

Mauritius Support To Potable Water Sector Reform and PPP for the Central Water Authority CWA

THIS REPORT CONTAINS THE FINDINGS AND RECOMMENDATIONS OF THE JUST-IN-TIME ANALYSIS CARRIED OUT BY A WORLD BANK TEAM ON OPTIONS FOR INVOLVING A PRIVATE PARTNER IN REFORM OF THE POTABLE WATER SECTOR IN MAURITIUS.

WORLD BANK RAS TEAM FOR WATER SECTOR IN MAURITIUS

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Disclaimer

The RAS for Mauritius Water Sector has been conducted under the RAS Agreement between the World Bank and the Government of Mauritius dated 18 February 2016. The World Bank team's role was to provide just-in-time advice on options for improving the Central Water Authority's service delivery through a strategic private partner. The data, statistics, and information used for developing the analysis, and the sector financial simulation set out in this Report, belong to the Mauritian authorities. The findings and recommendations set out by the team in the Report are the views of the authors and do not reflect the views of the World Bank, its Board of Executive Directors, or the governments they represent. Nothing herein shall constitute or be considered to be a limitation upon or a waiver of the privileges and immunities of the World Bank, all of which are specifically reserved.

Abbreviations

Bank	World Bank
BMF	Build Mauritius Fund
BOT Act	BOT Act 2016
Capex	Capital expenditure
Companies Act	Companies Act 2001
CWA	Central Water Authority
CWA Act	Central Water Authority Act 1971
DMA	District metering area
DPL	Development Policy Loan
GDP	Gross domestic product
GoM	Government of Mauritius
IA	Irrigation Authority
IA Act	Irrigation Act 2004
KPIs	Key performance indicators
MEPU	Ministry of Energy and Public Utilities
MoFED	Ministry of Finance and Economic Development
MUR	Mauritian Rupees
NRW	Non-Revenue Water
Operator	Private partner entering into the PPP Contract
PforR	Performance for Results
PP Act	Public Procurement Act 2006
PPP	Public-Private Partnership
PPP Act	Public-Private Partnerships Act 2004
PPP Contract	Agreement between CWA and the operator under the recommended approach of the Bank team along the lines of the indicative term sheet set out in section 6
RAS Agreement	Reimbursable Advisory Services Agreement dated 18 February 2016 between the Bank and the GoM (through MEPU)
USD	US Dollar
Utility Regulatory Authority Act	Utility Regulatory Authority Act 2004
WMA	Wastewater Management Authority
WMA Act	Wastewater Management Authority Act 2000
WOP	Water Operations Partnership
24/7 Supply	A continuous supply of water within each DMA of the service area, 24 hours a day under a minimum defined service pressure

SECTION 1

Executive Summary of Findings and Recommendations

Background and Objective

This Report is part of the 'just in time advice' being provided by the World Bank under a focused terms of reference¹ to evaluate the sector reform options including the use of public private partnership (PPP) options. It is based on the objectives of the Government of Mauritius (GoM) to improve customer service delivery for the potable water sector whilst focusing on achieving continuous supply, efficient use of funding for capital investments, and building domestic capacity to move towards financial sustainability of the sector.

Context

Mauritius is suffering from increasing water scarcity. Currently, Mauritius is classified as a water-stressed country (below 1,700 m³ per capita per year) and is expected to fall under the water-scarce category by 2020 (projected 974 m³ per year, below the 1,000 m³ threshold). The aquifers are over-exploited and there is heavy dependency on unpredictable rainfall, making Mauritius highly vulnerable to climate change.

A large portion of the population suffers from intermittent water supply. The Central Water Authority (CWA) provides universal access to the population (total of 351,000 customers), with more than 20% of the population receiving intermittent supply under normal conditions (even during the rainy season), with this figure rising to 75% during the dry season. CWA revenues cover cost of basic operations and maintenance (with minimal rehabilitation and replacement included within maintenance). Capital investment needs to be funded from other sources (GoM, specific funds). There is an absence of focus on long term financial sustainability of the sector. CWA is currently not credit worthy and so is unable to raise commercial finance on its own.

Structure of Report

The findings and analysis in this report are based on a series of reports made available to the Bank team by CWA and MEPU and consultations with CWA, MEPU, and other relevant agencies. This report sets out the technical, legal, and financial due diligence undertaken and recommends an approach for attracting a strategic partner to meet the objectives of the GoM. In section 2, a summary of the background and context of the assignment is spelt out followed by the support provided by the Bank team under the RAS Agreement (Section 3). Section 4 contains the findings of the Bank team are with respect to CWA operations, the financial assumptions behind financial simulation and scenarios for funding and legal due diligence (current legal and institutional framework of the water sector in Mauritius, and recommendations on sector and institutional reforms). Section 5 analyses different possible options for private sector involvement to improve the performance of CWA, drawing on international case studies.

¹ set out in the RAS Agreement between the Bank and the GoM dated 18 February 2016

Section 6 provides an indicative term sheet for the recommended PPP Contract. While the Bank believes that the recommended PPP structure represents the most efficient approach to help GOM achieve its objectives, there are also major risks associated with it that need to be managed. A non-exhaustive risk allocation matrix is provided in Section 7. Analysis on the value for money of the recommended PPP approach is set out in Section 8, followed by the results of preliminary market sounding (Section 9), the recommended bidding process for the PPP and suggested prequalification criteria (Section 10) and a road map for the PPP transaction and associated reforms (Section 11). The financial simulation for the sector is attached at Appendix 1, the full operations report for CWA at Appendix 2, a guidance note on World Bank Group Guarantee products at Appendix 3, further suggested reading on international precedents and case studies at Appendix 4, the questionnaire used for the preliminary market sounding at Appendix 5 and Appendix 6 provides a suggested term sheet for appointment of a transaction advisor for the PPP.

The Bank team appreciates the support and cooperation provided by CWA, MEPU, and other agencies in carrying out this due diligence and preparation of sector reform and PPP options.

Recommended Approach

The recommended approach is for a 15-year hybrid affermage-type contract (the PPP Contract) modified for the Mauritian legal context whereby CWA, as the sole supplier of potable water in Mauritius under the CWA Act, would delegate to a private operator (i) its functions from 'source to tap' of operation and (ii) maintenance of the bulk assets and the network, (iii) capital investment execution and management and (iv) service delivery to customers. The proposed arrangement also envisages a shared capital investment planning function between the CWA and the private operator, although the funding for such capital investment would primarily come from Government.

The PPP Contract is designed to:

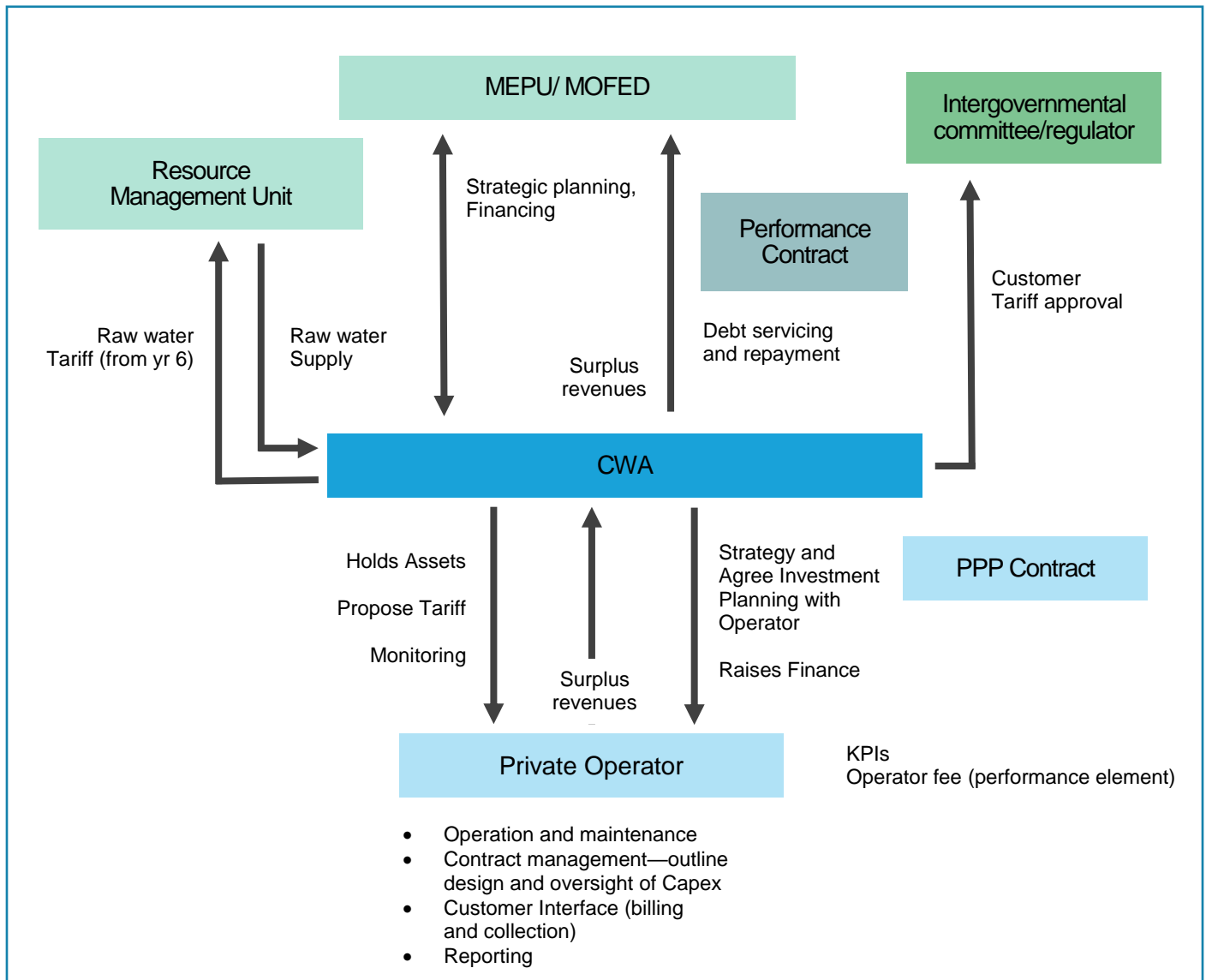
- Improve service delivery for potable water from intermittent supply (currently affecting close to half the island's population) to continuous 24/7 water supply within a specified time frame (assumed to be five years).
- Update existing District Metering Areas (DMAs) in a phased manner and implement active leakage reduction under a major 6-year network rehabilitation program (the first year of the program, focusing on priority replacement of critical asbestos concrete trunks as already identified by CWA, would be carried out by CWA, in parallel with the PPP tender process to avoid delays in implementation).
- Achieve NRW reduction and sustain it for a period of approximately fifteen (15) years and achieve other service improvements that will be defined as KPIs in the PPP Contract, with incentives through the fee structure and a penalty and bonus regime.
- Sustain 24/7 supply after it has been achieved for the duration of the contract (which would be subject to rebasing once 24/7 supply had been achieved).

The achievement of 24/7 supply is contingent on (a) timely augmentation of potable water resources through Bagatelle reservoir and water treatment plant, and (b) funds and permits being made available to carry out an aggressive network rehabilitation program. The PPP Contract would set out a phased approach to capital investment. In the first months of the contract the Operator will assess the system and then propose a System Improvement Plan based on systematic conversion of DMAs to 24/7 supply².

² This system improvement plan would then be reviewed by an independent expert reviewer, paid for jointly by the parties, and then agreed by the parties. This is important for both parties to ensure that there is a competent third party trusted by both parties that is carrying out this crucial role. Whilst the role of the expert reviewer will be focused on the initial years for the rehabilitation plan, it may be advisable even during the maintenance period to have an independent party monitor performance of the operator and

The Operator would then implement the agreed plan as contract manager, being responsible for outline design, procurement and prioritization of capex as well as oversight of the works. To the extent possible, as discussed further in section 4c, the Operator might also implement the some of the works itself.

FIGURE 1: RECOMMENDED PPP APPROACH



Other obligations of the Operator

Given the protracted and deficient procurement mechanism used by CWA and the ambitious timeline for turnaround to achieve 24/7 supply, the PPP contract should include a mechanism to:

- Set out easily identifiable and quantifiable activities and items to be financed and implemented by the operator, and reimbursed through the operator fee. These items would not cover water infrastructure but could include vehicles, IT systems, customer meters.

review amendments to the system improvement plan. The system improvement plan will be amended periodically to reflect the findings of the operator when implementing the rehabilitation works as it gains more knowledge of the below ground assets.

- Develop bill of quantities to include pipe and customer connection replacement to be reimbursed by CWA and procured by the operator under its own procurement processes, within an agreed envelope, to enable faster unfettered procurement by the operator.

Remuneration of the Private operator

The following payments are envisaged:

- Operator Fee: Volumetric fee based on volume of potable water billed and collected using a bid percentage of 2015 customer tariff³ (which would then be a fixed multiplier i.e. bid tariff x volume of water billed and collected), indexed for inflation. This fee would cover costs associated with operation and maintenance of the system and any items financed by the Operator. Bidders would bid an Operator Fee that would be a percentage of 2015 tariff which would be the main bid parameter. This bid Operator Fee would then be the initial operator tariff and would be indexed against inflation and other increases in prices on key items such as electricity as per a methodology set in the contract. With exception of this indexation mechanism, any increases in the consumer tariff would accrue to CWA. In the event that tariffs are increased before the affermage contract is signed, the recommended competitive bid process ensures that a potential operator should be calculating their bids based on their own cost structure. Close negotiation of the bid variable protects the government on this front. Since the operator fee is based on water billed and collected then there is an inbuilt incentive for the Operator to achieve efficiencies at all stages of the cycle, including production, transmission and distribution and to maximize collection.
- Bonus and malus regime linked to KPI targets to include for example transformation to 24/7, good service quality and NRW reduction⁴.
- Contract management fee⁵ based on a percentage of overall capex (3% was assumed in the financial simulation) for the total capex rehabilitation spent during the first 5 years. These would be set by the Government in the bidding documents and would not be a bidding parameter. Payment to be contingent on capex efficiency incentives such as including a capex efficiency gain share between the parties for savings to capex against the overall envelope set by CWA.

A periodic review mechanism will be built into the contract to ensure that changes in circumstances and assumptions affecting the parties are duly taken into account⁶.

Any surplus from revenues collected after making these payments would be for CWA's account. Equally, if the revenues happen to be lower than the stipulated remuneration for the private operator, the CWA will be responsible for such shortfall. Therefore, careful consideration needs to be given to customer tariff policy, as highlighted in sections 4b and 4c.

Proposed on-going role of CWA

⁴ Some of which are listed in the draft term sheet. In addition to the incentives built into of the operator fee structure

⁵ The Bank team recommends that it be set by CWA at a level where the operator would break even but not make a significant profit on the capex (hence reducing the incentive to maximize capex).

⁶ This will be needed to be explicitly set out in the PPP Contract as Mauritian law does not recognize a concept of economic balance/equilibrium (contrary to countries subject to a civil law system, which are those where affermage contracts have been widely in use e.g. in France and Spain).

