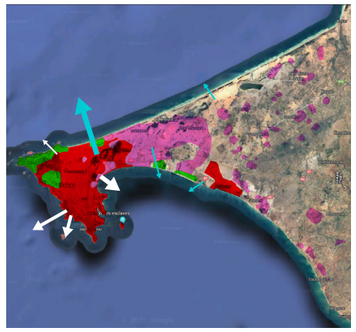
M. Ousmane COULIBALY
Ingénieur chef de projets
Unité UCP - dessalements
SONES

Avril 2020

SÉNÉGAL

ASSURER UN SERVICE D'ASSAINISSEMENT DE QUALITÉ À TOUTE LA POPULATION URBAINE DE DAKAR

Par M. Blaise FAYE



Assainissement non collectif
Réseau d'égout conventionnel
Mini égout
Rejet d'eaux épurées
Rejet d'eaux usées brutes

CONTEXTE

L'ONAS est un Etablissement Public à Caractère Industriel et Commercial (EPIC) d'un capital social de 3,5 millions d'euros et créé en 1996. Il est en charge de l'investissement, de l'exploitation et la maintenance des infrastructures d'assainissement liquide à l'échelle nationale (urbain, périurbain et rural), du développement de l'assainissement autonome et de la valorisation des sous- produit d'exploitation. 75% du patrimoine de l'ONAS, est concentré à Dakar. Cette ville abrite une population de 3,7 millions d'habitants avec un taux de croissance annuelle de 4%.

En 2018, 86% des habitants de Dakar ont accès à l'assainissement dont 37% d'accès à l'égout. Le taux de traitement des eaux usées est de 54%

Sa zone côtière est menacée par le rejet d'eaux usées brutes : 28% des eaux usées collectées à Dakar sont directement rejetées en mer sans traitement. C'est le cas de la zone industrielle et des quartiers : Dakar-plateau, Médina, Fass Soumbédioune et Ouakam.

Dakar a une densité de 6089 habitants/km² et un sol assez marécageux à l'ouest. On y trouve les trois systèmes d'assainissements conventionnels : collectif, mini-égout dit aussi semi collectif (conduites inférieures ou égales à 200 mm de diamètre) et enfin autonome, en majorité.

Dans la région de Dakar, ONAS dispose d'un linéaire de 1330 km de réseau d'eaux usées et 200 km en eaux pluviales avec une capacité de traitement de 27 900 m³/j. Le nombre de branchements actifs en 2018 est de 108 253. L'ONAS compte pour la même période 351 agents dont 233 permanents pour un chiffre d'affaires annuel de 6 millions de francs CFA dans ce périmètre.

DIAGNOSTIC

Forces

L'ONAS est certifiée ISO 9001 depuis 2010. Il dispose d'un outil en ligne régulièrement mis à jour permettant à ses clients de suivre leurs demandes et faire des réclamations en ligne. Les agents de l'ONAS ont une bonne connaissance technique du métier. Les avantages sociaux y sont substantiels par rapport au marché. Le turnover est de 6%.

L'ONAS pilote aussi 4 entreprises privées sous-traitantes qui se sont beaucoup professionnalisées depuis le début des délégations.

L'association solidaire des vidangeurs certifiés pour l'assainissement autonome constitue aussi un atout.

L'ONAS a connu enfin des succès en assainissement autonome avec une gestion donnée en exemple pour ses 9 Stations de Traitement des Boues de Vidanges réparties sur le grand Dakar (STBV).

Une vraie ambition :

"Et pourquoi pas un service d'assainissement à l'image du Plan Sénégal Emergent (PSE) du chef de l'État son Excellence M. Macky SALL : c'est ainsi qu'avec l'appui du Directeur Général de l'ONAS le plan "TAW-FEKH" a été mis en place pour qu'en 2028, l'ONAS offre à la population Dakaroise un service d'assainissement de référence en Afrique."

"Le management des projets est jusque-là peu efficace. 75% des projets de l'ONAS ne se terminent pas dans les délais"

Faiblesses

Le management des projets est jusque-là peu efficace. 75% des projets de l'ONAS ne se terminent pas dans les délais. Ceci s'explique à la fois à cause de ressources financières limitées, du foncier, des lenteurs administratives et au défaut de pilotage régulier des opérations et des risque-projets.

Par ailleurs, la consommation énergétique des stations d'épuration et de pompage représente 11% du budget d'exploitation. Aujourd'hui, l'ONAS n'a pas de moyens d'efficience énergétique pour pallier à cette charge.

L'ONAS tarde à mobiliser les ressources nécessaires au renouvellement des équipements amortis.

Le manque d'investissements pour l'extension et l'augmentation de la capacité de certains ouvrages entraine plusieurs dysfonctionnements du service. Les normes de rejets ne sont plus respectées et nombreuses sont les nuisances olfactives dans les quartiers.

"Les quartiers dont les sols sont non stabilisés, les branchements clandestins, le vol des plaques de regard et la mauvaise gestion des ordures ménagères sont autant de phénomènes qui rendent difficile l'atteinte des objectifs de l'ONAS"

Les quartiers dont les sols sont non stabilisés, les branchements clandestins, le vol des plaques de regard et la mauvaise gestion des ordures ménagères sont autant de phénomènes qui rendent difficile l'atteinte des objectifs de l'ONAS.

Résoudre cette problématique est une question prioritaire pour une meilleure santé des populations. C'est pourquoi, l'ONAS et son Ministère de tutelle se mobilisent pour trouver les moyens afin de mettre en place un fond d'assainissement adéquat et durable pour la gestion des eaux de pluie.

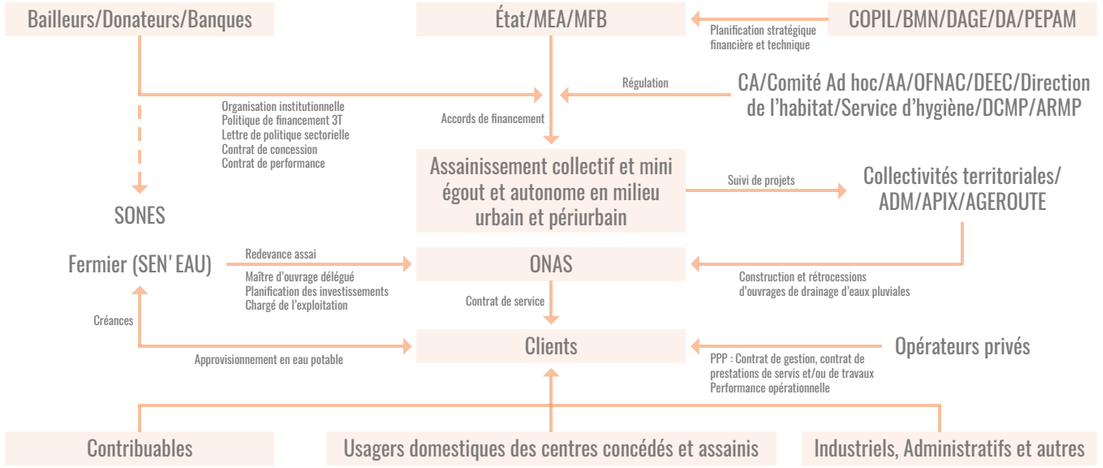
La moyenne d'âge du personnel de l'ONAS est de 45 ans. Le personnel est vieillissant et le système est caractérisé par une expérience avérée dans le domaine, mais avec une productivité financière limitée (32%). Aujourd'hui, l'ONAS tarde à mettre sur pied un processus efficace de Gestion Prévisionnelle des Emplois et des Compétences (GPEC).

Des ouvrages destinés au drainage des eaux pluviales transformés en dépotoir d'ordures : canal IV, canal VI, Canal Front de terre etc...

Grâce aux efforts faits par l'État dans la gestion des inondations depuis 2013, il y a eu une amélioration mais la situation reste toujours critique sans compter que beaucoup de collecteurs côtiers sont ensablés...

"L'ONAS tarde à mobiliser les ressources nécessaires au renouvellement des équipements amortis"

ORGANISATION INSTITUTIONNELLE



LES DÉFIS MAJEURS

• Contrer la baisse de performance opérationnelle d'année en année en internalisant des activités clés.
• Prendre en charge l'assainissement autonome avec un suivi plus précis du service global avec des indicateurs de performances et de résultats
• Lutter contre les activités déviantes et de corruption au sein des maillons de la filière
• Déléguer l'exploitation au secteur privé, et les mettre en compétition avec un meilleur suivi des chaines de leurs prestations et de leurs investissements
• Planifier plus de digitalisation le long des maillons de la filière

Données d'entrée	2018	Cible 2028
Rejet eau usée brute en mer	10%	0%
Rejet eau pré-traitée en mer	17%	0%
Sans accès aux STBV	4%	0%
Avec accès aux STBV	49%	45%
Taux d'accès global à Dakar	86%	100%
Taux d'accès à l'égout	37%	54%
Taux d'accès au STBV	49%	46%
Nombre d'abonnés par 1000	130	290
Linéaire du réseau public d'assainissement	1330 km	3000 km
Taux de raccordement en milieu urbain	37%	55%
Taux de traitement des eaux usées collectées	54%	100%
Taux de curage du réseau public d'assainissement	38%	70%
Nombre d'employé par 1000 abonnés	4,5	1,9
Tarif moyen	10,5 ct€/m³	22,6 ct€/m³

LES DÉFIS MAJEURS

Le plan TAW-FEKH :

OBJECTIF STRATÉGIQUE 1: Garantir l'accès à l'assainissement intégré 620 M CFA
OBJECTIF STRATÉGIQUE 2: Asseoir la viabilité financière de l'ONAS sur des ressources stables et durables 0,9 M CFA
OBJECTIF STRATÉGIQUE 3 : Renforcer l'organisation, l'engagement, les compétences et la satisfaction du personnel 19,8 M CFA
OBJECTIF STRATÉGIQUE 4: Proposer un cadre juridique et institutionnel complémentaire et favorable au développement de l'ONAS 0,06 M CFA
OBJECTIF STRATÉGIQUE 5 : Améliorer la gestion commerciale et clientèle 0,05 M CFA

Actions

• Renouveler ou Réhabiliter l'ensemble des équipements amortis : réseaux notamment.
• Étendre le réseau des eaux pluviales et eaux usées mais en les séparant comme c'est déjà sur certaines zones
• Transformer l'ONAS en Société de Patrimoine avec le statut de société, en visant sa rentabilité
• Soutenir l'exploitation avec une ressource financière durable basée sur un tarif réévalué et en créant un fonds d'assainissement
• Former et motiver le personnel avec des salaires compétitifs, et aussi nos sous-traitants

CHIFFRES CLÉS

Prix moyen m³ assainissement	0,105 €
Volume d'eaux épurées par jour	19 000 m³ (2018)
Nombre d'employés dans le service	223 (ONAS) 118 (saisonniers)
Nombre branchements collectifs	129 967 (2018)

M. Blaise FAYE
Chef du Département Technique
ONAS Sénégal

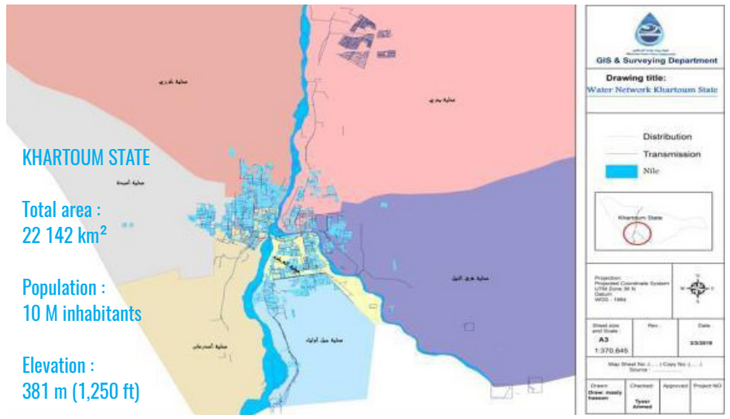
Avril 2020

SUDAN

ENSURING 100% WATER COVERAGE OF THE POPULATION THROUGH A SUSTAINABLE CUSTOMER-ORIENTED COMPANY

By Mr Mohamed Abd Elrahim KHOGLI ELTAYEB

Khartoum State Water Corporation (KSWC) is a government authority responsible for providing safe and sustainable drinking water service to its customers in Khartoum. He is making a major effort in a 24-hour supply, covering about 85 or 90% of the population from various surface or underground sources. Nevertheless, due to the rapid increase of the urban area, peripheries and suburbs suffer from poorer water supply.



CONTEXT

Khartoum State, the capital of the Republic of Sudan is located in central Sudan between the Blue Nile and the White Nile, as well as the Nile River resulting from the confluence of the White and Blue Niles at the Al-Muqran area. It is considered as one of the richest capital in water resources. There is also a lot of groundwater.

Administratively affiliated directly to the Governor of Khartoum State and technically affiliated to the Ministry of Infrastructure and Transport, KSWC is one of the governmental bodies with legal autonomy, independent law and regulations and work regulations.

It produces and distributes clean drinking water in urban and rural Khartoum state through Nile resources (46%) and groundwater resources (54%).

Throughout its history, KSWC has accumulated experiences in studies, planning and implementation of drinking water projects to improve performance and provide the best services to its customers, whether by establishing new Nile stations, drilling more wells in addition to the implementation and rehabilitation of networks in various localities of the state.

According to KSWC Act 2009, the state government funds all development projects, such as water treatment plants, transmission lines, and networks (CAPEX) while KSWC is obliged to cover from its revenues the cost of operation, maintenance and salaries (OPEX).

Recently, the Government put emphasis on the necessity to develop Water, Sanitation and Hygiene in the whole country. This Government determination will even be strengthened by the unprecedent sanitary crisis affecting the whole world.

"Considered as one of the richest capital in water resources"

DIAGNOSIS

Strengths

- Availability of water resources (groundwater - rivers)
- Monopoly in drinking water service
- Large number of customers.
- CAPEX coverage by Khartoum State
- Community participation in financing the implementation of drinking water networks by 50%
- Successful implementation of drinking water treatment plants via BOT contract
- Enough staff
- KSWC ability to cover OPEX) and achieve profits (EBITDA 23.5%)
- High collection rate (95%)

Weakness

- Poor funding
- Low tariff
- Poor staff capacity
- Lack of applying of software in customer management and financial management
- Lack of NRW department and metering system
- Lack of water flow meters and DMA
- Low level of salaries (below market)
- Less than 100% coverage

Opportunities

- Reducing OPEX after implementing the El Nahda dam and reducing turbidity in Blue Nile and Nile River, thus reducing the cost of chemicals by 50%
- Lift the US sanctions and allow international banks to deal with the Sudanese banking system

Threats

- High inflation rate
- Political instability
- High foreign currency
- Global economic turmoil due to Covid 19 crisis

OBJECTIVES AND STATEGY

To ensure a full coverage of the population and water for all, KSWC and the Government have planned an ambitious investment program. The following Strategic Action Plan has been designed to sustain and reinforce this KSWC investment program taking into consideration the knowledge in systemic approach acquired during the International Executive Master OpT program.

The global goal is to ensure 100% water coverage of the population through a sustainable customer-oriented company.

The Strategic Action Plan has been designed around three main objectives:

A. Improving the staff capacity & harmonizing the work environment

B. Developing a comprehensive financial and customer management system

C. Ensuring the full coverage of Khartoum State and develop the metering system

The three objectives will be implemented through 14 sub-objectives and 48 actions as summarised below.

"Politically, the decision on such a measure could be difficult as it might be unpopular, especially during a crisis that we face today. Nevertheless, this measure is necessary to make the Company sustainable and attract investors and donors"

Objective A - Improving the staff capacity

It will require the establishment of a new training center, the development of internal training capacities and the implementation of the annual training plan. The training center project will be submitted to donors for grant financing. At the end of the selection process, 50 internal trainers will be certified. After assessing gaps between staff current skills and future needs, the training plan will be determined, then executed and reviewed annually.

The estimated cost for achieving the objective A is evaluated to 2.9 M€ (for external costs only), including 1.8M€ for the training center financed by donors (Asian Development Bank or others).

While some training programs will start immediately, the full training process and center will be in place by 2024.

Objective B - Developing a comprehensive financial and customer management system it will not only require Information Technology. This is a real change in the culture of the company, which will require a detailed analysis of our needs, data collection, definition of KPIs and training of staff. A census will enable to fill in the new customer database linked to Geographical Information System. Finance and Customer systems will be integrated, making a clear link between customer services activities and company revenues. Financial indicators will be developed and used all over the company to change the mindset of the teams and develop performance. Incentives will be given notably to sectors having good achievements in NRW reduction.

The estimated cost to achieve the objective B is evaluated at 1.6 M€, (for external costs only, considering existing IT infrastructures and ERP). Nevertheless, this first estimate might be re-evaluated further with experts.

With adequate allocation of resources, the new system should be in place within three years.

Objective C - Ensuring full coverage of Khartoum State and developing the metering system

It is related to the necessary need of infrastructure development, to catch up with the needs of the population. These heavy investments would require new investment capabilities, and new financing models.

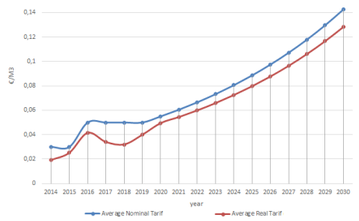
The first set of investment concerns treatment plants and consists in rehabilitation and expansion of three Water Treatment Plants, BURRI, UM DOM and ELKHOGALAB, over the next 6 years. The program will also include the network rehabilitation and extension, and the development of metering. Therefore, the company will have the production and distribution capacities to meet with the need of the population, and customers will be able to control their consumption through the metering.

The total cost for these infrastructure works is estimated at 573 M€ over 10 years, including 502 M€ for WTP, 44 M€ for the network rehabilitation and extension and 27 M€ for the metering.

Tariff increase

Another measure to be taken as part of the Strategic Action Plan is increasing our tariff. We suggest to steadily increase the water tariff, which is currently very low, according to the following pattern:

Politically, the decision on such a measure could be difficult as it might be unpopular, especially during a crisis that we face today. Nevertheless, this measure is necessary to make the Company sustainable and attract investors and donors. Reasonable tariff increase will be well accepted by population if the quality of the services (water supply, customer care) is improved accordingly. It has also to be noted that currently, in some suburbs, people who do not benefits from public water have to buy poor quality water to water sellers (tank trucks) at a high price. We recommend increasing the tariff after the current crisis, as soon as the financial and customer management system is in place and when the first results of the Strategic Action Plan on the quality of the service (customer care, water supply) is perceivable by population.



Impact of the Strategic Action Plan and feasibility study

The impact of the Strategic Action Plan, aiming to ensure 100% water coverage through a sustainable customer- oriented company, is visible through the scenario analysis.

Two scenario analyses have been conducted:

One with the "Current Scenario" (CS), or "business as usual", in which the investments done are related to infrastructure only (part of Objective C, excluding the metering part)

One with the "Sustainable Scenario" (SS), in which the full Strategic Action Plan is implemented. The first modelled impact of the Strategic Action Plan is on the water demand coverage

In the "Sustainable Scenario", water supply covers water demand as soon as 2022, while water demand is not covered until 2025/2026 in Current Scenario. This is due to the reduction of physical losses in the network, which enable to supply more water with the same production. Reducing physical losses is part of NRW reduction program and is achieved through staff training and Installation of District meter areas. This great difference in water supply coverage (3 years ½ in advance) is due to a small part of the investment plan (less than 5%).

The second modelled impact of the Strategic Action Plan is on the Company financial sustainability:

In the "Current Scenario", EBITDA and EBIT decline quickly. This is related to the fact that OPEX and CAPEX increase, mainly due to the new Water treatment Plants, while revenues are limited (low tariffs).

In the "Sustainable Scenario", EBITDA remains positive during the whole period and EBIT becomes negative in 2026 only. This negative EBIT risk could even be mitigated if investments on WTP are eventually postponed.

Between the two scenarios, assumptions on OPEX and CAPEX are nearly the same (we saw that difference in CAPEX is less than 5%) but the difference is mainly due to the increase in revenues.

Revenue's increase is due to the increase of tariffs, but also to better management of expenses and to reduction of NRW (reduction of commercial losses and better supply due to reduction of physical losses).

In conclusion, the Strategic Action Plan has been designed to facilitate the rapid success of KSWC for achieving the full water coverage of Khartoum State Water population in a sustainable manner.

Our work highlights the fact that infrastructure works are necessary but not sufficient.

Strategic investments on human resources, finance, IT and commercial services are success factors enabling a culture change towards a performing customer-oriented Company.

"Enabling a culture change towards a performing customer-oriented Company"

KEY FIGURES

Average water tariff / m³	0,02 € (from 2005 to 2019)
Volume treated water per day	Unknown
Number of employees	2 882 (2019)
Number of water customers	910 000 (2019)

Mr Mohamed Abd Elrahim KHOGLI ELTAYEB

Training Directorat Manager

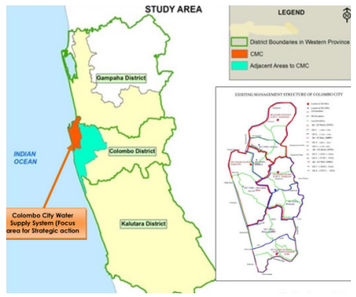
Khartoum State Water Corporation

April 2020

SRI LANKA

RENEWING WATER TO DEVELOP COLOMBO

By Mr P.A.Samira ANURADHA



OVERVIEW

Sri Lanka is an island nation located in an important geopolitical area of the Indian Ocean also known as Ceylon / Pearl of the Indian Ocean.

National Water Supply and Drainage Board (NWSDB) is the national organisation established under parliament act to provide sustainable water supply and sanitation solution to the nation. Drinking water and sanitation coverage is 94% and 92% respectively in Sri Lanka, which is the best sanitation coverage in South Asia. Government of Sri Lanka has given high priority for water supply and sanitation in the country in order to achieve the SDGs. The target for the water and sanitation sector is to achieve 100% coverage by 2025. Colombo is the commercial capital of Sri Lanka where Colombo City Water Supply System (CSWSS) comes under Regional Support Centre - Western Central (RSC-WC) of NWSDB. There is a high demand of water due to the fast development of the city. The challenge for NWSDB is to give a good quality of the service to satisfy the customer's high expectations.

How to meet the customer expectation with more than 100 years old water supply infrastructures and 41% of NRW is the question to answer. CCWSS should select a strategy according to its own vision and its mission.

Management of wastewater by Colombo Municipal Council was recently transferred from NWSBD which cannot assumed this function on efficient way for maintenance and investments to plan by the past.

VISION

To be the most prestigious utility organisation in Sri Lanka through technological and service excellence

MISSION

Serve the nation by providing sustainable water & sanitation solutions ensuring total user satisfaction

"Colombo City is in rapid development after ending 30 years' war in country where NWSDB is in a battle to meet the water demand with 41% of NRW and 100-years old water infrastructures"

DIAGNOSIS

IT is a tool for efficient service of any organisation. NWSDB has IT systems but not integrated to all the main functions. Also, the absence of an integrated water resource management plans and a long-term strategic action plans has a negative impact on the sustainability of the organisation.

Even if the number of staffs for 1,000 service connections in CCWSS is 3.4, some of services are outsourced. Qualified and unqualified employees (with their support staff) are appointed under political influence, which makes them less competent in their work. The current performance evaluation system is not a significant effect on staff productivity and performance resulting in less staff satisfaction. Also, the lack of an IT tool for an integrated HRM creates frustration among employees due to the delay in work.

Annual financial statement is prepared by the finance section taking into account the whole organisation.
Income and expenditure report are available at the regional level and no financial statement is available.
Financial ratio analysis showed that CCWSS is in full equilibrium due to the higher commercial water sales, while NWSDB is in reduced equilibrium state.
Tariff s have not changed since year 2012. Profit generated by CCWSS are subsidised with other water supply systems across the country.
Financial delegation at the regional level is minimal and it is centralised to the Additional General Manager (Finance) Addl.GM (F).

"The lack of an IT tool for an integrated HRM creates frustration among employees due to the delay in work"

Population served	550,000 + 400,000 (floating)
Area /Area covered	37km² / 100%
Water connections	146,878
Commercial customers	25,906
Domestic	123,142
NRW	41%
Call centre	Available 24h/7days
Average consumption	>200 l/p/d
Connected households	80%
Wastewater treatment	0%
Length of distribution	800km
Meter billing rate	100%
Bill collection rate	100%
Collection time in days	43

In order to address the 41% of NRW, NWSDB has launched GCWWMIIP (Greater Colombo Water Wastewater Management Improvement Investment Program) to reduce it to 18% to meet the rapidly growing water demand of Colombo city. But the sustainability of the project results is questionable due to the lack of regulatory measures. The sustainability of NRW reduction depends on the use of quality equipment, quality manufacturing, and completion of the project on time. In addition, bad practices in the meter reading process significantly affect the revenue. Preventive maintenance is mainly based on solving problems.

Random customer satisfaction surveys carried out through the call centre showed that only 50% of customers are satisfied with the service provided to them by the CCWSS. The people in Colombo City are aware of how the water service organisation should be and compare it to the services in other countries. If it fails to satisfy country requirement, there is risk that customers condemn the CCWSS and report to the political authority. NWSDB has internally developed a commercial and operation management system (COMS). Customer relationship activities are a combination of both IT and manual processes that hamper customer charter. The call center service was recently outsourced without forming back office, which has created an information gap.

STRATEGY

The strategy for the next 5 years aims to achieve an efficient organisation of the water service. There are five strategic objectives.