Under the recommended PPP approach, the CWA would play a key role as the delegating public counterpart in the PPP and as the asset holder. It would need a relatively small workforce with specialized skills to:

- Play an active role as asset holder, approving the service improvement plan (and updates), business plan, capex expenditure and identifying funding sources
- Propose customer tariff revisions based on sector's financial planning
- Monitor and enforce operator performance
- Carry out other existing CWA functions not related to potable water supply, unless and until transferred to other agencies, discussed in section 4c.

Over time, once the potable water sector has reached financial equilibrium through the performance improvements to be achieved by the Operator and tariff reforms, the CWA would become credit worthy and could also raise commercial debt under s.29 of CWA Act, without reliance on sovereign guarantees from GOM.

Financing of Capital expenditure

The financial simulation developed by the Bank team (Appendix 1) and the scenarios set out in section 4b show that the CWA, with the support of an experienced operator under a well-designed PPP contract, could turnaround its service delivery to achieve 24/7 supply (during non-dry months at least) and achieve financial equilibrium (net income) in year 4, with assumed capex of **MUR 10.3 billion** (USD 350 million) of major network rehabilitation **over the next 6 years**. Following discussion with MEPU and MoFED, the analysis was updated to assume that a MUR 10.6 billion capex program to be implemented over a 5 year period to correspond to budget projections contained in the approved 2016-2017 PSIP. After year 6, it is assumed that the level of capex would be reduced to represent the cost of sustaining the infrastructure. Under this scenario, sector financial equilibrium (net income) is not achieved until year 7. While it is very difficult to estimate the exact amount of funding needed to rehabilitate a deteriorated (buried) network such as that of the CWA, the analysis shows that this quantum of capex would likely be necessary to achieve the turnaround. ***It is critical that these funds be made available at the junctures set out in the PPP Contract if the private operator is to achieve the targets defined in the PPP Contract.***

The updated scenarios provide an initial base case assuming an MUR 10.6 billion rehabilitation program from 2017-2021 comprised of (i) an MUR 3 billion grant (Build Mauritius Fund), (ii) MUR 3.2 million of GoM loans, (iii) MUR 4.4 million of financing sourced either from cashflow or other financing sources to cover the balance of the rehabilitation requirements, and (iv) no initial tariff increase, yearly indexation for inflation, a tariff increase of 30% (in real terms) in year four (after significant improvement in 24/7 has been achieved).

	2017	2018	2019	2020	2021	2022
Projected Capex Requirements	1,844,000	3,436,000	2,601,000	1,633,000	1,150,000	403,685
Capex Financed by BMF	649,000	1,390,000	874,000	123,000	-	-
GoM Loans	707,000	1,243,000	982,000	286,000		
Other Financing	488,000	803,000	745,000	1,224,000	1,150,000	403,685
Total Sources of Financing	1,844,000	3,436,000	2,601,000	1,633,000	1,150,000	403,685

The base scenario shows that the sector would achieve financial equilibrium (net income) by year seven, but would not be able to generate a significant surplus (net CF) before year 14 (i.e., by the end of the proposed PPP). Consequently, the CWA as the asset holding company would not become cash positive

before year 14, and would not achieve a significant reduction in total debt (as debt would only go down from a maximum of MUR 6 billion in year 6 to just MUR 4.5 billion by the end of the PPP).

For the CWA to achieve financial sustainability sooner than year 14, two options can be entertained: (i) a different financing mix that provides for a greater proportion of grant to finance the initial six-year rehabilitation program and/or (ii) an increase in customer tariffs at a more accelerated rate as shown in Case 2 of the financial scenario analysis. However, increasing customer tariffs at an early stage could make the sustainability of the reform and the PPP approach riskier as customers would be seeing increased tariffs before experiencing improved service.

Staffing

The Bank team considers that CWA is currently understaffed overall (with total staff of 1400 including temporaries) representing a ratio of 2.8 staff per 1000 connections – compared to a ratio of about 4 staff per 1,000 connections in similar utilities. Under a PPP Contract the Operator will likely require a total of between 1600 to 1800 staff to perform its functions and provide the quality of water services expected by the Mauritian population.

These staffing estimates take into account the Bank team recommendations to bring in-house certain core/strategic functions that are currently outsourced such as the customer complaints hotline, the early years of network rehabilitation and DMA upgrading, and the establishment of a true commercial department. Taking into account that the CWA has lost a lot of key personnel and experienced staff due to retirement and attrition, it means that the PPP reform would not entail any labor redundancies, as has been the case in a few water PPPs in other countries. In contrast, the introduction of a private operator could add 200 to 400 net jobs to the local labor market (a significant proportion going to young technicians and graduates).

In addition, the financial simulation assumes that current CWA staff transferred to the Operator would benefit from a salary increase (10% average is assumed under the base case), in exchange for increased flexibility in terms and conditions and productivity. Arrangements for transfer of staff would be subject to negotiation to be carried out by CWA in parallel with the PPP tender process.

CWA would also need to rapidly rebuild capacity for a mostly skilled workforce to be able to carry out its key functions as utility assets holder with asset and business planning capacity, to monitor the PPP contract properly, to propose customer tariff and carry out its non-potable water functions as set out in the CWA Act 1971.

The Bank team recommends that CWA operational staff be given the opportunity to join the Operator, subject to Mauritian law and each employee's agreement, and that about 20-30 new positions be opened at CWA at intermediate/management level so that it can have the necessary capacity to act efficiently as counterpart to the private operator in the implementation of the PPP.

Benefits of Recommended Approach over other Approaches

The Bank team has set out in Section 5 different options that it considered before making the recommended approach, including benefits and risks for each scenario. The Bank team concluded that a holistic approach is required to tackling the challenges of intermittent supply and non-revenue water. It has been demonstrated through the various attempts at improving service through short term management contracts and contractors who do not control procurement and implementation of rehabilitation and replacement of underground pipes that a contract involving reduced level of intervention is likely to work.

The Bank team has also concluded, drawing from international experience and from feedback from the preliminary market sounding, that whilst potential operators may be willing to take quite extensive operating risk, they are unlikely to accept significant financing risk as the majority of the investments relate to underground assets which are difficult to assess. An approach, therefore, which places some financing risk for specific identifiable items such as vehicles and systems on the private sector is recommended. As noted above, the fee structure proposed internalizes significant risk of operations as the Operator will be paid against water billed and paid for and has been found to be a simple and effective approach to incentivizing the private sector where billing and collection is already quite stable, as is the case in Mauritius.

Risks associated with recommended approach

The recommended approach carries risks, as does any of the approaches considered in section 5, including maintaining the status quo. This report highlights the potential risks and the ways to mitigate the risks inherent in the structure in section 6. Some key risks identified by the Bank team are:

- **Political economy** – experience shows that proposals to reform a utility typically face concerns and resistance from the public at large and from politicians if it is not consulted on widely and if stakeholders are not kept informed. This is even more the case with PPP approaches as they typically involve greater upheaval and public interest concerns. It is therefore critical that the GoM consults on the approach widely and informs stakeholders and the public of the reforms and the short, medium and long term expected impact on service delivery and tariffs. It is recommended that the GoM appoints a communications expert and develop a communications strategy early on to identify concerns and address them properly. Another related issue is on timing of the reforms as the GoM will want to have an operator in place for some period within this election cycle. Given that the shortest possible timeframe for hiring an Operator from date of a GoM decision to proceed is 12 months, the GoM would ideally make a decision whether to proceed before the end of 2016.
- **Staff in CWA** – the recommended approach assumes that most of the staff and daily contractors currently working on operations would transfer or be seconded to the Operator. Whilst experience has shown elsewhere that typically once utility staff move to a private operator their remuneration and benefits as well as working conditions improve, understandably the workforce will be concerned that they should not be adversely affected by the transformation. As the Bank team notes elsewhere, CWA is currently understaffed and so an Operator is likely to need more not fewer staff than currently work at CWA. Early consultation with unions and affected staff is recommended to avoid misunderstandings and achieve the optimal outcome. It is recommended that GoM hires a labour specialist early on to review staffing and support the GoM in managing this process.
- **Financial equilibrium of CWA depends on tariff increases** – the ability for CWA to fund its debts and liabilities and to reduce dependency on subsidies depends partly on service improvement and partly on tariff increases, as highlighted in this report. As there is currently no established methodology and process for tariff review, and the review currently rests with the Ministry and a governmental committee, rather than a regulatory review body, there is a risk that tariff increases are not made or that tariffs are not maintained in line with inflation. Tariff reform needs to be looked at holistically, including consideration of any associated possible hardship and whether further subsidy to targeted groups of customers through cross subsidy from other customers or other sources is appropriate. It is therefore recommended that the GoM implements the regulatory reforms highlighted in section 4c of this Report. It is also important that there is a clear communication strategy around tariff increases so that the customer understand the needs for reform and the expected benefits. Tariff increases should therefore be phased to ensure such buy in from the public.
- **Turnaround of CWA performance depends on significant investment** – GoM has shown a significant commitment to make investments in the CWA, as highlighted in the recent budget and

prior budgets. This will need to be sustained and funding sources found to support this, whether through the BMF or through debt financing. Whilst in the medium term once the CWA is performing optimally it should become creditworthy and be able to raise finance against its own balance sheet, GoM will need to support it in the near term (at least next 5 years) to achieve that turnaround.

- **Pensions arrangements** – as noted in Section 4a, there is still some uncertainty around the pensions funding and liabilities for CWA staff. This needs to be resolved and clarified by GoM before the proposed PPP approach could proceed. Experience has shown that, under an affermage, the private operator is unlikely to assume any past pension liabilities. In the context of Mauritius, a comprehensive review of the pension liabilities needs to be undertaken for the CWA.

Next Steps

The following critical commitments from GoM are considered essential for a successful transaction:

- capital investment program, including allocation of national budget/ BMF
- outreach and communication strategy⁷ to explain the proposed reforms and approach to the public and to stakeholders within GoM, politicians, unions, NGOs etc. This is critical as has been demonstrated from international experience to the success and sustainability of such reforms.
- making available CWA staff to private operator and managing union relations
- addressing current pension liabilities
- contracting of a competent PPP transaction advisory team
- commencement of sector reforms, particularly those relating to regulation of the sector and tariff reform, as discussed in section 4c, which should be carried out in parallel with implementing the PPP
- preparation of performance contract/ MOU between MEPU and CWA to establish clear functions and KPIs, tariff setting methodology and process
- targeted preparatory activities to include:
 - appointment of labor specialist to assist MEPU and CWA on CWA staffing issues (including formalizing relevant contract staff) and carrying out a skills audit of current staff;
 - clarity on addressing the outstanding pension liabilities;
 - consultation with unions on implications of reform, and transfer of existing CWA staff to the private operator; and
 - reorganize CWA organigram to prepare it for new role and fill/ start process for key appointments under the future CWA structure (e.g. new director of procurement)
- procurement and installation of customer meters to replace 30-40% of customer meters, most of which are currently stopped (only domestic meters for which technical specification would not be an issue, and provided CWA is confident about the specification and quality assurance); and
- proceed with priority replacement of critical concrete trunk mains (AC and CI) currently being procured (see WB report for priority list).

Timeline

A simplified accelerated timeline for the transaction (i.e. from date of appointment of a transaction advisor if and when the GoM decides to proceed with a PPP project) is set out below:

ACTIVITY	TIMELINE
GOM decision to move forward on PPP reform based on RAS	Month 0

⁷ This is an activity that could be included as part of the TORs for the transaction advisor and/ or form part of a future RAS

recommendations	
Proactive Disclosure	Month 2
Mobilization of transaction advisor	Month 2
Prequalified bidders selected	Month 4
Due Diligence	Months 2 & 3
Contract Preparation	Months 2 to 4
Bidder Due Diligence & Bid Submission	Months 4 to 8
Bid Evaluation	Month 9
Contract Execution	Month 11
Bidder Mobilization	Month 12

This timeline represents the best scenario and assumes that issues outside the transaction advisor's control are addressed in a timely manner (i.e. GoM decision making and approval process, resolution of labor issues and pension liabilities, etc.)

World Bank Group Support

Any turnaround of the water sector in Mauritius will require a comprehensive approach focused on reform of the overall legal and institutional framework of the sector, as discussed in section 4c. If a PPP approach is to be sustainable, it will be predicated on CWA having a strong team to carry out its functions. The Bank team stands ready to provide support to GoM in implementing water sector reform as recommended in section 4c and institutional reform and capacity building of CWA, as well as strategic advice regarding the PPP transaction, as per the initial proposal of a second phase RAS, made by the team in November 2015. Such advice would be provided alongside that of a transaction advisor.

Possible activities that could be covered by a second RAS engagement with the Bank could include:

- Strategic advice on PPP transaction/ Feedback on recommendations and outputs of PPP transaction advisors, in particular on risk allocation and bid variables
- Identification of critical risk areas for government in respect of interface between operator and institutional set up
- Support in drafting performance contract or MOU between MEPU and CWA (setting out KPIs vs. tariff increases, clarity of role of CWA)
- Support to reorganization of CWA (asset holding authority and counterpart to PPP Contract), capacity building program
- Support for establishment of a dedicated PPP node within MEPU, capacity building on PPP supervision for MEPU
- Support GoM to develop and implement RAS 1 recommendations on sector reform, including:
 - Develop terms of reference for the various consultants to carry out the water sector reform (review of outputs of legal specialist etc)
 - Relationship of CWA to WMA and IA, (including clarity on assets and liabilities and functions)
 - Advice on structure and staffing of water unit of regulator
 - Training and guidance on tariff setting methodology and
- Develop full financial model of the water sector using the financial simulation as the starting point, to serve as support for future tariff policy and monitoring the gradual shift to self-financing
- Support stakeholder consultations on sector reform
- Support preparation of new Water Bill (comment, provide inputs).

Further support may also be provided through traditional Bank lending instruments such as a development policy loan (DPL), a sector investment loan, or a program for results (PforR) financing, and other instruments that could support the capex envisaged under the PPP such as guarantee products. It should be noted that where the Bank provides lending, there is substantial advisory support included during the preparation and implementation of the loan which would be available at no extra charge to the GoM, including supervision missions twice a year. In addition, such continuous presence of the Bank during the first years of PPP implementation could also provide comfort to potential bidders, thereby resulting in a more favourable bidding environment.

IFC, the private sector arm of the World Bank, has confirmed its interest to provide transaction services if the GoM decides to proceed.

SECTION 2

World Bank Mandate: Background and Context

The 24/7 provision of water is high on the agenda for Mauritius; the President of GoM is co-chairing the Heads of State Panel on Water that was launched by the President of World Bank and the Secretary General of the United Nations earlier this year. Improving water security and the continuity of a potable water supply for the island's population is among GOM's top priorities.