IAPT is an index of the overall service level and management efficiency of the organisation. IT is a tool for immediate improvement of the efficiency and productivity of the organisation. The development of IT modules and their integration with available IT modules as a single platform will contribute to the immediate improvement of the overall performance target index from current values from 75% to > 80% Human resources are a key component in the organization where 60% of the income is used for salaries and benefits.

Due to the lack of a targeted approach to performance evaluation, the staff performance is not in an increasing trend. It aims to improve staff efficiency to achieve Staff / 1,000 water connections from current value of 3.4 to <2.5

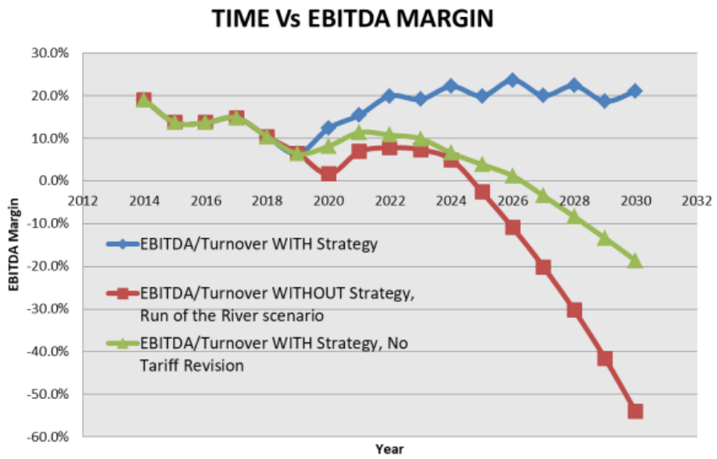
Current pricing structure is not sufficient to cover to Opex & Capex of the organisation. Opex and Capex requirements have significantly reduced the annual budget by prioritising the payment of salaries and essential O&M requirement. Therefore, increasing tariffs is a short-term goal and developung tariff policy is a long-term goal for the overall sustainability of the organization. It aims to improve financial performance to increase EBITDA margin from current value of 6.5 % to > 18%

It is planned to improve working skills of field staff. The acquisition of quality equipment to ensure the sustainability of NRW management will be improved. Malpractices will be eliminated by linking the meter reader incentive program to KPIs based on the meter reading performance evaluation process. It aims to reduce NRW percentage from 41% to 18% and sustainability

Customer is the utmost important criteria for a service providing organisation. It aims to improve the efficiency of the customer management staff by motivating them through a quantified performance reviewl and incentive scheme. Customer management will be improved through the introduction of an IT solution, especially for the water authorisation certificate issuing process and the integration with the Commercial Operation Management System (COMS). It aims to improve the customer management efficiency and to increase the customer satisfaction from the current value of 50% to 80%.

Increase Index of aggregate Performance target (IAPT)	IAPT >80%	In year 2021
Improve Staff Efficiency	Staff / 1,000 Con. < 2.5	In year 2025
Improve financial performance	EBITDA / TO > 18%	In year 2024
Reduce NRW & Sustainability	NRW <18 %	In year 2025
Improve the efficiency of customer Management	Customer satisfaction> 80%	In year 2021

FEASIBILITY



Sri Lanka has a literacy rate of 92%, a sanitation coverage of 92%, a computer literacy of 40% and is categorised as High Human Development Index holding country. These socio-economic factors provide a leverage regarding the use more IT solution, organisational culture change and the cost of water convincing. Recent political changes have stabilised the country and the government has a policy of water for all. In addition, a detailed cost benefits analysis of strategic actions in the means of finance shows positive results as presented in the graph.

Strategic actions are to be implemented from mid-2020 to 2025 while monitoring progress through the dashboard including indicators.

KEY FIGURES

Average water tariff / m³	0,18 € (2018)
Volume treated water per day	300 000 m³ (2018)
Number of employees	500 (2018)
Number of water customers	143 878 (2018)

Mr P.A.Samira ANURADHA

Chief Engineer

National Water Supply & Drainage Board

April 2020

SRI LANKA

IMPROVING WATER SUPPLY SERVICES IN PANADURA HORANA REGION

By Mr Eranda HULADDUWA ARACHCHI

Panadura area	700 km²
Coverage	55%
Connections	84,913
Income	4,06 million €

CONTEXT

Ancient people called Sri Lanka as "pearl of the Indian Ocean", this island country is located in the Indian Ocean southwest of the Bay of Bengal and southeast of the Arabian sea. In Sri Lanka most of the government organisations have a centralised structure for their services. NWSDB is responsible for providing water supply and sanitation facilities. It also has centralised structure but ground level operations are done by 27 regions. P-H region is one of them. You can find more details about the region in the web site of NWSDB, www.waterboard.lk.

The common question from the public in the country is **"why NWSDB fails to provide safe drinking water for the whole country having plenty of water source with more than 2000mm annual rainfall?".** Sanitation is not currently in question as good on-site sanitation but it will also be in question in the near future.

However, the region, which is located very close to the country's administrative and commercial capital, has low coverage of pipe-borne water, about 55% and zero coverage of centralised sewerage system. It has an excuse for sewerage because a separate unit called "Sewerage Department" is responsible for sewerage facilities across the country. Expansion of Water supply coverage is urgently needed.

The region is driven under the mission of the organisation.

"Serve the nation by providing sustainable water & sanitation solutions ensuring total user satisfaction"

Emerging needs for the region

- Improved HR capacity
- Improved production capacity
- Distribution expansion
- Improved customer service
- Developed Infrastructure and database

On the other hand, our motto is:

"To be the most prestigious utility organisation in Sri Lanka through technological and service excellence"

Nevertheless, the region is far away from the expectation of the organisation to have endless customer complaints about the service. It needs a tactful approach to be the most prestigious region within the utility without breaking the rules & harming the solidly bounded structure.

DIAGNOSIS

Unlike many countries in the world, Sri Lanka has more than enough water resources. Unfortunately, considering the P-H region, approximately half of the population expects good quality water, but the region has failed to provide them with pipe-borne water supply.

During drought and floods, people in uncovered areas are waiting for water bowsers or travel a long distance to find pure water for their needs. NWSDB customers in the far end and high elevations of distribution networks also face problems like low pressure / no water during the drought period.

The limited capacity of the treatment plant, the lack of funds for improvements, the delay of proposed projects, tfailures of initial planning are the main causes of such a situation. Same as in most of the countries, the margin of operational profit is very small due to low tariffs and causing fund restrictions for development activities.

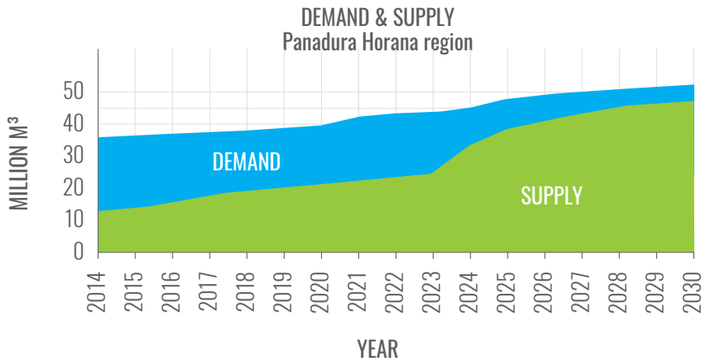
"Dispersed IT systems create confusions, duplicate work and need to be integrated and updated"

NRW is 15%, so a 'good value' comparing the country's average, as well as other countries in the region, but will not remain the same if not paying attention to the causes of water losses. Commercial operations are also considered good specially meter base billing due to 100% metered connections, high collection rate due to continuous disconnection programs...

Most of the customers get their complaints resolved after a long time by adding a bad image about the region. No targets has been introduced for both consumer-related functions as well as day- to-day activities. Outdated systems with existing HR capacity do not match with the current needs. It is required to train and update staff with new technology for efficient service.

IT solutions are available but the staff is under pressure due to endless workload. It needs to do radical change for traditional HRM practices and integrated IT solutions to meet the customer's needs.

"Same as in most of the countries, the margin of operational profit is very small due to low tariffs and causing fund restrictions for development activities"



Staff ratio	3,92 for 1000 customers
Average salary	500€/month
Expenditure	3,66 Million euros/year
Average tariff	0,25€/m³
NRW	15%
Storage	10,200 m³
Adduction network	50 km
Distribution network	1575 km
Domestic customers	93,4%
Collection period	41 days
Complaints	232 for 1000 customers/year

How does the region go ahead with the traditional customers? The organisation has already introduced some online services such as billing payment, complaint capturing, but a small part is using these facilities. Not only that, but also most customers pay very little attention to paying water bills comparing to services of other utilities. The company needs to build active customers by educating and motivating them to use different strategies.

STRATEGY

Efficient HRM system	Staff per 1000 connections	< 2,5 in 2025
Financial sustainability	EBITDA	> 18% in 2025
Increase pipe water coverage	Coverage	> 90% in 2030
Maintain low NRW	NRW	< 15%
Comprehensive customer service	Complaints/1000 connections	< 100 in 2023

The strategy for the next ten years is based on achieving the financial sustainability of the region while providing satisfied customer service.

HR is the most important influencer for any water company. Absence of an advanced HRM system, increase in expenses, lack of employees report to work station. Do they work and receive a salary at the end of month? No one knows what the cost of work is and if it is worth it or not. A goal-based work culture is essential to get better outcome from HR. Also, dispersed IT systems create confusions, duplicate work and need to be integrated and updated. Productivity and training programs influence to the final result.

With an efficient HR system, the cost can be reduced but, there is a need to sell water for reasonable price by revising the tariff to achieve expected profit and invest more according to the demand. However, increasing the tariff is more difficult. It needs justification for tariff revision considering low-income community for the consent of politicians and public awareness about current low tariff and value of water to get their support.

With operational profit the sales can be increased by service expansion and it gives solutions for social & political pressure as well as organisational financial targets. Increase coverage up to 67% by reinforcing existing systems and managing available water until 2023 is the short-term solution. However, it is not sufficient and there is a need to increase the coverage up to 90% with capacity improvement of KG phase II project.

The region already has low NRW value of 15%. Even though, low attention for technical/commercial activities related to NRW and aging of the pipe may increase it again. Therefore, NRW related activities are essential for the sustainability of the system by making more attention for aging pipe replacement, valve raising/installation, distribution mapping and introducing DMAs.

If all the above actions are achieved, without the customer being satisfied, some solutions must be implemented to completely satisfy the customers. There is a need to improve customer service through a comprehensive solution: 100% GIS-based customer information system by 2023, standard procedures and the introduction of an efficient mechanism for handling customer complaint are the identified approach to achieve the objectives.

This strategic scenario will lead the region towards its target with financial prosperity and customer service improvement.

FEASIBILITY

Political, social and economic factors are currently favorable and give way to the development of water sector. Recent political conversion of the country is changing the policies of the water industry. Water sector has become a leading area under new government and the plan is to utilise available water to meet urgent needs. The proposed massive projects need to be reactivated. Water need increase with new industrial areas and gives good opportunities to sell water at a reasonable price.

IT revolution is in very favorable situation in all areas and NWSDB is applying it to all key functions. This will radically change the services. It is important to provide better service to customers according to their expectations.

SAP actions will be implemented from 2021 as a five-year plan. Progressive indicators are defined to direct toward strategic goals & need to take corrective actions during implementation.

How to articulate management between centralised (NWSDB) and decentralised regions is also an issue for efficiency and effectiveness of top-down and bottom-up managements (local strategy, recruitments, incentives, investments, choice of technologies, etc).

"During droughts and floods, people in uncovered areas are waiting for water bowsers or travel a long distance to find pure water for their needs"

KEY FIGURES

Average water tariff / m³	0,25 € (2018)
Volume treated water per day	121 000 m³ (2018)
Number of employees	233 (2018)
Number of water customers	84 913 (2018)

Mr Eranda HULADDUWA ARACHCHI

Operation & Maintenance Regional manager

National Water Supply & Drainage Board

April 2020

SRI LANKA

ANURADHAPURA AREA

By Mr Sidath Indika KASTHURI ARACHCHI

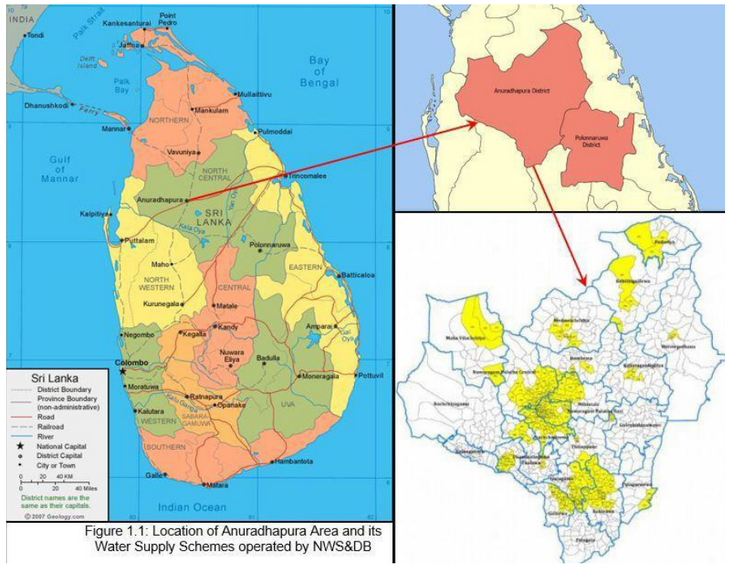


Figure 1.1: Location of Anuradhapura Area and its Water Supply Schemes operated by NWS&DB

OVERVIEW

"Anuradhapura is a tourist attracted ancient city having 2,500 years of history"

The National Water Supply & Drainage Board NWS&DB is operated as a Statutory Board which falls under the category of Public Enterprises. Currently it is operated under the Ministry of City Planning and Water Supply. The organization has been established as a single organization for the entire country. But, with the expansion of service coverage, the Regional Support Centres (RSCC) were established in each of province to ensure the easiness of management and functionality.

RSC-NC was established in order to manage the operations in North Central province, for which the Districts of Anuradhapura and Polonnaruwa are belong to. Anuradhapura Area Engineer's division (referred as "area" hereafter) is a division responsible for O&M activities in Anuradhapura District, located about 200km away from Colombo, which falls under RSC-NC.

NWS&DB involvement is only in the water supply sector in the area. The sanitation entirely relies on on-site wastewater collection and treatment systems. The coverage rate for the access to sanitation is 97%.

The area is subject to special attention by the government due to the prevalence of the deadly disease of CKDu: the excessive hardness and fluoride concentration of ground have been included among the suspected causes of this disease. Treated surface water supply has been requested to be considered for the whole organization are followed in the area also.

Indicators	Value
Population / (Nos)	856,200
Access to safe water / (%)	86
Pipe borne wat. supp. cov. (total) / (%)	49.2
Pipe borne wat. supp. cov. (NWSWB)/(%)	30
Annual Water Production / (MCM)	29
Water Supply Connections / Nos	85,185
Staff/1,000 connections	4.8
Pipe Network length / km	4,900
Metered connections / (%)	100
NRW / (%)	20.1
Collection ratio / (%)	95
Operational ratio / (%)	1.16
Storage Volume / (m^3)	39,000
EBITDA Margin / (%)	-15.5

"The area is subject to special attention by the government due to the prevalence of the deadly disease of CKDu"

DIAGNOSIS

VISION

To be the most prestigious utility organisation in Sri Lanka through technological and service excellence

MISSION

Serve the nation by providing sustainable water & sanitation solutions ensuring total user satisfaction

Neither well defined strategic plan nor business plan exist for the area except the Corporate Action plan prepared annually for the forthcoming five years. It is not possible to think about a business plan as the demand for water has been exceeding the production capacity of the area.

Currently no specific regulator exists for the sector. The drinking water share has become a big issue due to the nonexistence of an IWRM Policy. Although some of functional units have their own computer-based systems, most of them have not been integrated.

There are 179 members of staff serving in Anuradhapura area whose average age and the gender ratio of male to female is 42 years and 3 for 1 respectively. An annual performance appraisal is done on each of employee annually for the granting of annual salary increment.

But there is no rewarding for well performers. Training centre is available for the capacity building of employees. The political influences in recruitments and internal promotions have led the area to have a group of less competent and a group of un-satisfied employees respectively.

"The drinking water share has become a big issue due to the nonexistence of an IWRM Policy"

The current value of the number of employees per 1,000 connections for the area is 4.82.

Currently, the area as well as the entire organization is at the operational non- equilibrium (unless subsidized). No revision of tariff since 2012 due to political intervention has led to this situation. Only I&E statement is prepared for the area. No debt financing is handled in the area. It is done by the head office. Annual budget forecast is prepared by the area and the allocated amount is decided by the the finance section of the head office. Comprehensive accounting system is available in the area but has not been integrated with other systems.

Anuradhapura area has 4,900km of water distribution and transmission mains and 85,185 water supply connections. Although there is no Computer Assisted Maintenance Management available, a PPM (Program of Preventive Maintenance) is in place.

An NRW section is available and the current average value of NRW is 20.1%. But some WSSS having leak prone old cast iron pipelines exceed the same of 30%. Although the Regional laboratory has not been accredited a sample collection and testing programme in place.

Water consumption of the area is 100 l/p/cd

Area has an IBS (Integrated Billing System). Although it has not been connected with GIS data, comprehensive tools are available. Metering percentage of water connections is 100% and billing is done monthly. Net collection rate is greater than 95%. Average debt age is 1.71 months and the accounts receivable period is 51 days. The access to safe water and sanitation are at the value of 86% and 97% respectively. Although a dedicated customer care unit is not available in area, a centralized 24x7 operated call centre is available. Customer satisfaction surveys are not conducted.

STRATEGY

For Anuradhapura area, 5 strategic objectives (SO) and 10 sub objectives are set in order to be achieved from 2020 to 2025.

SO1. Enhancement of pipe borne water supply coverage

(coverage>45% by 2025)

Since the most of RWSS in the area have been failed, a higher demand is existed for NWS&DB pipe borne water. With that objective the WSPP of ANWSP and Thambuttegama WS decided to implement. Although both projects are ongoing, they are dragging due to some issues such as land clearance issues, O&M consents, scope changes which are due from the side of NWS&DB. Thanks to actions undertaken, the afore said problems are expected to be solved. This will enhance the treated water production and coverage creating more business opportunities.

SO2. Improvement of staff efficiency

(Staff/1,000 connection<4.2 by 2025)

Equal accountability of each employee in Anuradhapura area towards the achievement of vision of the organization is to be ensured essentially. Rather than recruiting new man power to fill up the gaps, the same is expected to perform by introducing a target based working culture through the motivation and enhanced satisfaction of employees.

SO3. Achievement of financial stability

(EBITDA Margin>0 by 2025)

Currently the area's operational non- equilibrium is compensated by means of cross subsidization from other areas. A mechanism of revising water tariff for the area or obtaining a permanent operational subsidy to compensate EBITDA deficit, according to the country's rate of inflation and CPI, towards at least reduced operational equilibrium of the area by 2025 is expected under this objective.

SO4. Improvement of water production and distribution management

(NRW%<15% by 2025)

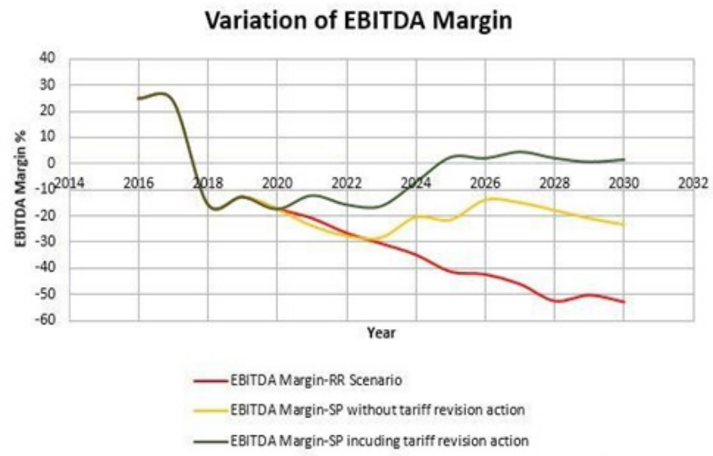
It is expected to ensure efficient operation of water treatment plants and water transmission and distribution network by achieving this objective. It includes obtaining of drinking water share without disturbances, conducting of proper PPM and taking of measures to reduce NRW up to 15% and maintain that figure.

SO5. Efficiency improvement of customer management

(Complaints/1,000 connections<50% by 2025)

Integration of CIS with GIS data for a better service delivery, improvement of collection efficiency and reduction of apparent loss component related to NRW are expected to achieve under this objective

FEASIBILITY



"When the current political situation has moved towards a stable situation, the government has taken a firm decision to develop the water sector with a higher prioritization"

A detailed cost benefit analysis for the Strategic Action Plan (SAP) has been done, by feeding the outcomes of the strategic action into a financial model. Through the results of the model, the financial and economic feasibility of the SAP has been proven. When the current political situation has moved towards a stable situation, the government has taken a firm decision to develop the water sector with a higher prioritization as for the highway sector which was boosted in recent past. The NWS&DB has been called for development proposals. Thereby the implementation of SAP for the area is politically feasible.

KEY FIGURES

Average water tariff / m^3	0,18 € (2018)
Volume treated water per day	79 000 m^3 (2018)
Number of employees	179 (2018)
Number of water customers	85 185 (2018)

Mr Sidath Indika KASTHURI ARACHCHI

Area engineer

National Water Supply & Drainage Board

April 2020

SRI LANKA

REGIONAL SUPPORT CENTRE NORTH WEST PROVINCE

By Mr Thimal WASALA MUDIYANSELAGE

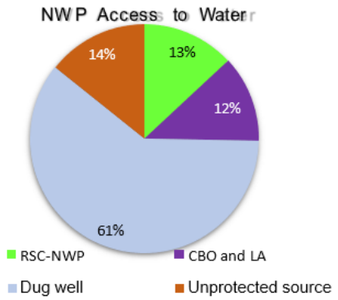
CONTEXT

Sri Lanka is an island country located in the South Asian region. It has more than 3000 years documented history and evidence of human settlement for more than 125,000 years. Sri Lanka has 103 river basins and receives 1200-2500 mm annual rainfall across the country. Ancient Sri Lankans created "ELLANGA irrigation system" using natural echo system (Series of connected small tanks) for agriculture and other purposes. People used to drink water directly from village tanks as it was safe.
Sri Lanka is divided into 9 provinces and 24 districts for administrative purpose. NWP consists of two districts namely Kurunagala and Puttalam. Puttalam is one of the driest areas in the country and received only 1250 mm annual rainfall. The groundwater table is relatively stable due to available water from river basins. However, few bore wells were abandoned due to salinity intrusion.

OVERVIEW

In Sri Lanka, the water and sanitation sector is structured according to the national drinking water policy and sanitation policy. There are two sub-sectors, rural water supply and urban water supply. RWS (Rural Water Supply) and NWSDB (National Water Supply and Drainage Board) are responsible for these sub-sectors respectively. RSC-NWP and CBO (Community Based Organizations) and several local authorities (LA) provide piped born water in NWP. RSC-NWP mainly covers urban and semi-urban, while CBO focuses on rural areas. It is one of the eleven RSC in National Water Supply and Drainage Board (NWSDB). The access to water of NWP population is presented in the following figure.

Despite having less coverage, RSC-NWP provides customers with a 24/7 hours supply. Severe floods, as well as seasonal droughts, interrupt water supply works more than ever in the NWP area.
Both individual well users and CBO would face difficulties due to depletion of groundwater quality/ quantity. RSC-NWP has planned to cover CBO population and vulnerable communities to increase safe water access in line with its mission statement: "Serve the nation by providing sustainable water and sanitation solutions ensuring total user satisfaction".



DIAGNOSIS SYNTHESIS

It could be a surprise to see that the main water service provider has only 13.1% coverage when a province has 85.7% safe access to water. It may be due to the availability of safe groundwater as well as the inabilities of the utility. Areas targeted for the least service coverage are areas with lack of water production and delays in new connection programs.

"It could be a surprise to see that the main water service provider has only 13.1% coverage when a province has 85.7% safe access to water. It may be due to the availability of safe groundwater as well as the inabilities of the utility"

Going through the root causes, delays in investment projects have a substantial impact on the lack of production. They arise due to financial issues as well as lack of coordination of external stakeholders such as RDA (Road Development Authority) and ID (Irrigation Department). The abandonment of wellbores due to quality issues also created an unexpected production gap. Besides, WTP (Water Treatment Plant) production efficiency is reduced due to minimal rehabilitation. New connection programs are delayed mainly because of the suspension of utility-funded network expansion. Construction of new wellbores and implementation of utility-budgeted pipe extension are proposed as a priority action to improve coverage.

RSC-NWP is relatively overstaffed and staff compensation contributes to more than half the operational cost. Centralised and inaccurate HR management have created lower productivity. Lack of motivation, uneven distribution of workload and skill gap of supportive staff are observed and this may be due to inaccurate HR management. Ineffective performance evaluation and reluctance to take disciplinary actions against misbehaviours can occur due to centralised HR management. Providing a job description and training could be a priority action to improve productivity.

Considerably high NRW and energy consumption have a significant impact on operational expenditure. Physical losses and wasted energy are mainly due to irregular preventive and corrective maintenance programs. Apparent losses are high due to illegal connections and poor micro-metres management. Speeding up the repair of leaks and investigating on illegal connections could easily reduce NRW. Technical awareness of water and energy-saving concepts should be more emphasised as a priority action.
Commercial activities are currently performing well apart from arrears collection. Accumulated arrears are increasing due to minimal communication with customers and irregular payment/arrears collection process.