Mauritius is suffering from increasing water scarcity. The small island nation with a population of about 1.3 million people had renewable water availability per capita at only 1,083 m³ per year in 2013. It is already classified as a water-stressed country (below 1,700 m³ per capita per year), and is expected to fall under the water-scarce category by 2020 (projected 974 m³ per year, below the 1,000 m³ threshold). The aquifers are over-exploited and there is heavy dependency on unpredictable rainfall, making Mauritius highly vulnerable to climate change.

A large portion of the population suffers from intermittent water supply. The Central Water Authority (CWA) provides universal access to water to the population (a total of 351,000 customers). More than 20% of the population receives intermittent supply under normal conditions (even during the rainy season), and this figure rises to 75% during the dry season. This intermittency is caused by constraints in water availability and CWA's difficulty in controlling water losses in distribution. Non-revenue water (NRW) levels have stagnated at over 50% in the past 15 years in spite of various initiatives to stem the problem. CWA revenues cover the cost of basic operations and maintenance (with minimal rehabilitation and replacement included within maintenance) but any capital investment needs to be funded from other sources (GoM, specific funds), with no focus on long term financial sustainability of the sector. CWA is currently not credit worthy and so is unable to raise commercial finance.

Failure of previous short term efforts has convinced GOM and other stakeholders (including CWA management) that only a long-term strategic partnership with a competent private operator, under a well-designed PPP with strong accountability and incentives for results, can achieve sustained improvements.

Past attempted reforms

GoM has started but not completed many initiatives to find a sustainable solution for water shortages and NRW⁸:

- In 1997 CWA commissioned a report of British Executive Services Overseas on Operational Areas and Management Restructuring of CWA (recommendations were not adopted).

⁸ Based on information provided by MEPB and CWA

- In 1999, CWA entered a phased management contract with consortium Vivendi/ Lyonnaise des Eaux. First phase was a six-month pilot toward a longer term strategic partnership; a leak detection program was also introduced. The consortium proposed a concession which **did not proceed due to change of government**. The management contract was extended to the end of 2000. Results of the management contract were limited due mainly to limited scope and duration.
- In 2003, GoM contracted IFC to advise on PPP options for the water sector. IFC looked at several options, initially recommending an affermage, or concession, but then recommended a more modest medium term management contract for CWA. The second proposed phase of IFC's mandate to act as transaction advisor in 2004 **did not proceed following a change of government**.
- In 2004, CWA signed a three-year service contract with UK private partner Severn Trent Water International (STWI) to determine water loss in the system, with a large rehabilitation program financed by an EIB loan. Although the contract focused on reducing water losses and shortages, and significant funding was provided by GOM for asset replacement, it achieved limited improvements. (WB understands that STWI did not oversee leak fixing, which was the responsibility of CWA.)
- In 2007, UNDP part-funded an expert to support the local team to prepare a tender for a management contract for CWA and WMA. In 2008 the tender process started but was delayed due to pre-qualification flaws. In 2010 GoM stopped the process.
- In 2011, GoM entered a twinning Water Operators Partnership (WOP) arrangement with a consortium of Singapore Cooperation Enterprise, Singapore water utility (Public Utilities Board (PUB) and engineering firm CH2M Hill (Singapore Consortium), to develop an integrated water management framework in order to achieve 24x7 potable water supply, reduce NRW, and improve management of water resources. In July 2012, the team submitted a report recommending a focus on NRW.
- In May 2013, GoM entered a contract for project management services with the Singapore Consortium to manage Rs 800M of rehabilitation works. When the contract expired in June 2015, the investment works had not been completed due to procurement delays at CWA, and CWA took over supervision. Priority focus for the above contract was one of the six network zones (Upper Mare aux Vacoas, with a population of 200,000). Due to delays in procurement (CWA and Mauritius procedures), the project has still not been completed. Preliminary results indicate only limited improvement on service quality in spite of significant expenditure. More detail on this is provided in Appendix 3.

These initiatives were delayed and thwarted by a number of factors, including changes in government and a preference for short term fixes.

New Approach to Reform

GOM plans to commit US\$550 million over the next 10 years to upgrade water infrastructure to achieve continuous supply for all of the island's population. While the current tariff (at average of US\$0.35 per m³) covers O&M costs and a small portion of capex costs, GOM intends to capitalize on the expected improvement in services to carry out in parallel an institutional reform of the sectoral framework to clarify

roles and responsibilities and to introduce gradual tariff increases, leading to self-financing sustainability of the sector.

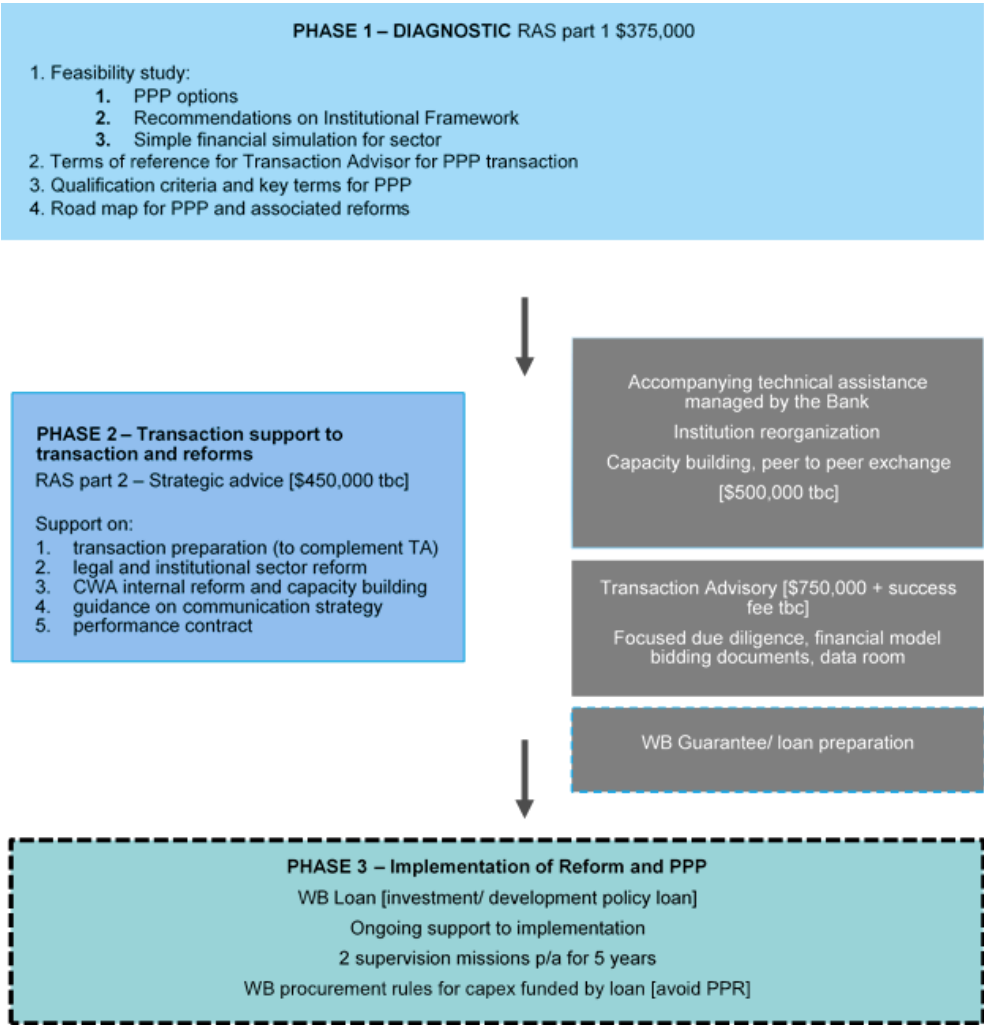
GOM approached WB to carry out a just-in-time focused analysis of possible options for PPP and associated reforms of the sector (drawing on existing reports) to ensure that the large capex investment is spent efficiently, produces sustainable results in terms of achieving continuous 24x7 potable water supply and improved operational efficiency, and that over time the sector becomes self-financing.

SECTION 3

World Bank Support

The World Bank responded to GoM’s request by proposing a phased approach for possible World Bank support, starting with reimbursable advisory services (RAS) to carry out the just-in-time diagnostic of the sector and analysis of possible PPP options together with outline recommendations on related reforms. The analysis would include a feasibility study that would enable the GoM to determine whether to move forward with the recommended PPP approach. If the GoM decided to proceed, then further support could be provided by the World Bank in the form of strategic advice to move forward with the transaction, recruit transaction advisors, procure the strategic partner, support sector reforms, and build capacity.

FIGURE 2: PHASED APPROACH PROPOSED BY WB IN NOVEMBER 2015



Scope of World Bank Mandate – RAS Phase 1

The Bank and GoM (through MEPU) agreed to a focused terms of reference for Phase 1 services set out in the RAS Agreement dated 18 February 2016, based on the Government's objectives for the potable water sector. Objectives included improved service supply, focused on customer delivery and continuous supply, efficient use of funding for capital investments, a move toward financial sustainability of the sector, and building of domestic capacity in potable water supply. Phase 1 services included:

- Strategic advice and support to GoM for the design and implementation of a PPP for the CWA and for potable water sector reform in GoM's territory, including a study of the institutional framework of the CWA, its operations and activities with a specific view on:
 - assessing the appropriate structure and form of PPP that could be implemented and taken to market, with the aim of bringing noticeable improvement in the supply and distribution of water to the population;
 - making a clear and direct recommendation as to the most appropriate and feasible PPP option based on current legal and environmental framework, including the financial conditions for such a PPP. This should include *inter alia* specific recommendations for funding of the proposed scheme; and
 - developing a basic financial simulation for the water supply sector based on an excel model which will be made available to MEPU.
- Assessment of the risks associated with the most suitable PPP structure and presenting a series of recommendations on risk allocation, including providing details on key elements of the proposed transaction such as guarantee schemes and implications on tariff.
- Recommendations on the most appropriate qualification criteria for the required selection of a private partner suitable for the proposed PPP Contract.
- Development of detailed terms of reference for a transaction advisor with a view to help expedite the recruitment and selection of such advisor.
- Development of a roadmap for the implementation of the PPP structure and associated reforms.

RAS Activities and Timeline for Phase 1

The Bank team agreed to the following timeline:

ACTIVITY	TIMELINE
RAS Agreement signed	February 2016
Kick off mission	March 2016
Conduct limited due diligence	March to April 2016
Presentation and workshops on due diligence and PPP options	1 to 5 May 2016
Draft feasibility report including: <ul style="list-style-type: none"> • PPP options – advantages, disadvantages • PPP preferred option – needs analysis, VFM etc • Draft sector financial simulation 	End May 2016
Draft TORs for transaction advisor for preferred PPP transaction	End May 2016
Draft qualification criteria and term sheet for PPP	End May 2016
Draft road map for PPP transaction and associated reforms	End May 2016
Feedback from GoM and WB internal review process	June 2016
Final report, TORs, term sheet, road map, and simulation	End June 2016

The draft recommendations, representing the first deliverable under the RAS Agreement, were delivered to the GoM during a mission the week of 1-5 May 2016 and the key findings were set out in an aide memoire dated 26 May 2016.

This report represents the final deliverable under the RAS Agreement.

Further Bank Support

Any turnaround of the water sector in Mauritius will require a comprehensive approach focused on reform of the overall legal and institutional framework of the sector, as discussed in section 4c. If a PPP approach is to be sustainable, it will be predicated on CWA having a strong team to carry out its functions. The Bank team confirms its readiness to provide support on water sector reform and capacity building of CWA, as per the initial proposal of a second phase RAS, made by the team in November 2015. Further support may also be provided through traditional Bank lending instruments such as a development policy loan (DPL), a sector investment loan, or a program for results (PforR) financing. Other options include instruments that could support the capex envisaged under the PPP, such as guarantee instruments (a note summarizing the different guarantee instruments available through the World Bank group is attached at Appendix 2). Where the Bank provides a loan, there is substantial advisory support included during the preparation and implementation of the loan. This would be available without additional cost to the Government, including supervision missions twice a year. The continuous presence of the Bank during the first years of PPP implementation could also provide comfort to potential bidders, thereby resulting in a more favorable bidding environment. This was confirmed during the preliminary market sounding (referred to in section 10).

World Bank Team

For the RAS, the Bank assembled a group of experts from around the World Bank, together with support from world class experts working on a number of continents:

International

Victoria Delmon
Senior Counsel
Task Team Leader

Cledan Mandri-Perrott
Head, Singapore Infrastructure
and PPP Group

Philippe Marin
Senior Water &
Sanitation Specialist

Jason Lee
Investment Officer

Jane Jamieson
Senior Infrastructure Specialist

Jalakam Solutions Pvt Ltd
Utility Operations Specialist

Local

Brinda Dabysing
Financial Specialist
Co-Task Team Leader

BLC & Associates Ltd
Legal

The team has also benefited through the internal review processes of the Bank from expert peer reviewers.

SECTION 4

Findings

Section 4a: CWA Operations

This section summarizes analysis of the technical aspects of the proposed PPP reform, including (i) assessing CWA operational performance, (ii) reviewing and validating CWA's investment program, (iii) providing projections for revenues, opex and capex for the financial simulation, and (iv) providing inputs for the key design features of the PPP Contract. The full report on CWA Operations is attached at Appendix 2.

The Consultant supporting the Bank team visited CWA during 14-23 March 2016 and 1 - 7 April 2016, and undertook technical and financial due diligence and performance evaluation through a series of discussions with the senior management staff, a review of existing study reports, and field visits.

Summary

CWA is responsible for managing the potable water for all customers (domestic, non-domestic, commercial, and industrial) in Mauritius as well as providing non-treated surface and ground water for irrigation and business purposes. It has historically provided a reasonable level of water services to the population, with over 99% service coverage, and generally met the growing needs of the developing economy.

There are a number of strengths in CWA's performance. These include:

- Full service coverage;
- Providing reasonable quality of potable water at a low tariff (thanks to low production cost);
- High collection rate for bills;
- A lean workforce (low worker to connection ratio) --although, as discussed below, probably too lean; and
- Good technical skills of older staff.

In the past decade, however, CWA had been achieving lower than required performance in managing water losses in the network, resulting in lower operating efficiency and increased rationing of available supplies to customers. This has caused hardship, increased risk to public health, and significant degradation of the infrastructure. CWA has also carried out limited demand management and failed to implement strategies to reduce inaccuracies in metering and billing, resulting in high commercial as well as technical losses. Tariff levels are low and while they cover operations and a limited amount of maintenance, CWA is dependent on subsidies for debt service, more extensive maintenance, and asset

management and investments. The high NRW levels and deteriorating ability of CWA to cover costs prevents CWA from long term business planning and asset management.

Key challenges identified by the Bank team include:

- Intermittent supply (average of 18 hours a day) affecting a significant proportion of the population (even in years with normal rainfall patterns) and quality at tap.
- Water resource issues: water losses are on the rise in a context of water scarcity and climate change.
- Poor working practices at CWA (including extensive use of contract staff even for regular staff positions even if they are not fully qualified for the position; other staff on contract who have been working for CWA for a lengthy period; lack of mobility of staff and limited recognition of performance).
- High number of senior retirements coupled with high attrition rate of mid-level staff due to uncompetitive remuneration packages and limited performance incentives.
- Low water tariffs for domestic and other purposes, which are insufficient to finance investments (in turn creating a burden on government's budget). These lead to low levels of maintenance and underinvestment in the network as CWA is not able to carry out long-term asset management and investment planning.
- Limited credibility to argue for full economic tariffs, while service quality is deteriorating.