The sale of water is the main activity of the utility and its structure has been oriented to provide technical service rather than a commercial development. The generation of alternative revenue is limited although it is an opportunity. Effective public awareness and reorganisation of the disconnection process are proposed as a priority action to minimise late payment as well as arrears collection.

The utility overall performances can be placed at a good level with an aggregate success index of 71.4%. Current performance is shown in the figure above.

Parameter	Value
Connections	82,548
Coverage %	13
Production(m^3/d)	76,000
Network (Km)	3250
Staffs/1,000	4.51
NRW %	28.5
Collection ratio	93

"Centralised and inaccurate HR management have created lower productivity"

STRATEGY SYNTHESIS

The basis of the strategy is to improve safe water access and to ensure the sustainability of the water supply. Mitigating the effects from climate changes and urbanisation would be a challenge as mentioned in the SDG (Sustainable Development Goals). Therefore, stakeholder management for water sharing will be essential in the coming years. Reducing operational costs is essential for financial stability while ensuring efficient service. Also, the utility should understand the importance of social trends to develop more business opportunities.
The strategy is aligning with the NWSDB Cooperative Action Plan (CAP). Increasing safe water access is the fundamental concept of the CAP as well as the SAP (Strategic Action Plan). Water production capacity will be increased to meet future demand. Also, a new connection program will be implemented to rapidly increase the coverage.

RSC-NWP has to reform its HRM polices to better manage the service and reduce staff ratio. NRW also needs to be reduced with technical improvements to save water and revenue.
Finally, it is proposed to change the culture of the organisation. The utility should be prepared to identify customer needs and diversify services. This would be a challenging goal due to the fact that the utility operated more like a technical service provider from the start of its service.

ACTION SYNTHESIS

The proposed action plan includes 10 action sheets. It is a mix of new actions as well as the modified current process.
Timely completion of investment projects fundamentally increases the production capacity. As this takes considerable amount of time, rehabilitation of outdated WTP and maximising the use of groundwater could be essential to increase the treated water capacity in the initial stage of the SAP. Utility-funded network extensions provide access for country side customers to enter piped born water supply system. Moving from CBO connections to NWSDB network could increase significantly new connections.

Outsourcing some labour activities and the use of IT systems will be helpful to reach staff reduction goals. Also, it is proposed to review and update HRM policies to form partially decentralised HR management and empower RSC. Replacing age-based pipe is important to reduce long term physical losses. Proper micrometre management should be implemented to reduce apparent losses.

Generating additional income from the laboratory and ground water section is a key proposal. It will be interesting to see the outcome of the proposed sale of bottled water as this could be an option to generate high income for the utility.

"Effective public awareness and reorganisation of the disconnection process are proposed as a priority action to minimise late payment as well as arrears collection"

ECONOMIC AND FINANCIAL FEASIBILITY

People always have in mind that "water is free". They are reluctant to pay relatively low water bill compared to other services such as electricity and communication. Therefore, political authorities are not in a position to increase the tariff. The best evidence for the circumstance is that last tariff revision was done in 2012. Consequently, like everywhere in the world, the economic feasibility is based on government vision. Fortunately, the current government has given priority to the water sector development to increase safe water access for all. It is expected to invest around 3.2 USD billion in the next five years all over the country.

According to current performance and nominal tariff condition, the utility financial situation is getting worst day by day. The predicted EBITDA margin in 2030 will be -19.32 according to the run-of-river analysis.
If inflation is passed on to the tariff and real tariff is considered instead of nominal tariff, the SAP outcome will be different. Predicted EBITDA margin and NPV value will be 21.41 and € 2,978,052 respectively in 2030. Therefore, it can be concluded that the SAP proposals are financially and economically feasible with nominal tariff as well.

KEY FIGURES

Average water tariff / m^3	0,18 € (2018)
Volume treated water per day	59 000 m^3 (2018)
Number of employees	172 (2018)
Number of water customers	43 000 (2018)

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National Water Supply & Drainage Board

April 2020

TCHAD

EAU ET ASSAINISSEMENT AU TCHAD : DÉFIS ET ENJEUX POUR LE DÉVELOPPEMENT DURABLE

Par M. Ismail Arim AHMED

CONTEXTE NATIONAL

Pays sahélien enclavé parmi les plus pauvres du monde, le Tchad a une superficie de 1 284 000 km² et une population estimée en 2018 à 15 162 000 habitants, qui croit à un rythme annuel de 3.6%. contrairement aux autres pays du Sahel, la part de la population rurale par rapport à la population total est restée stable depuis 2000. 44% de la population urbaine du pays est concentrée à N'Djaména, la capitale.
Trois centres urbains seulement dépassent 1000 000 habitants : Abéché (135 000), Moundou (188 000) et Sarh (134 000).

SITUATION DES RESSOURCES EN EAU

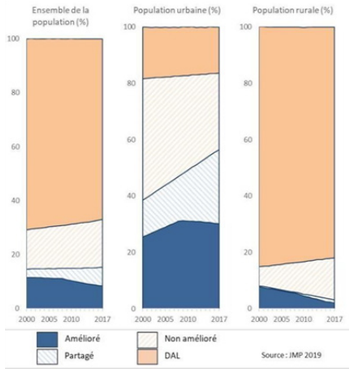
Le Tchad dispose de ressources en eau abondantes qui contribuent à l'économie du pays mais sont affectées par les effets anthropiques et climatiques. La disponibilité et l'exploitation des ressources, principalement souterraines, varient fortement à travers le pays, compliquant la mobilisation de l'eau dans les régions de socle de l'Est et du Nord.
Ressources en eaux souterraines : 540 milliards de m^3 dont 20 milliards renouvelables par an.

OBJECTIFS SECTORIELS

L'objectif sectoriel majeur est de contribuer à l'amélioration des conditions de vie des populations vivant en milieu urbain et rural, grâce à un accès durable à l'eau potable et à l'assainissement. Il s'agit d'atteindre l'objectif 6 des ODD prônés par l'UNESCO à travers :
- L'amélioration de l'accès à l'eau potable et des services essentiels d'assainissement pour atteindre l'objectif à horizon 2021 par un taux d'accès à l'eau potable de 83% et de 35% pour l'assainissement
- Le renforcement de la résilience des populations par la lutte contre les effets néfastes des changements climatiques
- La connaissance et la gestion des ressources en eau pour une exploitation optimale
- La protection des ressources en eau disponible

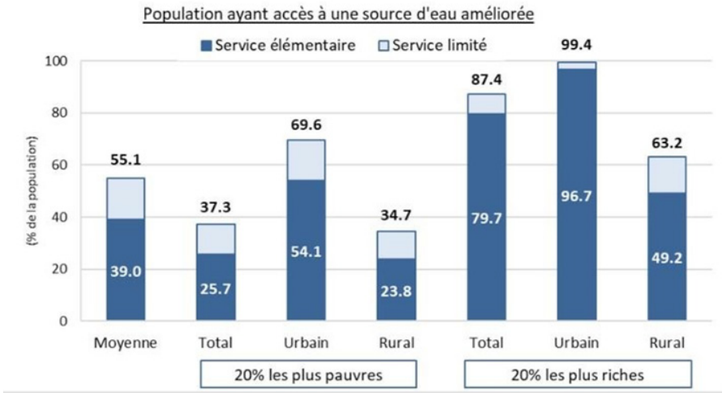
SITUATION DE L'ASSAINISSEMENT

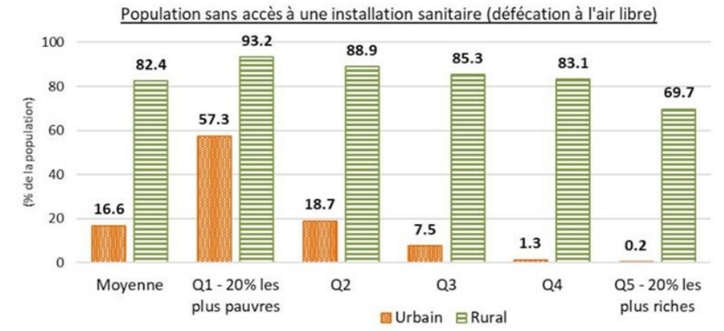
Le développement de l'assainissement au Tchad est embryonnaire. Seule une minorité de la population (15.3%) a accès à un assainissement de base (amélioré ou non, avec toilette privative (8.3%) ou partagé (7%)). Avec une prévalence de la défécation à l'air libre (DAL) de 67%, concernant 9.9 millions de personnes en 2017, le Tchad est parmi les pays où cette pratique reste la plus élevée au monde, en particulier dans le milieu rural (82% de la population).



"La disponibilité et l'exploitation des ressources, principalement souterraines, varient fortement à travers le pays, compliquant la mobilisation de l'eau dans les régions de socle de l'Est et du Nord"

Les installations d'assainissement autonome lorsqu'elles existent, répondent rarement aux critères de l'assainissement amélioré, l'évacuation des boues s'effectue en milieu naturel, comme celle des eaux usées qu'elles soient domestiques ou industrielles.
Il n'existe aucun réseau collectif d'assainissement et les toilettes publiques sont rares.





DÉFIS

Tout comme les autres pays en développement, le Tchad est confronté à de nombreux défis dans le domaine de l'eau potable et de l'assainissement. Ce sont les suivants :

- **Dynamique de la croissance démographique** avec une très forte concentration de population en milieu urbain
- **Enjeu d'accès aux services essentiels d'eau potable et d'assainissement** aussi bien en milieu urbain ou péri-urbain par viabilisation des structures
- **Redistribution des responsabilités entre les acteurs du secteur de l'eau et de l'assainissement** qui n'est parfois par clairement définie
- **Mise en œuvre des technologies** et méthode de gestion adaptées aux besoins en commençant par la transformation digitale
- **Impacts du changement climatique** (recharge des nappes avec monitoring) qui constitue un défi majeur auquel les pays les moins avancés sont le plus vulnérables
- **Mobilisation massive des ressources financières** pour la mise en œuvre des projets dans le domaine de l'eau et de l'assainissement faisant défaut
- **Organisation de la Société Tchadienne des Eaux (STE)** comme une véritable entreprise et non un département du Ministère
- **Mobilisation effective de tous les acteurs** y compris les clients qui actuellement s'approvisionnent individuellement sur les nappes (40 à 60% à N'Djaména) et qui doivent revenir dans le réseau public

"Mobilisation effective de tous les acteurs y compris les clients qui actuellement s'approvisionnent individuellement sur les nappes (40 à 60% à N'Djaména) et qui doivent revenir dans le réseau public"

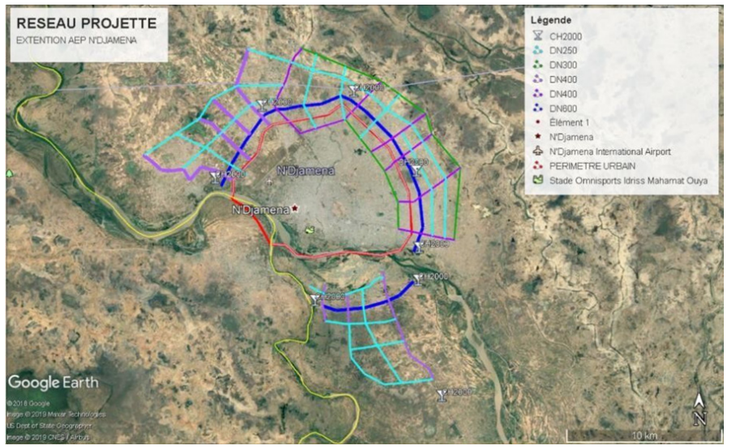
LE PÉRIMÈTRE : L'AGGLOMÉRATION DE N'DJAMÉNA

N'Djaména, capitale de la république du Tchad, est une ville cosmopolite d'environ 1.5 million d'habitants. Son économie est essentiellement basée sur les commerces de biens et services, marqués par des échanges entre le Cameroun et le Soudan.
L'alimentation en eau potable est assurée par la Société Tchadienne des Eaux (STE).

Production eau brute	26 000 000 m³/an
Longueur du réseau	880 km
Taux de facturation	61%
Taux de recouvrement	58%
Tarif moyen	340 FCFA/m³ soit 0.5€
Rendement physique	Mal connu

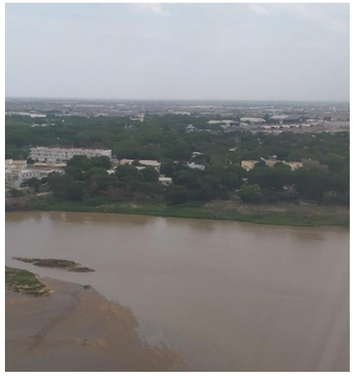
PLAN D'ACTION CONÇU EN 5 AXES

Axe stratégique N°1 : Améliorer la gouvernance interne et les paramètres technico-commerciaux de la STE
Axe stratégique N°2 : Améliorer le taux de dessert en eau potable dans l'agglomération de N'Djaména
Axe stratégique N°3 : Connaître et protéger les sources de ravitaillement en eau potable de l'agglomération de N'Djaména
Axe stratégique N°4 : Financer l'eau au travers de sources pérennes et en impliquant les bailleurs dans cette stratégie
Axe stratégique N°5 : Réorganiser la gouvernance de l'eau et gérer les nappes sous N'Djaména comme un patrimoine commun



SOURCES DE FINANCEMENT

Le financement de l'ordre de 5 millions d'euros par an réparti sur les 5 axes stratégiques pourrait être assuré par un cofinancement entre les partenaires techniques et financiers (PTF) traditionnels à hauteur de 80% (prêts souverains vu la situation déficitaire de la STE qu'il faudrait amener à l'équilibre OPEX/ recettes en 2/3 ans en évitant les subventions d'exploitation) et de 20% par l'État Tchadien.
Il est aussi prévu un important projet d'extension et de renouvellement des installations de production de la STE afin de couvrir le reste de la ville non encore desservie. Le coût du projet porteur est estimé à environ 125 millions d'euros sur 10 ans.
Il est également prévu la construction d'une station d'épuration des boues de vidange en périphérie de la ville pour protéger les nappes (ressources essentielles). Le coût du projet est d'environ 3.2 millions d'euros.



CHIFFRES CLÉS

Prix moyen eau par m³	0,5 € (2018)
Volume d' eau traitée par jour	71 000 m³ (2018)
Nombre d' employés dans le service	400 environ
Nombre d'abonnés eau	28 000 (2018)

M. Ismail Arim AHMED

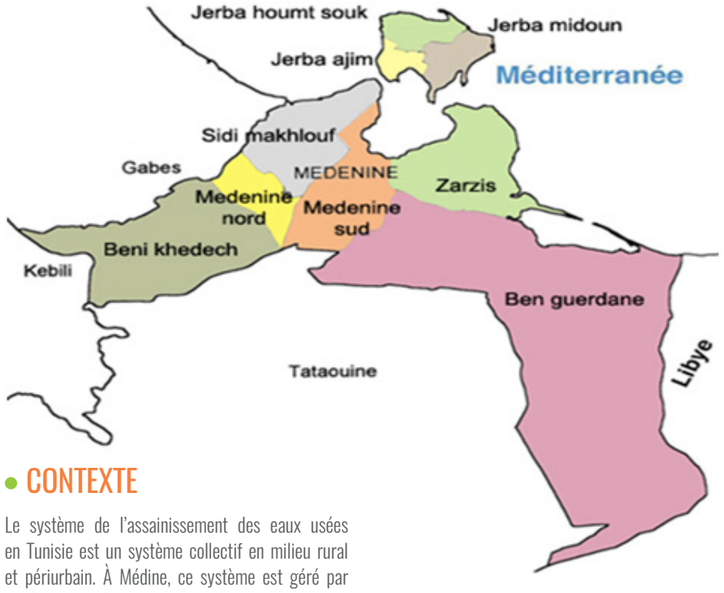
Directeur du Fonds National de l'eau jusqu'en 2020

Avril 2020

TUNISIE

ASSURER LA PERFORMANCE DE L'ASSAINISSEMENT (GOUVERNORAT MÉDENINE TUNISIE)

Par M. Boulbaba GUENOUNOU



CONTEXTE

Le système de l'assainissement des eaux usées en Tunisie est un système collectif en milieu rural et périurbain. À Médine, ce système est géré par la Direction Régionale de l'Assainissement, la représentation régionale de l'Office National de l'Assainissement (ONAS) et une société publique nationale. Le secteur est sous la tutelle du Ministère de l'Environnement et des Affaires Locales (MEAL).

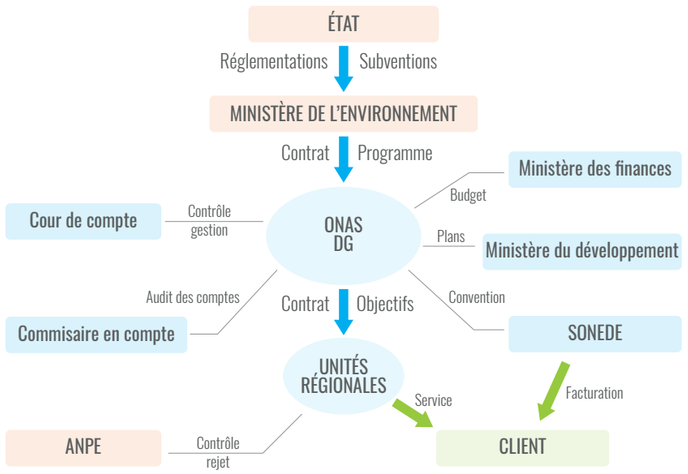
Population	505 000 habitants
Taux de croissance naturel	1.3% par an

- Faible taux (46%) de raccordement aux réseaux d'assainissement
- Faible performance de service (60% des eaux conformes et 40% de satisfaction clients)
- Un projet pilote de partenariat public-privé est en cours sur la région
- Revenu de redevance d'assainissement important grâce aux activités touristiques
- De l'ordre de 10 à 12 millions de m³ d'eaux usées et de matières de vidanges émises par an (non déterminé clairement)

"Notre démarche s'inscrit dans un souci d'une répartition judicieuse entre public et privé et de mise à profit de la complémentarité entre les deux secteurs, notamment là où le secteur privé peut présenter un avantage comparatif"

Khalil ATTIA - ex PDG de l'ONAS - 2008-2014

GOUVERNANCE ET INSTITUTIONNEL



SYNTHÈSE DU DIAGNOSTIC

FORCES

- Infrastructures existantes bien conçues
- Personnel expérimenté et maîtrisant le métier de l'assainissement
- Contrat-programme avec l'État
- Nouveau logiciel efficace de gestion de la clientèle
- La ville de Médenine génère un bénéfice opérationnel important grâce au tourisme (avant 2020 et la pandémie COVID...)

DIFFICULTÉS ET FAIBLESSES

- Pas d'autonomie financière ni budgétaire
- Le bénéfice tiré de la redevance assainissement est dilué dans le revenu global de l'ONAS
- Problèmes de dysfonctionnement au niveau du processus opérationnel de codification et recodification
- Discontinuité de l'activité ce qui entraine une perte au niveau des recettes
- La performance opérationnelle est impactée négativement à cause de la faiblesse des moyens financiers mais aussi du manque de personnel et de matériel
- La structure institutionnelle et opérationnelle ne permet pas un bon suivi et une bonne gouvernance de la DSP pilote
- Manque avéré de soutien de la part des parties prenantes régionales et centrales
- Absence d'une culture de communication avec les usagers et les parties prenantes
- Régression de l'image de marque de l'ONAS au niveau des usagers et des parties prenantes
- Multiplication des infractions de la part des usagers sur le réseau
- Absence de textes et procédures pour la récupération du service non facturé

"Régression de l'image de marque de l'ONAS au niveau des usagers et des parties prenantes"

Réussir le nouveau modèle de la délégation de la gestion et améliorer significativement la performance, la couverture et l'image du service d'assainissement de la Direction régionale de Médenine.

	2018	PROJECTION 2030
Taux de couverture en réseau collectif en milieu urbain	46%	85%
Taux de conformité des eaux épurées	60%	100%
Taux de satisfaction client	40%	90%
Taux de réalisation du budget d'exploitation annuel	50%	100%

Chiffres-clés (avant COVID)

Taux d'augmentation de la population en période estivale	20%
PIB/habitant	$3,588

Vers l'expérimentation à grande échelle du partenariat public-privé (DSP pilote)

STRATÉGIE

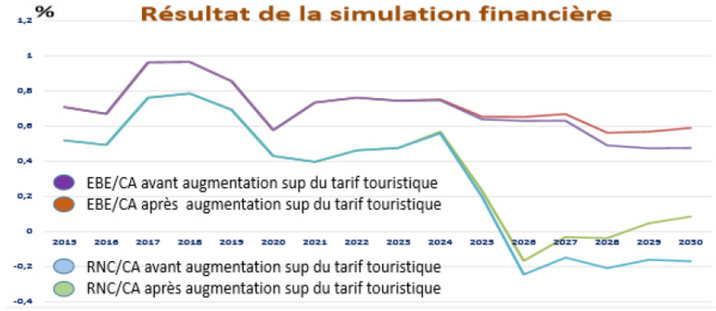
1er objectif : disposer des compétences régionales pour contrôler, piloter et accompagner le projet pilote DSP
La cible de cet objectif est d'assurer un haut niveau de pilotage de la nouvelle configuration hybride d'exploitation
2ème objectif : renforcer puis maintenir un haut niveau de performance opérationnelle du service d'assainissement dans un contexte hybride et évolutif du mode d'exploitation
Le but est d'atteindre à moyen-terme un haut niveau de performance du service au niveau de la gestion de la clientèle et de la qualité du service d'exploitation mais également le maintenir dans un contexte évolutif du mode d'exploitation
3ème objectif : développer et moderniser les infrastructures afin de protéger l'environnement et atteindre un taux de 85% de couverture du système d'assainissement collectif en milieu urbain et un taux de 100% de conformité des eaux usées traitées d'ici 2030
Il s'agit d'étendre et de développer des infrastructures dans les quatre grands secteurs du gouvernorat, secteur de Médenine, de Zarzis, le grand secteur de l'île de Djerba et la ville de Beni Khedèche pour un investissement de 432 millions de dinar pour les travaux suivants :
- 674 Km de réseau
- 37 stations de pompage
- 6 stations d'épuration
- 3 émissaires en mer

4ème objectif : construire une relation de confiance et de proximité avec les usagers
Cet objectif vise d'une part à connaître les attentes des usagers et d'autre part à les sensibiliser et les responsabiliser vis-à-vis des infrastructures d'assainissement
5ème objectif : disposer des soutiens institutionnels et financiers nécessaires à la mise en œuvre effective du plan d'action stratégique
Le but est d'avoir le soutien des parties prenantes régionales et centrales ainsi que les responsabiliser pour surmonter les difficultés et réussir notre plan d'action stratégique.

"Un projet pilote de partenariat public-privé est en cours sur la région"

FAISABILITÉ

Face à ces résultats après simulation, je peux conclure que les ressources financières de la Direction Régionale de Médenine, permettront de mener à bien mon plan d'action stratégique sans risque pour son équilibre financier malgré la charge importante des donations aux amortissements supportée par cette dernière.
Pour rappel ces conclusions ont été faites avant la crise COVID 2020.



PROJECTIONS (avant COVID)

Le coût global du plan d'action stratégique 2021-2030 se chiffre à 143 millions d'euros et sera développé autour de 4 axes :

1. Le management opérationnel et l'accompagnement du changement vers la nouvelle mission pour mettre en place de nouvelles pratiques et des méthodes de gestion de service orientées vers la promotion du partenariat public-privé. C'est un plan de changement de la culture, de l'exploitation en régie vers la culture de contrôle, pilotage opérationnel, planification et gestion des actifs.

2. Le développement des infrastructures d'assainissement pour étendre les réseaux vers les villes et les quartiers non assainis, assurer un traitement correct des eaux usées et respecter les normes environnementales.

3. Protéger les zones de baignade grâce à la construction des émissaires en mer pour répondre aux exigences de l'activité touristique qui impacte fortement l'économie nationale.

4. Instaurer de la communication entre les usagers et les parties prenantes pour les responsabiliser et les impliquer dans la promotion du service. Le but étant de surmonter les difficultés afin d'assurer le bon avancement du plan d'action stratégique.

CHIFFRES CLÉS

Prix moyen m³ assainissement	0,18 € (2018)
Volume d' eaux épurées par jour	17 000 m³ (2018)
Nombre d' employés dans le service	70 (Gouvernorat) 3 592 (ONAS) (2017)
Nombre branchements collectifs	37 845 (2018)

M. Boulbaba GUENOUNOU
Directeur Régional
ONAS Tunisie

Avril 2020

TUNISIE

AMÉLIORATION DE LA DESSERTE EN EAU AU SAHEL TUNISIEN

Par Mlle Syrine MORJENE

Population	1 729 073 habitants
Taux d'urbanisation	77%
Superficie	6 600 km²
Pluviométrie	55 mm

Chaque jour, au Sahel Tunisien, les femmes et les hommes de la SONEDE sont engagés pour un accès durable à une eau de qualité. Pour répondre au défi climatique et démographique des années à venir, la SONEDE met le management au cœur de sa stratégie avec le développement d'une culture managériale engagée, et l'amélioration des processus-clés.

CONTEXTE DE GOUVERNANCE

Ministère de tutelle et autorité de régulation : Ministère de l'agriculture.

Opérateur national : SONEDE (Société Nationale d'Exploitation et de Distribution des Eaux), société publique.