Many of the challenges seem to have been compounded by poor working practices, including:

- Governance issues with procurement (pre-qualification criteria) are not controlled, despite cumbersome public procurement procedures.
- Poor supervision of contracted works like civil works and pipe repairs which require additional work.
- Lack of workers' flexibility includes no shift work, overtime, and a limited ability to recognize performance.
- Unfair practices, such as the situation of contract staff with many years of service that has not been formalized.

CWA is also facing a staffing crisis, with challenges such as:

- Low morale of staff and poor self- esteem.
- Ongoing retirement of key staff, which brings a loss of key technical knowledge in the absence of maps and GIS.
- No commercial orientation; the commercial department is merely a reading and billing unit with no follow up on whether technical faults reported by customers have been repaired.
- A bureaucratic and centralized structure.

As noted in section 1, previous efforts to bring in individual professionals and consultancy service contracts have failed to yield results. Instead, CWA requires a holistic solution to achieve a major turnaround.

The Bank team has concluded that potable water management on the island is in a vicious circle: there is a likelihood of accelerated asset deterioration and higher life cycle costs, which will cause water losses to continue to rise (along with water rationing).

There is, therefore, a need for greater efficiency and planning for public investment as well as increased operating efficiency: CWA NRW is at around 60%, reducing operating efficiency.

The real cost of adding new production capacity is high and could get more difficult in the context of climate change, so reducing NRW to keep more water in the system should be a priority in addition to moving to 24/7 continuous supply.

Asset rehabilitation program

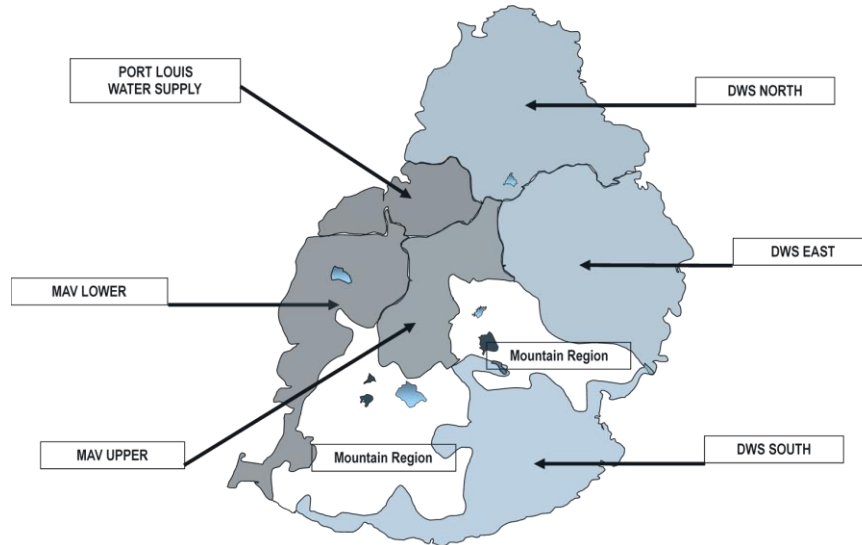
- Actual cost of repairs is hard to estimate because past unit costs are not reliable due to poor procurement practices.
- The total amount of repairs necessary is hard to anticipate and this can only be done on a per DMA basis, as 24/7 is gradually restored.
- Choosing where to use the funds is crucial: there is a need for a competent operator with full management authority, to ensure spending results in improvements.
- The economic level of leakage depends on the cost curve of reducing NRW (increasing marginal cost) against the cost of water (current vs. future marginal).

Service Areas and DMAs

- As shown in the figure below, CWA operations are divided into six geographically distinct operating zones⁹.

⁹ Areas in white are mountain regions with protected forests and limited habitation

FIGURE 3: CWA OPERATING ZONES



CWA distributes both treated surface water and chlorinated ground water in the six operating zones. CWA established about 256 DMAs with flow and pressure management instrumentation commencing in MAV Upper in 1995 as a pilot and then expanding it to the entire island in 2001.

CWA practiced management of flow and pressure measurement and leak detection up to about 2005, at which juncture the CWA's NRW unit was disbanded. Since then, activities have been limited to record keeping. The network has been deteriorating ever since and there is no longer flow and pressure management of the network. The Bank team understands that while the integrity of the DMAs has been neglected and compromised, they could be restored with relatively low levels of investment by a competent operator using good materials and workmanship.

Composition of Networks

Details of water network infrastructure are set out below:

TABLE 1: WATER NETWORKS IN CWA (in meters)¹⁰

OPERATING ZONE	DMAs	PE	DI	AC	CI	ST	GI	PVC	TOTAL
Port Louis	43	95,246	81,313	196,182	23,628	0	5,828	11,620	413,817
DWS North	31	281,043	210,992	272,520	45,051	28,850	23,716	4,600	866,772
MAV Upper	47	227,774	135,002	178,173	71,164	40,709	23,148	107	676,077
MAV Lower	50	191,803	211,259	203,701	72,199	13,939	35,412	34,956	763,269
DWS EAST	36	180,856	119,833	190,295	27,064	14,570	6,981	0	539,599
DWS South	49	199,387	147,895	132,696	23,800	16,911	1,941	0	522,630
Total	256	1,176,109	906,294	1,173,567	262,906	114,979	97,026	51,283	3,782,164

¹⁰ Source: CWA Drawing Office

This shows that details for approximately 3,782km of network are available in CWA's drawing office. Under the recent NRW reduction project undertaken by CWA in MAV Upper, the survey for establishing a GIS system has identified 815km of mains up to 20mm size, showing a variance of 20%.

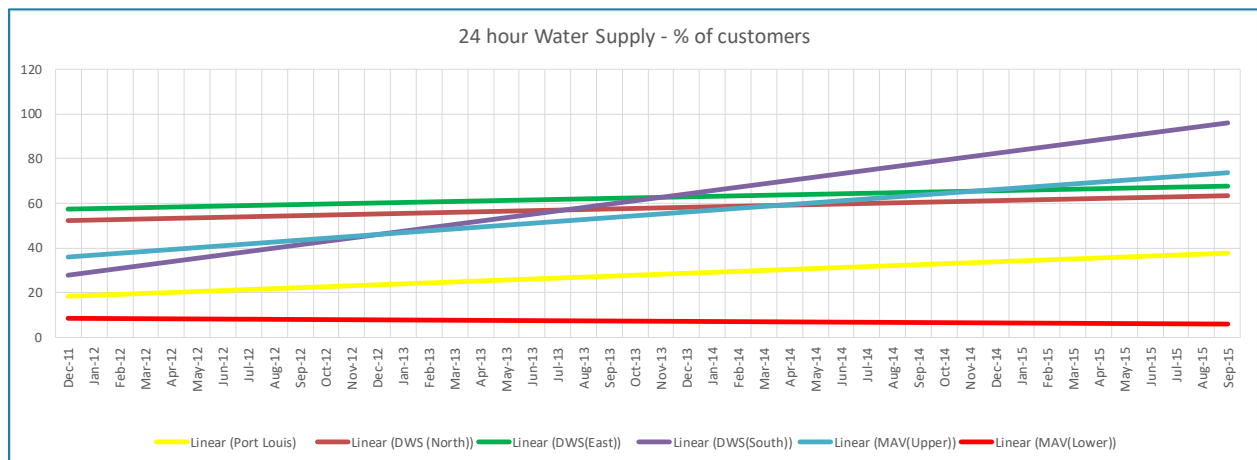
The drawing office has an established system for updating the asset data before a bill is paid for in the Planning & Development division of CWA. However, the team understands that for networks laid by private real estate developers (*Morcellements*), no-objection certificates on the quality and performance of network works are issued by the Operations Division and so these privately developed networks are not necessarily captured by the central database. In addition, the Operations Division of CWA also carries out pipe renewal programs of short lengths under maintenance, the details of which are not captured at all.

The size wise distribution of existing networks is provided in Annexure 1 of Appendix 3. Applying 20% variance, the total networks are estimated to be in the range of about 4,500km.

Intermittency of supply

While in some areas CWA is achieving continuous supply, it currently provides 18 hours of service on average across the country, with intermittency affecting 47% of the population. Physical losses are increasing due to lack of active leakage control, pipe deterioration, and inadequate hydraulics of the distribution network (lack of pressure management). CWA resorts to rationing primarily to limit the physical losses, especially in the dry season. CWA has a quarterly monitoring system of supply hours in each sub-zone. The data pertaining to December 2011 and up to December 2015 has been analyzed and is shown in the figure below.

FIGURE 4: WATER SUPPLY HOURS TREND



It can be seen above that Port Louis and DWS South have been showing significant improvement in percentage of customers with 24 hour water supply, whereas MAV Lower had been in further decline.

However, this data is based on oral reports of operations staff made to the Bank team, and the Bank team has not been able to verify this through measurement.

Customers are dissatisfied, particularly in the dry months when the intermittency increases. It is notable that they have developed mechanisms to cope with intermittency, such as roof tanks, which CWA through the Government subsidizes for the poor. The potability of water at the tap also cannot be guaranteed as the system is not pressurized and there is intermittency.

Non-Revenue Water

NRW levels across the island are relatively high, ranging from 53 to 65%. An analysis of NRW in each operating zone is shown below.

FIGURE 5: NRW TREND IN CWA

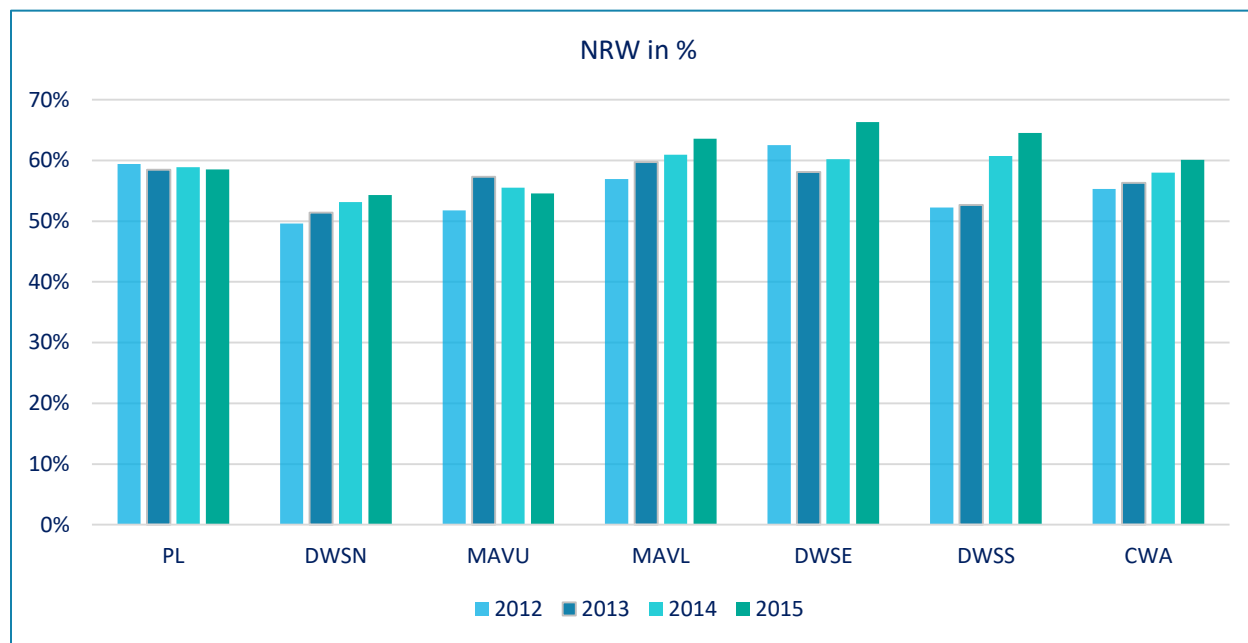


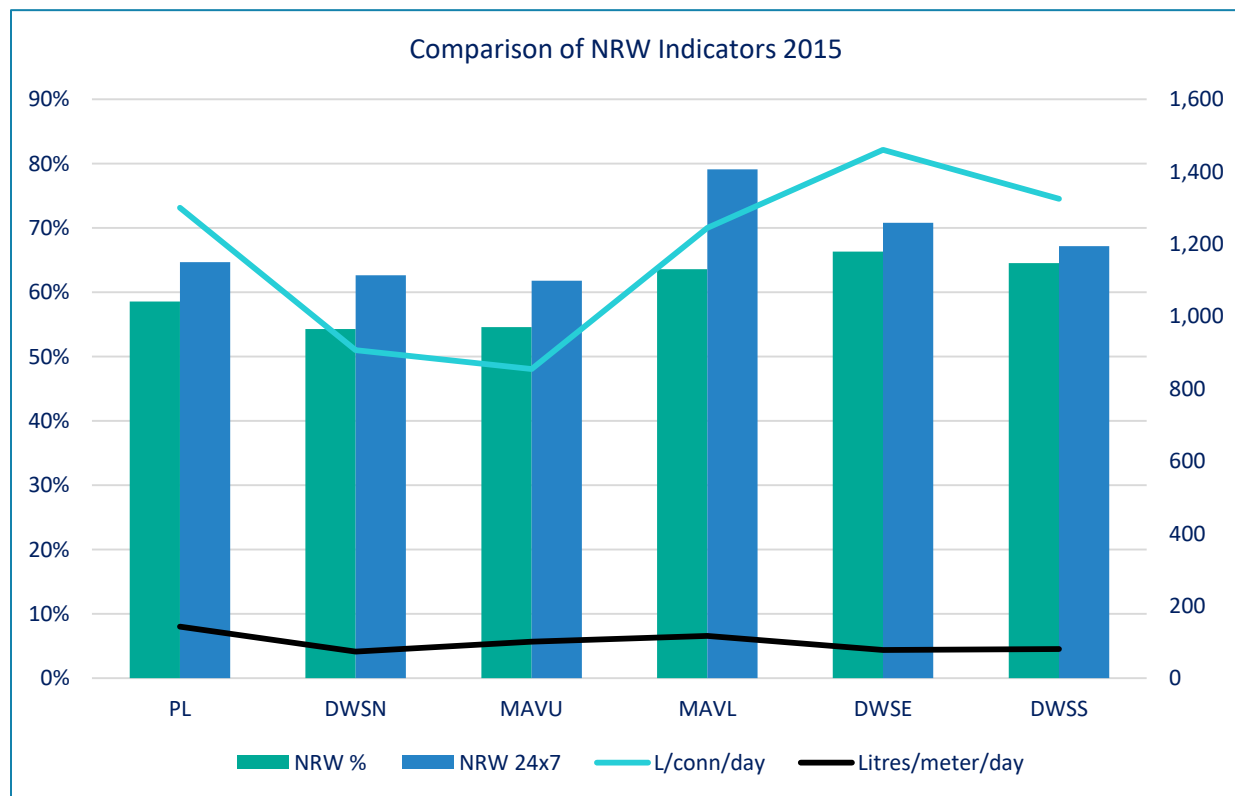
Figure 5 shows that despite several attempts to contain NRW, it has been increasing year on year in percentage terms over the entire CWA operation area. In the case of the Port Louis zone, the NRW had been stable, which was attributable to it being a concentrated urban area with a higher density of customers per unit length of network. At the same time, the NRW level in percentage terms has been on a small downward trend in the case of MAV Upper (the pilot PUB zone) since the year 2012, but still remains high.