Le Sahel tunisien, situé dans le centre Est de la Tunisie, entre le Nord verdoyant et le Sud aride, abrite des oliveraies, de nombreux ports et des plages accueillantes et comprend 3 villes balnéaires : Sousse, "la perle du Sahel", Monastir ville natale du père de l'Indépendance Habib Bourguiba et Mahdia, ancienne capitale. L'ouverture de cette région sur la Méditerranée a servi à développer le tourisme avec plus d'1 million de visiteurs et 5 millions de nuitées, une activité qui accroit la demande en eau avec des pics saisonniers (encore que le COVID a beaucoup affecté les fréquentations). La région est caractérisée par des irrégularités de la pluviométrie, un aspect torrentiel, des périodes de sécheresse continues récurrentes sans oublier l'effet du réchauffement climatique.

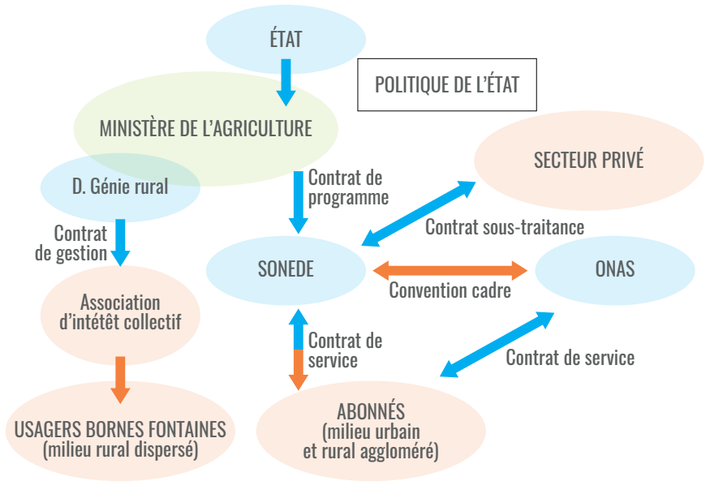
L'AEP au Sahel...

L'alimentation en eau potable (AEP) au Sahel et dans tout le territoire tunisien est assurée par la SONEDE. Le secteur de l'eau bénéficie d'un cadre juridique solide avec un code de l'eau et un article dans la constitution tunisienne datant de 2014.

Article 44 de la Constitution Tunisienne de 2014

"Le droit à l'eau est garanti. La préservation de l'eau et son utilisation rationnelle sont un devoir pour l'État et la société"

Mon plan d'action stratégique pour la SONEDE sur le périmètre de la région du Sahel couvre 2020-2030 et intègre des contraintes et des enjeux institutionnels et opérationnels.



Notre service est de classe mondiale, reconnu, mais qui fait face à des nouveaux enjeux de société depuis la révolution de jasmin. Il fait face désormais à une véritable transformation intergénérationnelle, et aux problématiques de sécheresse de plus en plus pressant. La réforme de la SONEDE est à ce titre un objectif crucial à bien des égards.

STRATÉGIE ET ORGANISATION

La SONEDE a toujours eu une mission et une vision claire de son activité, en adéquation avec celle du secteur de l'eau en Tunisie (Eau 2030- Stratégie Eau 2050). La SONEDE est aussi pionnière par son orientation RSE (ISO 26000).

PRIORITÉS	
ACTIVITÉS	• Points de priorités
ACTIVITÉ TECHNIQUE	• KPI en dégradation
FINANCE	• Gel tarifaire • Equilibre fragile
PERSONNEL	• Pas de mesure de performance • Manque de satisfaction
CLIENTÈLE	• Mauvais taux de recouvrement • Mauvaise communication
ORGANISATION	• Organigramme centralisé

L'organisation actuelle a permis la spécialisation et la régularité des tâches. La SONEDE est aussi entrée dans l'ère de la transformation numérique et s'est dotée de système d'informations ERP-JDE.
Pour la politique GIRE et dans le cadre de la stratégie de sécurisation de l'AEP dans le Sahel, la société a entamé la construction d'une station de dessalement d'eau de mer de capacité 50000 m³/j pour équilibrer l'offre et la demande de l'eau (stratégie eau 2050).
La vision et la mission ne sont pas accompagnées d'objectifs de performance et ne sont pas diffusées et partagées avec les équipes. L'organigramme trop centralisé et trop étagé est un handicap à la performance opérationnelle. La dépendance à la tutelle est importante via le PDG de la SONEDE.

"La préservation de l'eau et son utilisation rationnelle sont un devoir pour l'État et la société"

RESSOURCES HUMAINES

Le ratio 1,4 agent par 1000 abonnés montre une performance considérée de classe mondiale et une bonne productivité. Le personnel de la SONEDE est reconnu pour sa compétence (création de SONEDE internationale pour des missions de prestations à l'étranger). Mais l'absence de gestion de carrière et le manque de communication interne a rendu le personnel démotivé. Le vieillissement du personnel est une menace pour le maintien du savoir-faire de la société.

GESTION DE LA CLIENTÈLE

La SONEDE a mis en place un Système de Clientèle informatisé : il permet à l'entreprise d'avoir une base de données actualisée et à jour. Le système de tarification prévoit une tranche sociale pour environ 255 000 abonnés.
Mais la SONEDE a une mauvaise performance commerciale (taux de recouvrement <60%, impayés en augmentation) et manque d'une stratégie de communication globale.

Quelques Indicateurs KPI	Valeur actuelle	Valeur cible en 2030
Taux de rendement sur réseau de distribution	83%	88.6%
Consommation spécifique (en Wh/m³)	Inconnu au global	-Δ consommation spécifique à moins 15%
SIG dynamique et opérationnel (remontées terrain des données)	Capitalisation passive des données	Outil décisionnel pour la gestion d'exploitation et les investissements réseaux (NRW)
Budget de formation par an / CA	1%	4%
Taux de satisfaction du personnel	Non connue	70%
QS = Qualité du service	Non connue	≥75%
% des effectifs féminins	11%	20%

PLAN FINANCIER

L'activité de la SONEDE au Sahel génère un excédent brut d'exploitation (EBE) positif, mais c'est un équilibre fragile au regard des investissements à réaliser et du renouvellement du patrimoine. Il est aussi moins bon par rapport à des années antérieures.
Notre diagnostic a permis de déterminer les points de priorités qu'il faut intégrer dans la stratégie 2020-2030.

STRATÉGIE ET OBJECTIFS

"Un service pour les Sahéliens efficace, durable, porté par des salariés engagés"

Objectif 1 : Maintenir l'excellence opérationnelle et renforcer l'équilibre financier

Mener la transition d'une structure rigide à une structure plus décentralisée et opérationnelle, avec plus d'autonomie aux directeurs régionaux et instaurer une meilleure communication interne en dépit de la lenteur des réformes institutionnelles et la forte dépendance à la tutelle.
Maintenir les KPI techniques dans leurs bons niveaux actuels. Le digital et les nouvelles méthodes de recherche de fuite ainsi que les bonnes politiques de comptage et de maintenance seront les principaux leviers.

Objectif 2 : Instaurer une culture managériale basée sur l'implication et l'engagement du personnel

Une meilleure gestion des carrières et des talents
Piloter l'amélioration des conditions du travail pour augmenter la satisfaction du personnel sur la base de leurs attentes.

Objectif 3 : Augmenter la satisfaction client et fournir un service de qualité

Instaurer la culture client en augmentant le taux de satisfaction des clients à travers l'amélioration de l'écoute et de la qualité du service via une démarche qualité.

Objectif 4 : Renforcer l'engagement RSE de la SONEDE au Sahel

Cette stratégie sera confortée par la démarche RSE afin d'améliorer la réputation de la société auprès de ses usagers et toutes les parties prenantes.

PLAN D'ACTION

(56 fiches actions sur la région Sahel)

Dans mon plan, les actions prévues au Plan d'action 2020-2030 représentent des investissements de 44 millions €. Elles se répartissent entre des actions déjà programmées (construction de station de dessalement, certification ISO 17025 du laboratoire) pour 35 millions € ou des actions nouvelles (construction d'une station micro hydroélectricité pour des énergies renouvelables, nouvel organigramme, politique genre).

"L'organigramme trop centralisé et trop étagé est un handicap à la performance opérationnelle"

FAISABILITÉ

Financière - Le scénario stratégique est basé sur une augmentation tarifaire de 7% à partir de 2022.
Socio-économique - L'augmentation de la tarification est modeste, la facture actuelle moyenne représentant 1% du revenu moyen par habitant/mois. La capacité et la volonté de payer le coût de l'eau sont tributaires de la réussite des autres actions (amélioration de la réputation du service).
Managériale - L'expertise est à préserver et les managers doivent être plus stables à leur poste avec une capacité d'actions et d'autonomie, et une responsabilisation, alignée avec les objectifs du PDG et du Ministère.

"Il est essentiel de recentrer la culture client, de miser sur les connaissances technologiques et la transformation numérique, l'engagement du personnel et la collaboration de tous les acteurs stratégiques du secteur"

CHIFFRES CLÉS

Prix moyen eau par m³	0,19 € (2019)
Volume d' eau traitée par jour	97 200 m³ (2019)
Nombre d' employés dans le service	647 (Sahel Tunisien) (2018) 6 318 (SONED)
Nombre d'abonnés eau	523 400 (Sahel) (2017)

Mlle Syrine MORJENE

SONEDE

Administrateur principal 2ème degré

Région Sahel

Avril 2020

VIETNAM

HUEWACO'S STRATEGIC ACTION PLAN

By Ms Ngoc Nu Nhu TRUONG

	2019	2030
Service coverage	87%	98%
Metered customers	100%	100%
NRW	11%	8%
Water quality	SWS	STWS
Collection rate	>99%	>99.5%
Staff ratio (person/1000 connection)	2.1	2.1

OVERVIEW

Thua Thien Hue province, which is located in the North Central Coast region, is the ancient capital of Vietnam. Nowadays, the province is developing to become a unique cultural and famous tourist centre. With a population of 1.2 million people and an area of 5 km^2, Thua Thien Hue is also planned to become an economic area in the centre of Vietnam. For this reason, a safe water supply is a very important factor for the sustainable development of the province.

Thua Thien Hue Water Supply JSC. (HueWACO), which was founded in 1909, is one of the five largest utilities among 111 water utilities in Vietnam, supplying water for over 1 million inhabitants in both urban and rural areas of Thua Thien Hue province.

This strategic action plan aims at helping HueWACO to achieve its goals on safe and tasty water supply and sustainable development.

DIAGNOSIS

HueWACO has good performance with high service coverage (87%), 100% metered customers, reasonable NRW (11%), good water quality (safe water supply), low staff ratio (2.1 staff/1000 connections), excellent collection rate (>99%) and good financial results. Besides, the utility has a strong organization with a hierarchical structure and a stable workforce for the past 10 years and a solid corporate culture.

This will ensure that HueWACO has sufficient capability to improve its performance and reach its targets of sustainable development in the future.

"Strong organization with a hierarchical structure and a stable workforce for the past 10 years and a solid corporate culture"

Besides its significant achievements, HueWACO is still facing many challenges in reaching its sustainable development goal at present. The most important one is the lack of long-term sustainable development strategy and managerial processes, of a strong and solid organization with a competent workforce and an enthusiastic and creative board of directors.

With a huge amount of infrastructure invested throughout the years and the mission of supplying water for the whole province in both urban and rural areas in the 5,000 km^2 area of Thua Thien Hue province, owning an efficient asset management system, how to effectively invest and maintain assets to get the best results with limited resources, is still a major challenge for HueWACO.

Besides, the limitation in HR management makes it hard for HueWACO to maintain its performance and sometimes also poses a high risk to its development. A clear HR strategy with effective tools will help HueWACO to have a competent workforce to move towards its new target.

With the policy of "socialization" or "equitization" of water supply companies introduced in 2009 to help water supply companies to achieve the goal of full cost recovery, it has become an opportunity for HueWACO to reach more autonomy as well as better financial results in its operation. However, this policy also creates difficulties in harmonizing the interests of the three parties, namely customers, shareholders, and employees.

Moreover, the 4.0 revolution has somehow changed the world in general and the water industry in particular. It has brought many benefits and opportunities for water utilities to enhance their performance. Appropriate IT tools will promote HueWACO in various ways.

With its strengths and opportunities, HueWACO still has to face many challenges along to reach the sustainable development goal. One of them is climate change. Sharing the maritime border with other Southeast Asian countries, it is predicted that Vietnam will be seriously affected by climate change in the future. Besides, the transformation of the local economy will lead to an unpredictable increase in water demand, which will be a major threat if HueWACO does not prepare for it.

To sum up, although there are many threats and weaknesses that can prevent HueWACO from achieving its sustainable development goals, HueWACO can overcome them by utilizing its strengths and opportunities through a reasonable strategy.

In order to fulfil the mission: Supply safe and tasty water for 100% population of Thua Thien Hue province by the year 2030, with an appropriate pressure during 24/7 and an excellent customer service, HueWACO has defined its vision for the new era as follows: to become the water utility with advanced management level, cost efficiency and environmentally friendly with 5 objectives of the strategic plan, which are:

1-Defining the long-term strategy and strengthening organization maturity

The utility can only develop sustainably when there are a strong organization and a reasonable and strategic maturity, the large gap between strategy. By consolidating organizational performance and maturity can be reduced.

2-Achieving Financial Sustainability

HueWACO needs to be financially sustainable to cover investments in expanding its network to people who currently do not have water supply services and to meet future needs from the growing population as well as to replace and modernize old systems.

3-Having a competent workforce

Since developing and managing human resources effectively is an essential element of a turnaround, building a competent workforce is a major challenge for every water company including HueWACO.

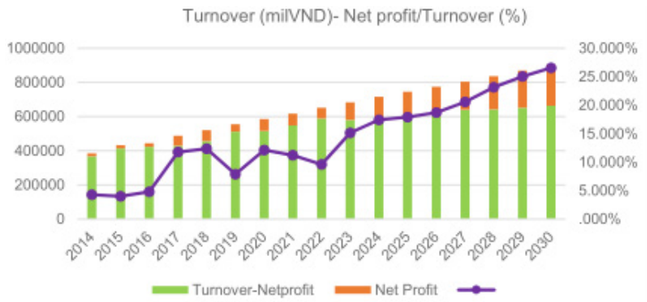
4-Creating a well-designed and efficient commercial model

Customer focus is always the motto of HueWACO. Besides, serving customers with excellent service also brings advantages to the company. A good commercial model will help HueWACO achieve customer satisfaction as well as maintain good collection rates.

5-Maintaining good performance in technical operation

Because good technical performance is one of Hue Waco's highlights, the company is expected to maintain this strength in the future, one of the factors to achieve sustainable development.

The combination of 18 actions to be implemented from 2020 to 2030 in HueWACO has been figured out to achieve the objectives of this Strategic Action Plan (SAP).



FEASIBILITY

One of the main factors of sustainable development is achieving sustainability in finance. Since the issue of Decree 117/2007 of the government on clean water production, supply and consumption, in support of full cost recovery, the water tariff started to be revised in 2009 by TTHue PPC.

The average tariff is estimated to be increased by at least the inflation rate (forecasted at 3.5%).

Besides, by implementing this SAP, HueWACO is expected not only to grow in revenue but also to maintain a good financial result. Revenue is estimated to increase by 4% to 7% per year due to the increase of the amount of water sold and of the price of water.

EBITDA / revenue will increase slightly and remain above 40% and net / TO results will increase sharply from 2022.

"Customer focus is always the motto of HueWACO. Besides, serving customers with excellent service also brings advantages to the company"

So far, most of the projects are self-funded and will be financed from the depreciation budget of HueWACO so it does not put great pressure on debt repayment.

The only project under ADB loans is the expansion of the 700km pipeline network that began in 2017 and has a 25- year payback period at low-interest rates.

On the political aspect, a strong support should be kept from the regulator (HuePPC) who has 70% of the shares and the other stakeholders (shareholders, community representatives, customers). This commitment will prove the feasibility of this SAP.

Finally, yet importantly, with the advantage of a tourist city and a master plan approved by the Prime Minister in 2009 in developing Hue to become a key economic city in the centre of Vietnam, the socio-economic feasibility of this SAP will be proved.

Moreover, by the end of 2019, the Resolution 54-NQ-TW of Vietnam Politburo on developing Thua Thien Hue province to become the 6th municipality of Vietnam has been issued. This will strengthen SAP's socio- economic feasibility.

"Bring a sustainable water supply system that can actively contribute to building our municipality as a homeland of happiness"

In short, with the vision of the province development, the recent effectiveness of HueWACO and the strong support from HuePPC along with the deep experience and effort of all staffs of HueWACO, this SAP is expected to be fully implemented and can bring a sustainable water supply system that can actively contribute to building our municipality as a homeland of happiness.

KEY FIGURES

Average water tariff / m^3	0,44 € (2018)
Volume treated water per day	150 685 m^3 (2018)
Number of employees	529 (2018)
Number of water customers	255 695 (2018)

Ms Ngoc Nu Nhu TRUONG

Planning and network manager

HueWACO

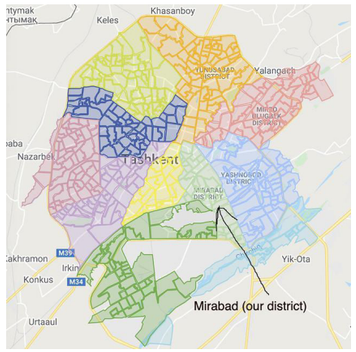
April 2020

HueWACO

UZBEKISTAN

WATER IN TASHKENT

By Mr Maksud ABBASKHANOV



Surface	340km²
Population	2.4 million habitants
Growth	1.7%
GDP per capita	1 504$
Water coverage	99.7%
Sewerage service	90%
NRW	36%

OVERVIEW

The management of national water resources and development of the sector was placed under the responsibility of the Ministry of Housing and Communal Services, which provides the service through 13 regional Suvoqava companies. SuvSoz is one of the 13 regional drinking water supply and sanitation utilities. Its mission is to ensure access to safe drinking water and sanitation services for all the citizens of Tashkent city.

Today, the quality of the service delivery is considered relatively good, regarding the coverage ratio of the company with other regions where the average coverage ratio of centralised water supply in Uzbekistan is around 67.8% while in Tashkent city it is of 99.7%.

"The reform of the legal framework is going more slowly than the restructuring of the sector governance. This creates problems in the application of laws and regulations because some documents contradict each other"

Tashkent sewerage service coverage is 92%, proving that sanitation is also a priority for the city. The water coverage is 602 218 individual connections and the average individual consumption is 250 litres/capita/day which is extremely high. Water is supplied 24h/7days water and there is 36% NRW (this is an estimated value because 49% of consumers are not metered).

Water pipelines represent 3642 km: the daily water supply is around 2 to 2.2 million m³, 100% of the waste water produced is treated according to national standards, the sewage network represent 2653 km and the daily waste water coming to the treatment plant is around 1.5 to 1.55 million m³ but these relatively good figures hide some malfunctions.

DIAGNOSIS

Regarding the organisation and governance of the water and sanitation sector, in the past too many actors were involved; this created overlap and confusion in the distribution of responsibilities. Things have started to change since the arrival of the new President. However, the transition period was easy to manage. There are quite many gaps between old and new rules, contradictions at macro, mesa and micro levels. The reform of the legal framework is going more slowly than the restructuring of the sector governance. This creates problems in the application of laws and regulations because some documents contradict each other.

There is also an issue regarding low human resources capacities in the water and sanitation sector. The current poor water quality control system is a good example, but it is not the only one sector that urgently needs to reinforce the capacity of the sector professionals and to integrate highly qualified specialists.
Regarding the internal organisation of SuvSoz, the new managing director of the company, who arrived in 2017, recently modified the organisational chart in order to optimise and apply new management systems. However, the lack of motivational strategies, little interest in offering a suitable training program and low salaries are obstacles to attracting specialists throughout the city.

The environment for safety conditions is not acceptable as there were 11 accidents in 2018, so additional safety equipment is needed. The standards applied are not approved and not based on international standards. The staff distribution is not balanced between water and sanitation departments. Sanitation is even less popular than water supply.

SuvSoz has been managing the service for 25 years without a long-term strategy. The utility works under the framework of a one-year action plan. This does not allow for long-term infrastructures planning, affecting the quality of the service in the long term.

"Lack of motivational strategies, little interest in offering a suitable training program and low salaries are obstacles to attracting specialists throughout the city"

Commercially, the unpaid debt for the service is increasing year after year due to a lack of regular meter reading, poor management of the customer database and the fact that only 49% of the connections are metered. Today, the installation and maintenance of the meters are, according to the law, under the responsibility of the customer. This is a major obstacle to increase the metering ratio and to ensure that meters are well-maintained and replaced in due time. The lack of customer-based commercial strategy is also affecting the collection ratio. In fact, many customers seem unhappy with the service, but no customer survey has ever been done to understand the reasons.

Additionally, this issue does not seem to be a priority for SuvSoz Company. Regarding Operation and maintenance of the water service, NRW calculations are not always accurate because only 49% of individual connections are metered. This is a big challenge for the company. The average individual water consumption is estimated at 250 l/cap/day, which is very high compared to other countries, even if it can vary according to the area and living conditions. Maintenance is often done after receiving complaints by customers.

Regarding sewerage services, the unsatisfactory condition of the drainage and the irrigation system causes the mixing of rainwater to sewage. The high concentration of industrial wastewater is another big problem that must be solved. There are no specific regulations concerning the pre-treatment and the treatment of industrial wastewater.

Regarding the financial situation of the company, SuvSoz is, in theory, supposed to be completely autonomous, receiving no subsidies from the Government, neither for Operation and Maintenance, nor for investments. Actually, tariff is too low to cover all expenditures, so the company reduces its investments in maintenance, which does not help to reduce NRW.

The Government uses water and sanitation tariffs as a way to keep social stability. The good point for SuvSoz company is that water resources are easily accessible, abundant and of good quality; this help to reduce operational cost (water sent by gravity to the distribution network and easy treatment).

"Environment for safety conditions is not acceptable as there were 11 accidents in 2018, so additional safety equipment is needed"

STRATEGY SYNTHESIS

The strategy of SuvSoz Company will be developed for 10 years from 2020 to 2030 to create a successful and innovative showcase for Central Asia. This will transform SuvSoz into an excellent utility providing public services at the highest international standards while optimising operating costs and existing resources.

Top priority will be given to upgrading and expanding public services for all citizens in line with the highest international standards.

• Secure a 24h/7days water supply of high quality drinking water in the short term. Through actions, implementing smart equipment will relieve the pressure on existing assets and allow additional demand without the need for new production capacities.
• Increase customer satisfaction through high quality service with actions towards high quality modern customer services:
• A better understanding of customers and their needs
• more accurate and efficient processing of requests
• better rapid information and transparency
• Stabilise the financial situation of the company by modernising the methodology of operation performance in order to generate additional revenues and reduce operation cost.
• Ensure long-term sustainability and excellence of Tashkent's water and sanitation system
• Implement capacity building and install a result-based management culture

NEEDS AND RESULTS OF STRATEGIC ACTION PLAN

Following the strategic action plan, the company needs 12.6 million € to invest in objectives and sub-objectives:
• Setting DMA and starting active leak detection to decrease NRW
• Rehabilitation of the aging network
• Opened two new customer service
• Develop the SCADA System
• Improve capacity building

2 customer care services centres will be opened
Sensors with valves and 21 bulk meters will be connected to reduce NRW
Smart solutions, equipment for leak detection and GIS be implemented

	2019	2030
Water service coverage	99.7%	100%
NRW	32%	20%
Water consumption	250L/cap/day	150L/cap/day
Average tariff per m³	0.03€	0.15€
Bill collection rate	90%	95%

FEASIBILITY

A new Ministry of Housing and Communal Service now mainly deals with technical perspective, modern technology usage, social acceptability and customer satisfaction in water and sanitation service.
In addition, it will be able to resolve water res ources conflicts inside as far the State planned to delegate this issue to new devoted special authority.

The first step is to start from an effective legal framework to renew and reset legal documents in water and sanitation sector.
The second step is to unite all water and sanitation service companies in Uzbekistan into one head, then take the control of all the assets of water and sanitation service companies that are planning to be developed, and finally improve equipment and technological service.

Short-term plans provide opportunities for salary changes and increased motivation to improve trust and reputation among the staff. High-quality drinking water with adequate pressure and high standard of sanitation service will directly affect the public health and the environmental impact which can be protected in the future.
Currently, Uzbekistan is changing the management of water and sanitation service by establishing a new Ministry. Therefore, a new team may be interested in setting up actions with technical, social and financial aspects. Also, strategic actions needs to succeed in water and sanitation.

Water and sanitation tariffs are very low compared to other countries. They only cover operation and maintenance costs and generate little profit. In my action plan, I try to increase income by reducing commercial losses, physical losses and NRW. All the technical and financial gains give the opportunity to implement these actions, focusing on the sustainable financial statement by revising the water tariff structure.

SCENARIOS

Following the strategic action plan, main actions to be implemented:
Computers for customer database
Network will be replaced in 10 years
Optimise electricity consumption
Reduce staff per 1000 connection
Reduce NRW to 20% in 10 years
Start having positive cash back by 2023

KEY FIGURES

Average water tariff / m³	0,03 € (2019)
Volume treated water per day	230 000 m³ (2018)
Number of employees	2 502 (water) 1 505 (sanitation)
Number of water customers	602 218 (2018)
Number of sewage customers	558 018 (2018)

Mr Maksud ABBASKHANOV

General manager

SuvSOZ since 2020

April 2020

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