Given that the GoM wishes to achieve continuous supply on the island, the team has attempted to project NRW levels under a 24/7 Supply scenario for each operating zone and to compare these with different performance indicators as shown below.

TABLE 2: NRW PERFORMANCE INDICATORS¹¹

OPERATING ZONE	NRW %	NRW 24X7	L/CONN/DAY	L/METER/DAY
PL	59%	65%	1,300	143
DWSN	54%	63%	907	74
MAVU	55%	62%	855	101
MAVL	64%	79%	1,245	117
DWSE	66%	71%	1,461	78
DWSS	65%	67%	1,325	81
Total	60%	69%	1,141	93

FIGURE 6: NRW INDICATORS



¹¹ NRW % - NRW level in percentage terms; NRW 24x7 – Projected NRW if the network is charged for 24 hour supply; L/conn/day – Liters per connection per day; L/meters/day is the NRW in liters per meter length of network per day

Conclusions:

MAV Lower is the operating zone requiring immediate attention and relatively high investments in pipe renewal as the prevailing intermittent water supply is rapidly degenerating the networks. The current production is totally dependent on ground water -- meaning several smaller network zones. CWA has proposed to augment the resources from Bagatelle dam on its completion. Moving from disaggregated networks to a more centralized supply system would tend to increase the physical losses further until checked and repaired under a rapid response regime.

MAV upper is the most favorable zone for quick conversion into 24x7 services.

The projected losses in 24/7 Supply are lowest in MAV Upper, reflecting a continuing trend of reduction in losses in the zone. This includes the recent intense efforts of the NRW project implemented in partnership with PUB, Singapore, albeit that the improvements are modest compared to the resources spent during the partnership.

Water Resources and Potential Production Capacity

Water resources in Mauritius rely on rainfall. The long-term mean annual rainfall over the island is about 2,000 mm pa (1971 - 2000). The topographical features of Mauritius enhance the rainfall, and the annual rainfall over the island is about twice the amount experienced over the surrounding ocean.

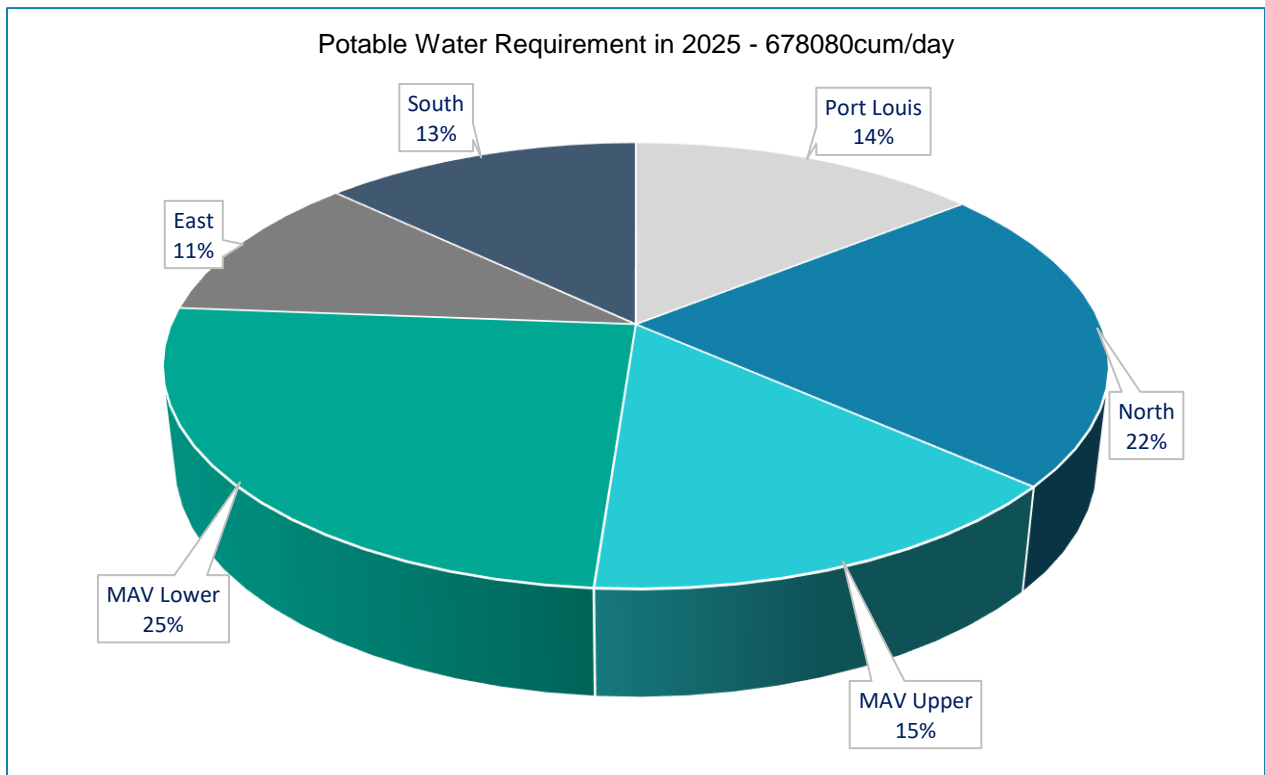
In spite of the relatively small surface area of Mauritius, the variability in the spatial distribution of annual rainfall is very prominent and varies from about 1,300 mm on the east coast to more than 4,000 mm at the plateau and down to 600 - 800 mm on the west coast.

The variability in mean monthly rainfall over the year is rather uniform across the island. On average some two-thirds of the annual rainfall occurs in the summer period, i.e. from December to April, due to passage of low pressure troughs and occasional tropical cyclones. The dry season is May to November.

At the end of year 2015, CWA sourced about 54% (average 360mld) of the resources from some 164 boreholes located across the island, and the balance of 46% (average 310mld) from surface water from raw water reservoirs as well as direct abstraction from the local rivers.

The potable water requirement in the year 2025 is projected to be 678080cum/day in the year 2025 and 686270cum/day in the year 2050. The zone wise distribution of resource requirement is shown in the following chart.

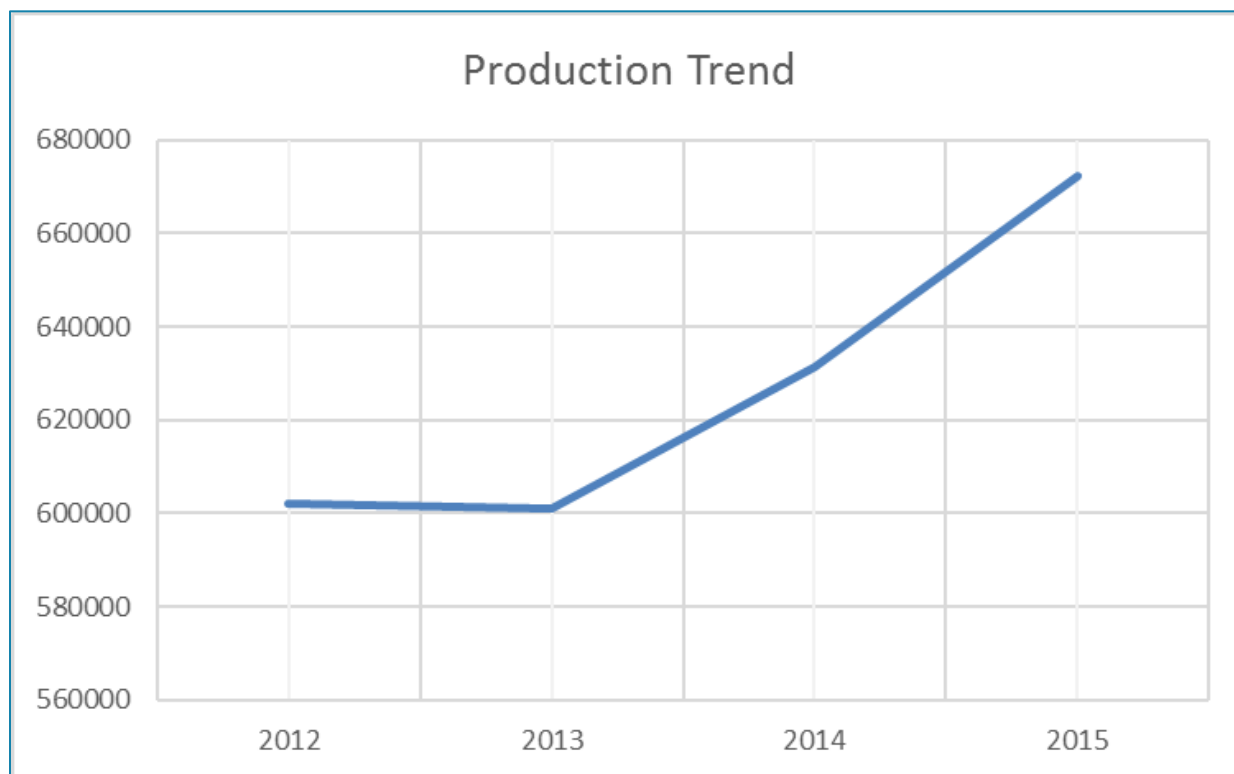
FIGURE 7: POTABLE WATER RESOURCE REQUIREMENT IN THE YEAR 2025



Production Trend

The total water production trend is analyzed below.

FIGURE 8: CWA TOTAL WATER PRODUCTION TREND



This shows that there was a slight dip (-0.2%) in production during 2013. It increased by about 5% in 2014 and by about 6% in 2015. CWA informed the Bank team that 2013 was a drought year and the utility had struggled to meet the demand due to shortage of resources and resorted to water cuts across the island.

The reasonable variations in surface and ground water production are set out in Appendix 3.

Conclusions:

- Ground water production share was at 55% and later reduced to 48% in the drought year 2013; it stabilized at 52% in recent years.
- During the dry seasons in each year, CWA produced more ground water by operating more boreholes.
- MAV Lower is totally dependent on ground water at 100% followed by DWS South at 70%.
- Port Louis had been witnessing substantial variations between shares of ground water. The team was informed that this is due to quality problems in the Clairefonds source and the problem is expected to be solved with the commissioning of the rehabilitation of the Pailles WTP.

Adequacy Check of Available Resources

An attempt has been made by the Bank team to check the adequacy of the available water resources, by comparing the future demand to the current production levels both in the drought year of 2013 and the normal rainfall year of 2015.

The CWA Master Plan projected future demand for potable water with the following assumptions:

- Increase in per capita consumption to 175lpcd by 2025 and 180lpcd by 2050.
- Reduction in NRW to 40% by 2025 and 25% by 2050.

The Bank team has sought to compare projected demand with that of the lowest production, which occurred in the drought year 2013, and also during the normal rainfall year of 2015, which is presented below.

TABLE 3: COMPARISON OF PROJECTED DEMAND WITH ACTUAL PRODUCTION IN THE YEAR 2013 IN CUM/DAY

OPERATING ZONE	DEMAND AT TAP IN 2025	COMPARISON TO DROUGHT YEAR 2013			COMPARISON TO NORMAL YEAR 2015		
		Production	Difference	Losses permissible	Production	Difference	Losses permissible
PL	57,540	109,075	51,535	47%	109,527	51,987	47%
DWSN	90,410	117,005	26,595	23%	128,498	38,088	30%
MAVU	59,180	107,479	48,299	45%	108,209	49,029	45%
MAVL	101,920	112,103	10,183	9%	122,019	20,099	16%
DWSE	44,390	76,338	31,948	42%	96,702	52,312	54%
DWSS	52,610	79,072	26,462	33%	107,397	54,787	51%
Total	406,050	601,072	195,022	32%	672,352	266,302	40%

It can be seen above that, except in MAV Lower, the available production as achieved in the normal year of 2015 is reasonably sufficient to meet the demand needs in 2025, provided that CWA institutes a focused and structured program of water loss control to reduce the average losses to 40% from the present level of 56%.

When the Bagatelle water source, including Water Treatment Plant, reservoir, pumps and transmission lines, comes on line with an additional resource of 40000cum/day for MAV Lower, the team estimates that CWA may be able to manage for some time with the available resources even during the risky drought years, therefore postponing the necessity for additional sources to be developed.

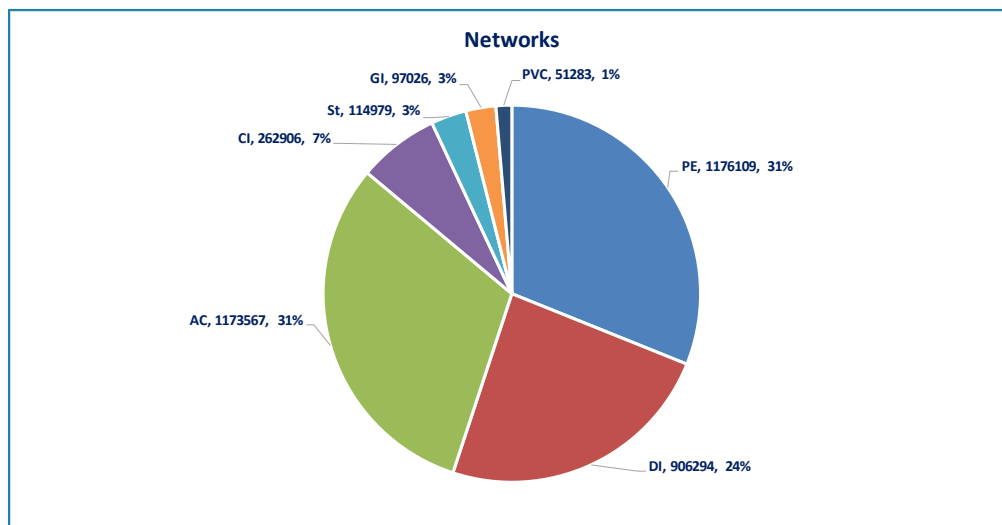
It should be noted that this adequacy check against the production volume during the drought year 2013 shows that CWA requires additional efforts to contain water losses so as to insulate customers from water rationing or water cuts.

If the water loss reduction program is coupled with demand management measures such as rationalization of domestic tariff and a robust customer meter maintenance program, the available resources during a normal rainfall year would be able to meet the demand needs even in the year 2050.

Network Composition

The team understands that the network is composed as follows:

FIGURE 9: NETWORK COMPOSITION



It can be seen above that slightly more than half of the networks are Poly Ethylene (PE) and Ductile Iron (DI) pipes whereas Asbestos Cement (AC) pipes constitute about 31% and Cast Iron (CI) pipes about 7%.

The age of the networks is shown in the following table.

TABLE 4: AGE DISTRIBUTION OF NETWORKS¹²

PIPE MATERIAL	PERIOD OF USAGE		AVERAGE AGE
	From	To	Years
Asbestos Cement	1860	1980	96
Cast Iron	1880	1979	87
Steel	1900	1960	86
Galvanized Iron	1950	1979	52
PVC	1973	1979	40
Ductile Iron	1980	2016	18
Poly Ethylene	1988	2016	14

Leak Repairs

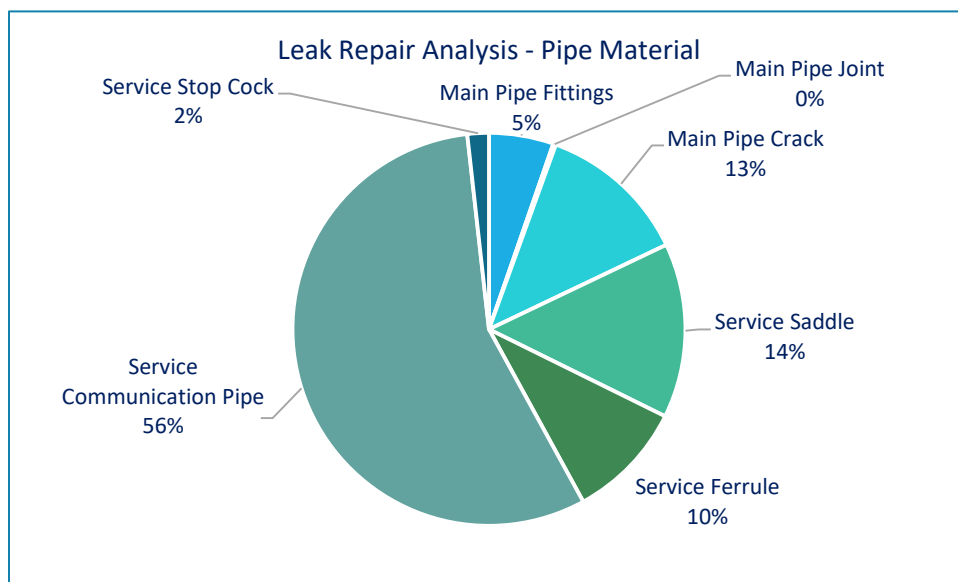
¹² Source: Analysis of leaks and Repairs; NRW Unit, CWA

The leak repair data is not very robust. The recent NRW project with Singapore collected leak repair data for MAV Upper, which is further analyzed and shown below.

TABLE 5: LEAK REPAIR ANALYSIS IN MAV UPPER ZONE

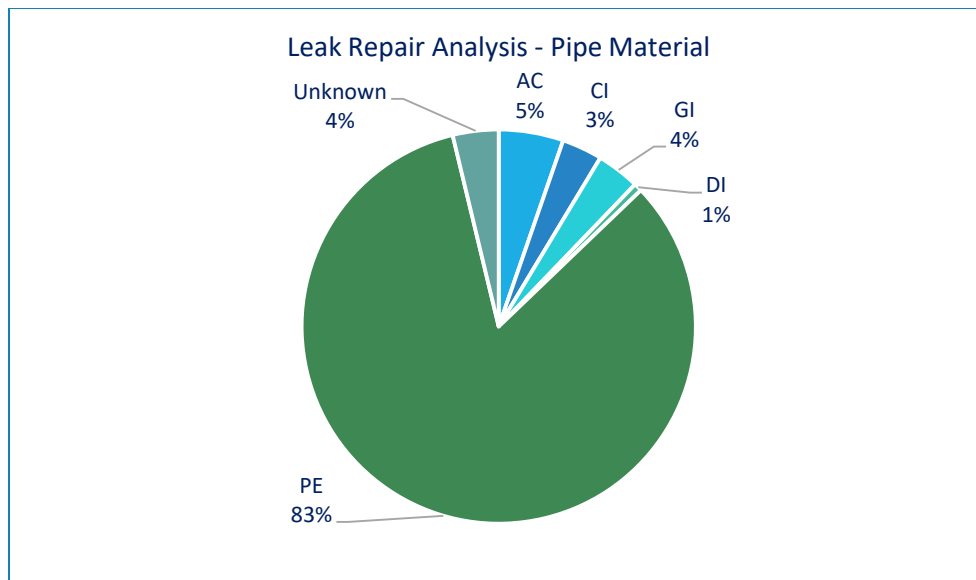
CATEGORY OF LEAK	AC	CI	GI	DI	PE	UNKNOWN	TOTAL
Main Pipe Fittings	2	1	1		18	2	24
Main Pipe Joint	1						1
Main Pipe Crack	3	3	4	1	44	1	56
Service Saddle	5	4	4		51	1	65
Service Ferrule	12	5	1	2	24		44
Service Communication Pipe	1	2	6		233	12	254
Service Stop Cock	0	0	0		7	1	8
Total	24	15	16	3	377	17	452

FIGURE 10: LEAK REPAIR ANALYSIS – CATEGORY OF LEAK



It can be seen above that the Service Pipe repairs were about 56% followed by service saddle and ferrule together at 24% and the main pipe cracks are about 13%.

FIGURE 11: LEAK REPAIR ANALYSIS – PIPE MATERIAL



This suggests that the vast majority of repairs were on the recently laid poly ethylene pipes. The team was informed that problems found related to poor workmanship or poor quality materials.

Customer Services

CWA has a customer services department with full electronic data processing although the systems are in desperate need of software (currently operating on Windows XP platform) and hardware upgrades. It is not however what one would expect from a true commercial department; it is more a billing department with little link with clients in practice as complaints relating to leaks and service are routed to the Operations division and customer services does not follow up on complaints and repairs. The commercial division is responsible for (i) meter reading, (ii) billing, (iii) bill delivery, and (iv) managing the CWA hotline for customer complaints. Once the complaint has been forwarded to the Operations division the commercial division has no further involvement or follow up role.

In terms of customer categories, CWA customers are divided into two global categories (i) Non-treated water and (ii) Potable water. The customers receiving non-treated water are further divided into some 10 sub-categories based on tariff charged such as irrigation, business, or industry again depending upon surface or ground water. The potable water customers are further divided into 10 sub-categories such as domestic, commercial, industrial, religious trusts, or agricultural.

The number of customers at the end of year 2015 are shown in the following table.

TABLE 6: CUSTOMER ACCOUNTS IN CWA

NUMBER OF CUSTOMER ACCOUNTS			
Service Zone	Non-Treated	Potable	Total
Port Louis	42	49,186	49,228
DWS North	122	76,694	76,816
MAV Upper	78	68,920	68,998
MAV Lower	61	62,176	62,237
DWS East	16	43,780	43,796
DWS South	56	52,172	52,228
Total	375	352,928	353,303

Customer Meters

- CWA has in theory 100% metering of customers although the team understands that currently about 60,000 meters are not working and that number is rising due to past procurement of poor quality meters. It is unknown how many meters are functioning but inaccurate.
- Meter reading is done and recorded manually on a monthly basis by 106 meter readers who report to the commercial manager with very little accountability to the field operations teams. Monthly billing is done at central office where the manual readings are then manually entered into the database. Bills are physically distributed to all field offices for delivery to customers. Revenue collection is done through field customer service centers.
- 8,000 new connections are sanctioned on average per year.

Performance of Commercial Division

- The team understands that qualification criteria for meter readers are limited and so there is a significant lack of professional skills in the commercial division. This is compounded with limitations of vehicular transport due to a shortage of vehicles.
- Despite these limitations the current revenue collection efficiency is reported by the commercial division to be around 99% with no significant customer debt problems.

Customer Complaints

- CWA's hotline part of commercial services has been outsourced under a performance- based service contract with Mauritius Telecom. The CWA hotline received an average of about 141,000 complaints per annum in the period during 2012 -15 with an average of 24,000 complaints per each operating zone. Analysis of complaints is shown below.

TABLE 7: CWA COMPLAINTS ANALYSIS

CATEGORY	2012	2013	2014	2015	AVERAGE
No Water	40%	38%	41%	36%	39%
Insufficient Hours of Supply	3%	4%	4%	4%	4%
Broken Mains	3%	3%	3%	2%	3%
Broken Communication Pipes	20%	19%	13%	13%	16%
Leakage	5%	4%	7%	12%	7%
Meter Connection Leakage	3%	3%	2%	3%	3%
Meter Reading	6%	7%	7%	6%	6%
Excessive Bills	3%	4%	5%	5%	4%
Others less than 2%	18%	18%	19%	20%	19%

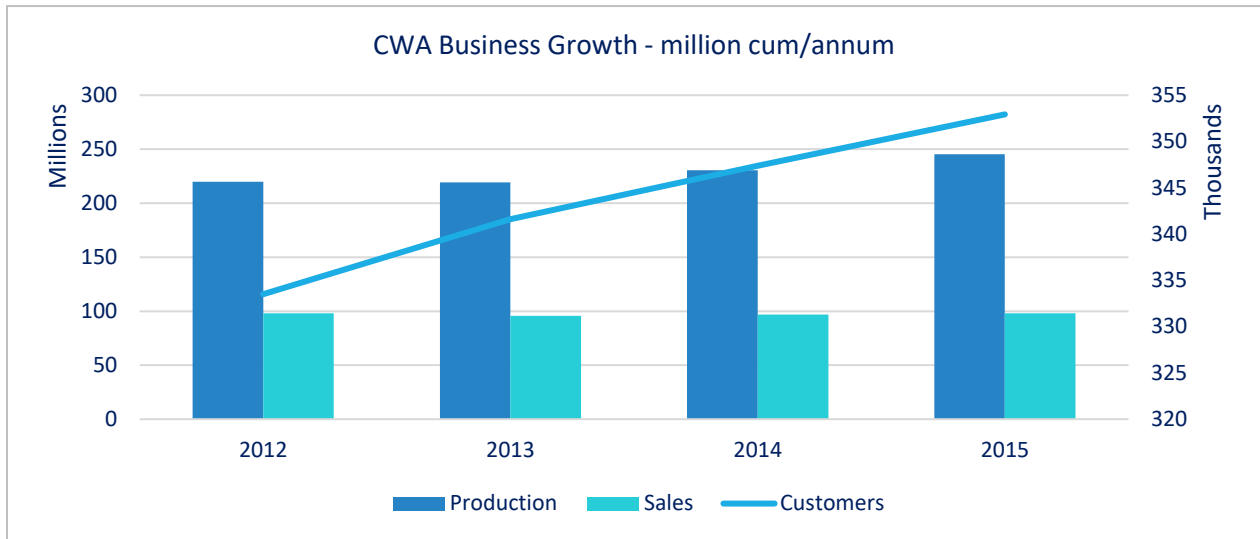
- Inferences:
 - Highest number of complaints, about 39%, were for no water; in addition, the insufficient hours of supply account for 4%.
 - About 29% pertain to physical leakage with 16% on broken communication pipes. This suggests both a high frequency of visible leaks (35,000 call per year or about a hundred per day) and that the population seems fairly involved.
 - Meter reading and excessive billing accounted for about 10% of complaints.
 - The majority of complaints related to service performance and would have been forwarded to the Operations division for resolution, with no follow up by the hotline.

Water Sales

- For the purpose of analyzing the water sales and performance efficiency, the production and sales data pertaining to potable water supplies is set out in Appendix 3.
- Business growth trend

The four-year business growth trend is analyzed and shown below.

FIGURE 12: CWA BUSINESS GROWTH TEND



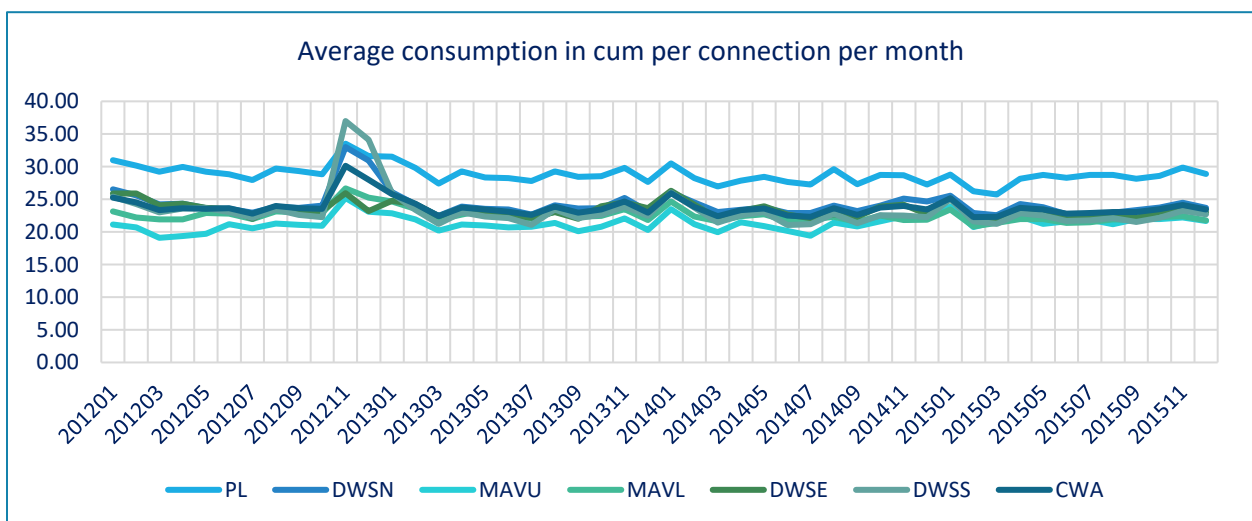
Note: Production is in cum/annum; Sales is cum/annum and Customers are number.

It can be seen above that while customers are growing by about 1.5% to 2% per annum, the production increased over 5% and sales remained stagnant indicating an overall increase in Non-Revenue Water (NRW).

Consumption Analysis

The trend of consumption in different operating zones in presented below.

FIGURE 13: CONSUMPTION TREND



Conclusions:

- i. Average consumption per connection per month is highest in the Port Louis zone since the number of customers served per connection is highest in the urbanized capital city.
- ii. The aberration of high consumption during November 2012 could be due to delay in billing, resulting in a spike.
- iii. Despite the erratic intermittent water supply with least supply hours when compared to other zones, the consumption is not very different -- meaning the customers do get water they need and possibly make coping arrangements through private storage. It may also possibly be due to over reading of meters.
- iv. DWS South, being relatively less populated and also less economically prosperous, has a slightly lower consumption level.
- v. The stable consumption pattern indicates that the demand satisfaction level would be almost asymptotic with less possibility of any future increase in consumption.
- vi. This analysis does not take into account the customer meter errors.

More detailed customer analysis is set out in Appendix 2.

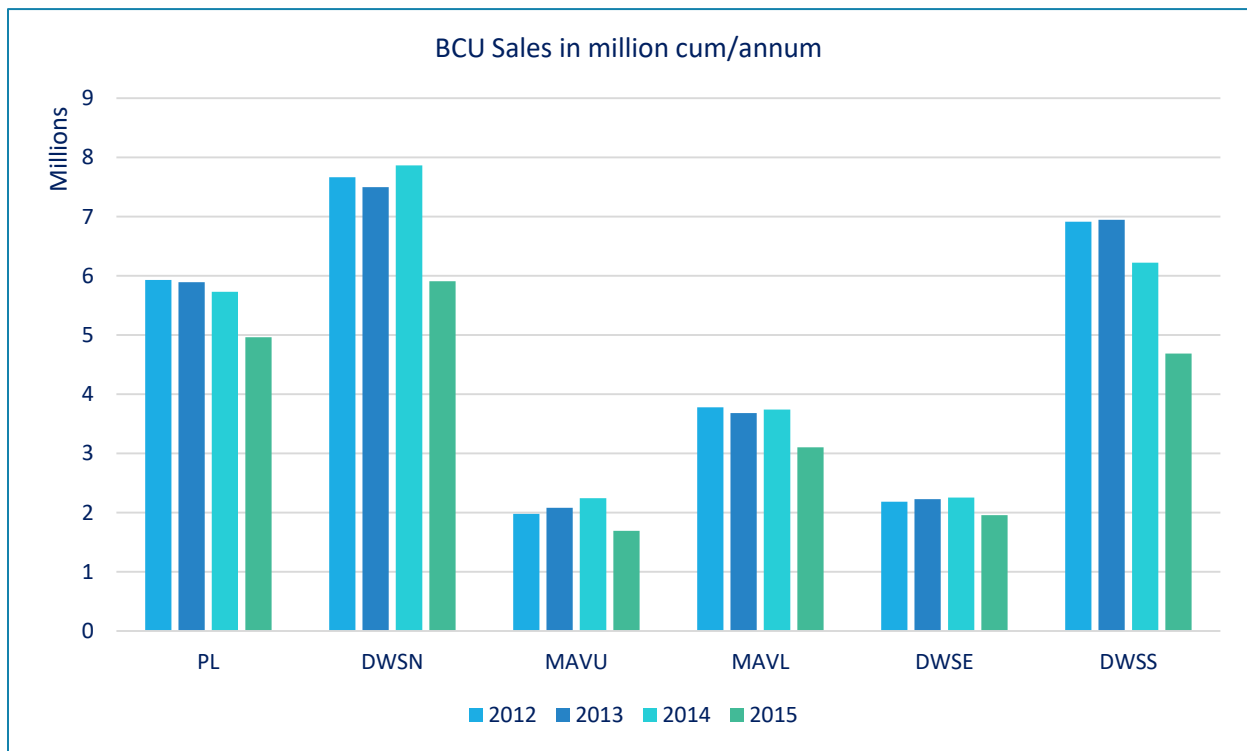
Bulk Customer Unit

Out of the customers receiving potable water, some 2,500 customers are high revenue or high consumption customers accounting for a sales volume of about 29%, contributing about 35% of revenue. These are serviced through a dedicated Bulk Customer Unit (BCU) from the CWA central office.

The tasks of meter reading, billing and customer complaints redressal is managed by the BCU.

The sales trend of BCU unit is further analyzed and shown in the following chart.

FIGURE 14: BCU SALES TREND



CWA has experienced a significant reduction in BCU sales volume. Water sales, even in the drought year of 2013, remained constant, but then dropped significantly in year 2014 and even more so in 2015. CWA's anti-fraud unit has been made active in recent months and discovered that large customers had been tampering with the meters and is said to be proceeding with legal action.

Review of Planning and Development Activities

Planning and Development (P&D) Division - P&D Division is a weak division within CWA. It spends about MUR 400m investments per year with no strategic plan. Although it had a Master Plan prepared, the result was of questionable quality.

The Chief Engineer is retiring in a year and while Principal Engineers have an average 15 years of experience, Executive Engineers are almost fresh graduates with very little training. There is therefore a significant need to strengthen capacity in this area.

Project implementation is slow despite outsourcing most of design and construction supervision activities. The average duration time for a procurement of pipe network is about 9 months. The average cost of outsourcing to local engineering consulting firms is about 6% with about half split between design and supervision charges. A local contractor was awarded the contract of rehabilitating the Pailles WTP, but the project was badly delayed.

The team understands that the proposed new WTW at Bagatelle dam was subject to a legal challenge of the procurement decision that has only recently been resolved, leading to delays in that project as well.

Qualification criteria used by CWA for procurement seem to be set to support local suppliers with a high number of mis-procurements and legal challenges. Quality assurance is hardly practiced, resulting in low quality products and workmanship. In one pipes and fittings contract, the fittings did not fit due to quality control issues but the P&D had stipulated in the tender that that pipes and fittings should be of same brand and manufactured in the same factory. Most pipe manufacturers in the world do not make fittings and either supply them as bought out items or outsource them from fittings manufacturers under their brand, making this stipulation hard to meet. This stipulation has created a near monopoly situation, with one local trading agency supplying a single brand pipes and fittings.

In the recent NRW project, this stipulation was not followed by the Project Manager and the team accepted pipes and fittings from manufacturers which are not usually permitted by P&D Division. As a result, the NRW team was able to complete the pipe replacement in much shorter time frame.

TABLE 8: CWA CAPITAL PROJECTS IMPLEMENTED BETWEEN 2006 – 15

CATEGORY	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
	Capital Cost in MUR										
WTW expansion	0	0	0	31	0	0	0	0	0	0	31
WTW Rehabilitation	0	0	0	0	0	0	0	0	0	735	735
Expansion of storage	0	0	0	24	117	0	0	0	0	0	141
Inter zonal transfer	0	125	0	0	22.1	75	0	0	0	71.9	294
Network expansion	158.32	165.2	242.8	140	101.1	126.4	539	0	188.9	107.1	1768.82
Network pipe renewal ¹³	0	0	0	0	0	0	110	281.3	48.8	179.3	619.4
Office buildings	0	0	0	143	0	0	0	0	0	0	143
Total Cost in MUR	158.32	290.2	242.8	338	240.2	201.4	649	281.3	237.7	1093.3	3732.22
Total Cost in US\$	\$4.52	\$8.29	\$6.94	\$9.66	\$6.86	\$5.75	\$18.5	\$8.04	\$6.79	\$31.24	\$106.63

CWA Ongoing Improvements

As at the end of March 2016, CWA is implementing the capital projects for service improvements set out in table 26 of Appendix 3.

In addition to the above, CWA through the Wastewater Management Authority (WMA) was also mandated to undertake pipe renewal programs in areas where sewerage projects are being implemented. This decision was apparently to avoid repeated road restoration requirements and also based on requirement of shifting of existing CWA water networks.

WMA had been implementing four contracts (Plaines Wilhems Sewerage Project) on behalf of CWA, mostly located in MAV Lower Operating Zone for replacing 110km of CWA existing networks.

TABLE 9: WMA CONTRACTS FOR REPLACEMENT OF CWA NETWORKS

SL. NO.	CONTRACT NO.	LOCATION	NETWORK LENGTH IN KM
1	Lot 1A – WW80F	West Rose Hill, South West and Central Quatre Bornes	50
2	Lot 1B – WW99F	Rose Hill, Beau Bassin, Roches Brunes, Plaisance and Mont Roches	10
3	Lot 2 – WW81F	Quatre Bornes, Sodnac, Belle Rose	50
	Total		110

¹³ Network Pipe Renewal details during the years 2006 – 11 is not known and possibly included in network expansion costs.

The above contracts have estimated and provided for 110 km replacement but during implementation, CWA has since identified that a total of 150km needs to be replaced and the contract variations are still in preparation.

The above contracts were entrusted to WMA between 2007-9 and are yet to be completed. While WMA completed most of the pipe laying, moving connections linked to the new networks is still in progress due to poor coordination between the local CWA operations units and WMA. Now that some of pipes laid are already 8-years old with no commissioning in sight it would lead to risk of poor performance of the assets even before handover to CWA.

The above issue is one of the reasons for the MAV Lower Zone which is very densely populated continues to struggle with erratic intermittent water supply.

In all the above ongoing works of pipe replacement and shifting of connections, CWA was not replacing the customer meters (which is against good operating practice whereby customer meters are usually changed in such event). CWA indicated that there was no need of replacement but the actual reason could be that the meter replacement is the responsibility of commercial division while shifting of connections is the responsibility of operation division.

CWA Proposed Investments

GoM launched an ambitious program funded under the “Build Mauritius Fund” (BMF) with the source of revenue from a cess on fuel.

Under the 'Build Mauritius Fund', GoM earmarked an outlay of MUR.3.6billion (\$103million) in its 2015 Budget for implementation of some priority water sector projects. These include replacement of old and inefficient pipelines in strategic locations (blackspot areas) including shifting of connections, increasing storage capacity by construction of new service reservoirs and construction of new and upgrading of existing water treatment plants. The basis for prioritization and selection of these projects is not clear with different perspectives provided by different divisions of CWA. The timeframe for implementation of Phase 1 projects with an outlay of MUR 5.5billion (\$157million) is 2016-2018. Phase 2, covering the period from 2018-2020, is comprised of pipe renewal works at an outlay of MUR5.3billion (\$151million). The proposed projects are listed in Annexure 2A and 2B.

No resource plan has been identified and no project implementation for these projects has been developed. The P&D division had been struggling to appoint consultants for about a year.

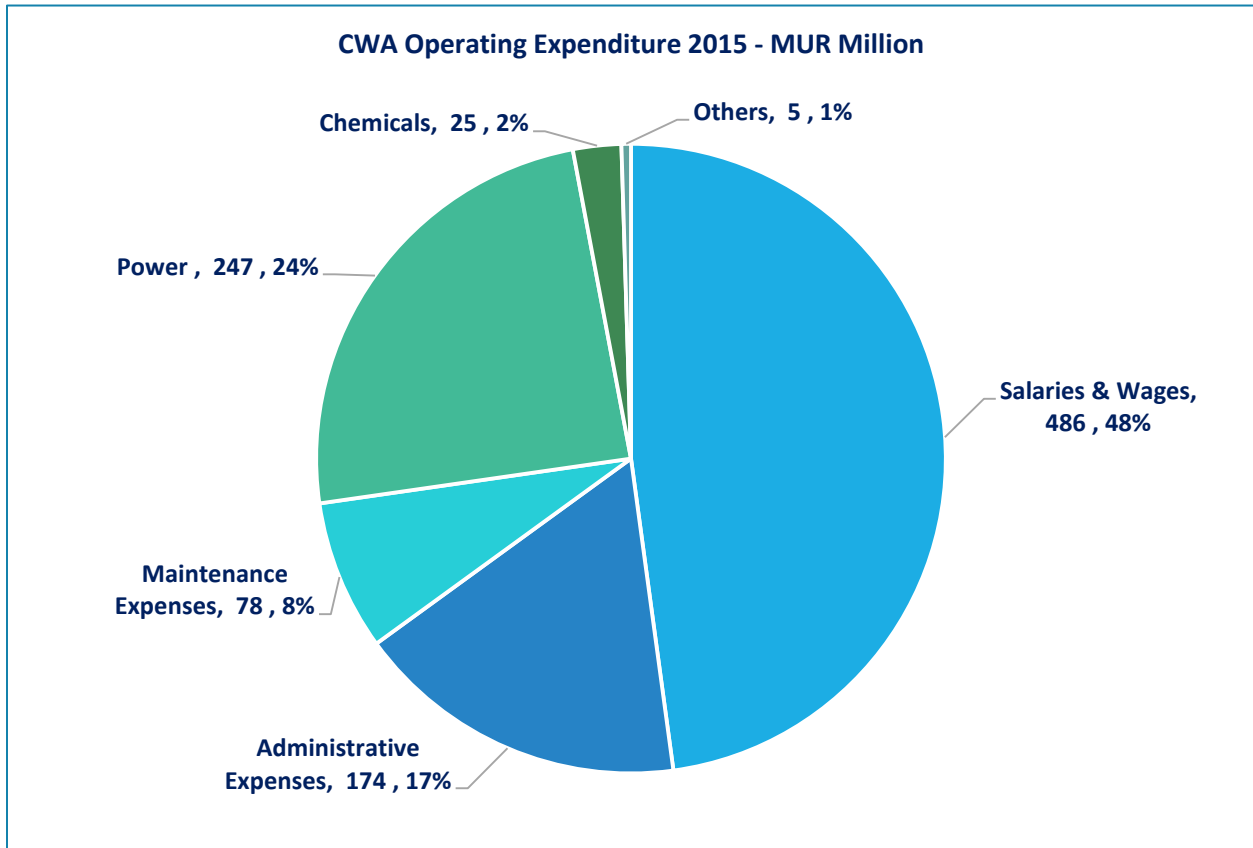
The capacity of current CWA staff (P&D) is said to be about MUR400million (per year and the SCE Project Manager could deliver MUR600million (\$17million) in two years under the NRW project. It indicates that an outsourced capital works manager can deliver about MUR300million (\$8.5million) per year and hence the proposed program would require at least five additional project managers. Another significant limitation is the capacity of local contractors which require substantial improvement through partnership with overseas contracting firms specialized in water supply pipe line works especially with trench-less technologies to meet the requirements of the Road Development Authority. CWA had tried to recruit three project managers from the local market but could not find suitable candidates.

CWA Financials

CWA operating expenditure is set out in Table 28 of Appendix 3.

The breakdown by category of Operating Expenditure for 2015 is shown below.

FIGURE 15: CWA OPERATING EXPENDITURE 2015



Observations:

- i. Salaries & Wages do not include wages of staff in the Planning & Development Division which are capitalized.
- ii. With power costs at 24% there is a potential for savings of up to 10% from non-revenue water management. For instance, the local operations staff under pressure due to intermittent water supply often resort to pumping from stand by pumps and stand by bore-holes assuming additional discharge. The amount of additional discharge of water (ie physical losses) from such parallel pumping would be about 20% due to increase in friction losses in the system and pumps operating at a far lower than the designed operating point.
- iii. Chemicals at 2% also has some potential for savings as in most of the water treatment plants the chemical dosing is very adhoc and not based on recommendation of scientific services resulting in excessive chemical dosing or wrong choice of chemicals. However, due to the dependence on

imports this may have cost variations depending upon the global economic situation and maritime regulations

CWA Tariffs and Income

CWA charges a volumetric tariff on increasing block structure tariff regime where the higher the consumption, the higher the unit rate per cubic meter. The current applicable tariff is provided in Appendix 1 as part of Data Volume A. In 2015 GOM declared free water up to 6kl and later amended the same to apply only to consumers consuming a total up to that level, with no free water for consumers who consume more than that. As the free water has only been made available since [March] 2016 CWA does not yet know how much revenue this approximates to. CWA is to be made whole by GoM for any shortfall as a result of the free water but CWA. However, it is understood that this subsidy is no longer applicable.

The Central Water Authority (Water Supply for Non-Domestic Purposes) Regulations 2011 set out the charges and category of consumer for water supply for non-domestic purposes. The categories of supply and monthly water charges applicable to the main categories of consumers are the following:

TYPE OF CONSUMER	RATE PAYABLE (Rs)
Business consumers	a) First 33 m ³ : 1122 b) Every m ³ : 34/ m ³
Industrial consumers	a) First 25 m ³ : 450 b) Every m ³ : 18/ m ³
Agricultural consumers	a) First 20 m ³ : 220 b) Every m ³ : 11/ m ³
Commercial consumers	a) First 17 m ³ : 391 b) Every m ³ : 23/ m ³

The team understands that tariff levels have not been increased in recent years and that tariffs do not even keep up with inflation. Revenue is sufficient to cover operating costs and some basic maintenance but does not cover rehabilitation or investment or debt service.

CWA Organisation

CWA Organisation chart is provided at Annexure 3 of Appendix 3. The management structure is shown below.

FIGURE 16: CWA MANAGEMENT STRUCTURE

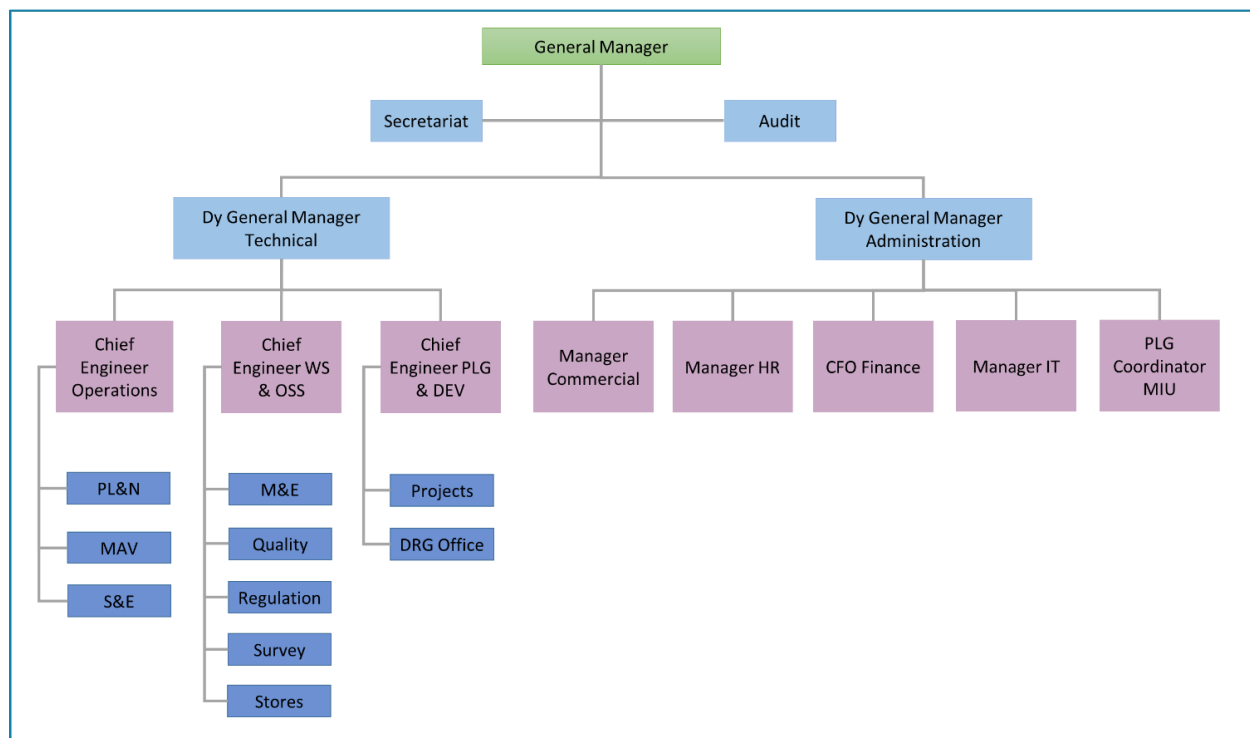


TABLE 10: RETIREMENTS UP TO YEAR 2020

DETAIL	NUMBER
Approved posts as at 2016	1357
Employees Working	1007
Vacancies	350
Retirements	
2016	17
2017	11
2018	25
2019	23
2020	47

Organisational Analysis of CWA

- i. The organizational performance is summarized below.
- ii. Good coverage of customer connections
- iii. More than sufficient water resources
- iv. Service level in between emerging economies and developed world bureaucracy
- v. Ageing assets
- vi. Ageing staff
- vii. High and increasing water losses

The team has concluded the following critical issues in terms of organization performance are summarized below.

TABLE 11: CWA ORGANIZATIONAL PERFORMANCE REVIEW

S. NO.	CAUSE	EFFECT	STRATEGY
1	Monopolies in <ul style="list-style-type: none"> • Functional responsibilities • Suppliers • Consultants 	<ul style="list-style-type: none"> • No accountability • Blame game • Distress decision making 	Break Monopolies <ul style="list-style-type: none"> • Introduce competition • Water account translates to team performance with safety net for historical asset conditions • Pilot area – learn and improve • Vendor development • Global bidding
2	Bureaucratic organization mindset <ul style="list-style-type: none"> • Strategic planning stops at corporate level • Middle managers engaged in paper work • No guidance to line staff • Allowances promoting inefficiency 	<ul style="list-style-type: none"> • Internal problems left for interventions by Consultants • Wastage of time and resources • New staff leave after couple of years 	Professionalize the staff <ul style="list-style-type: none"> • Appropriate, simple information systems • Rationalise allowances regime • Develop/hire analytical skills • Introduce Enterprise Resource Planning (ERP) • Train the younger staff
3	Poor Contract Management <ul style="list-style-type: none"> • No recognition of employer powers and responsibilities • More time and more money • No individual targets • Over dependence on consultants 	<ul style="list-style-type: none"> • Cost over runs • Mismatched implementation • Arbitration • No experience to new staff 	Improve Contract Management <ul style="list-style-type: none"> • Performance based contracting • Introduce individual targets • Electronic procurement • Develop local professional contracting expertise • Support joint ventures between local and global contracting agencies • Rationalise contract conditions
4	Compromise on quality and workmanship <ul style="list-style-type: none"> • 30000 leaks repaired and added • Low or no supervision and inspectors busy with paper work • No verification of consultants' work • No cross check with specs • Engineers lost touch with sites 	<ul style="list-style-type: none"> • Intermittent supplies • Deterioration of assets • Poor public image 	Improvement QMS <ul style="list-style-type: none"> • Institute a Quality team 2 International + 1 External local • Review specs and reinforce with latest practices • Incorporate minimum supervision standards • Develop simple job charts and site drawings for use of line staff • Stipulate key and critical equipment

S. NO.	CAUSE	EFFECT	STRATEGY
			<ul style="list-style-type: none"> • Prescribe post qualifications for specialised works • QMS certification
5	Poor internal and external communications <ul style="list-style-type: none"> • Chinese walls between functional heads • Formal paper communications • Low utilisation of intranet • Archaic paper trail 	<ul style="list-style-type: none"> • No periodical customer interactions • Gap between Ops face and customer 	Improve Communications <ul style="list-style-type: none"> • Fortnightly management meetings • Reduce file movement steps • De-bottleneck the intranet and train staff • Quarterly get-together • Half yearly meetings with resident associations • Customer message leaflets • Disclosure of Half Yearly Performance Reports

Service Improvement Planning

CWA, over the past fifteen years, made several attempts to improve the water services but these did not achieve the desired level of success. These attempts are summarized below.

NRW Reduction Consultancy Contract

- CWA hired the services of Severn Trent Water International to undertake the study and development of a strategy for NRW reduction. The consultant had completed base line studies and prepared a strategy for reduction but it was ultimately not implemented due to lack of commitment on the part of operations and commercial staff.
- In the recent NRW consultancy contract with the Singapore Cooperation Enterprise (SCE) although reasonably good efforts were made by the external consultants it was limited to information management through GIS, hydraulic modelling, some pipe renewal and capacity building of the NRW team in CWA. Due to very nature and structure of the NRW team not being part of operational or commercial divisions, with no oversight or input in respect of meter reading, meter readers or meter replacement or pipe laying, the results from the efforts were just about 1% reduction in NRW over 2 years.

In-sourcing of external professionals

CWA, with the objective of inducting professional management, had attempted and continues to hire professionals from the private sector for the key positions of General Manager, Deputy General Manager, NRW Manager, Commercial Manager etc. While these attempts have resulted in some islands of excellence, due to short term nature of such contracts, by the time the professional has understood the weaknesses of CWA, there is insufficient time for implementing solutions. Such arrangements also further dilute the accountability of permanent internal staff.

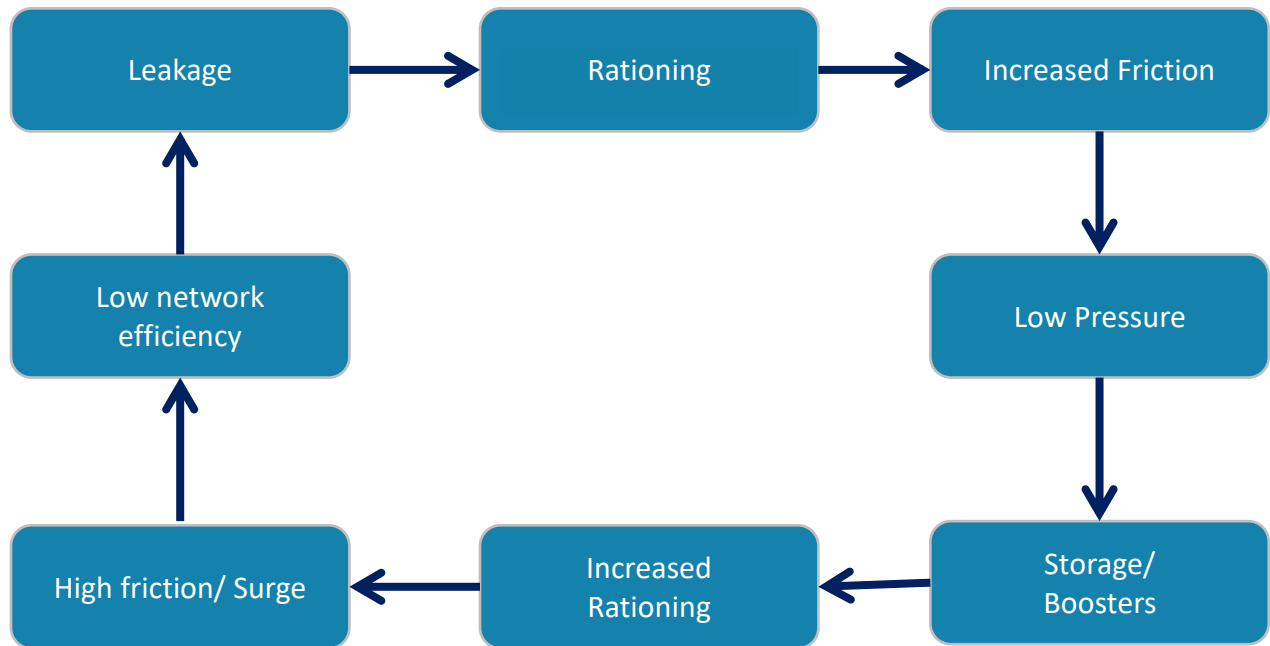
Hiring of Consultants

- CWA hires local and international consultants for most of the project planning, detailed engineering design and construction supervision tasks. However due to the lack of performance based contracting, these consulting contracts mostly result in high cost overruns and poor quality and workmanship of the works.
- For example, CWA faced substantial leakage through the recently built Pailles WTP, which CWA attributes to the supervision consultants and the contractors.
- As noted above, limited capacity and dubious selection requirements have led to contractors being selected who have delivered poor workmanship and materials for PE pipe replacement.

Intermittent Water Supply

- CWA's key problem is the prevailing practice of intermittent water supply which makes efforts to reduce non-revenue water futile.

FIGURE 17: VICIOUS CYCLE OF INTERMITTENT WATER SUPPLY



With each dry season, and aggravated with high leakage and bursts, CWA resorts to increased rationing affecting the network strength and reducing asset life.

The rationing would seriously inhibit operational feasibility of active leakage control (ALC) resulting in ever increasing losses.

To break this downward spiral, CWA requires a carefully planned, and dry season insulated, strategy to transform the service areas to continuous (24x7) water supply, track down the resultant increases in water losses with vigilance and train human resources supported by sufficient and timely availability of financial resources.

Implementation of above strategy requires the following:

- Change Management: Major surgery of change management especially in the functioning of operations, commercial, planning and development and procurement divisions and practices. CWA itself should be subject to performance requirements which are then reflected in management and division performance targets. Procurement bottlenecks and processes need to be addressed, so that improvements can be achieved over a reasonable timeframe
- Improving Quality and Workmanship: A total change of mindset is absolutely necessary to ensure that CWA procures and implements the best quality, sustainable workmanship.
- Water Resources: Additional water resources are required to meet the increased losses that will result from the introduction of continuous supply (see Table 13 below)
- Structured and focused NRW control program to reduce NRW to about 44% over a six year period through a holistic and phased approach.
- Financial Resources: It is essential to ensure continuous and timely availability of financial resources for pipe renewal plus working capital to meet the incremental opex necessary for additional production and intensive leak repair in the short term and for investment and asset planning in the longer term. As CWA does not recover its capex needs through revenue it cannot rely on investment levels and so is unable to plan medium or long-term. The most sustainable way to ensure that CWA has consistent funding available and is financially self-sufficient would be through improving CWA's operational and financial performance so that it can raise funding through tariffs and can eventually raise commercial finance.
- While the first two components above would be dealt in detail by the project team separately, an attempt is made to assess the resources required to address the components 32.3 and 32.4 hereunder.
- Requirement of additional water resources - The rationing resorted by CWA during the year 2015 is shown below.

TABLE 12: PERCENTAGE CUSTOMERS WITH DIFFERENT SUPPLY HOURS

ZONE	24 HOURS	16 TO 20 HOURS	12 TO 15 HOURS	< 12 HOURS
PL	69	0	22	9
DWSN	47	28	5	20
MAVU	54	7	36	3
MAVL	9	5	8	78
DWSE	68	8	21	3
DWSS	83	6	8	3

In moving to 24x7 water supply typically more water is required as NRW increases in a pressurized system and there is a general increase in uptake by consumers. Based on the average hours of supply in each operating zone and the NRW levels seen during the year 2015, an attempt is made here to project the NRW volume in simulated 24x7 supply and the resultant production capacity required which is shown below.

TABLE 13: PROJECTED NRW AND PRODUCTION VOLUMES

Projected volumes in 24/7 Supply							
Zone	Projected NRW (m3/year) in service area with current supply					Production required (m3/year)	Projected NRW %
	24 hours	16-20 hours	12-15 hours	<12 hours	Total		
PL	16,150,372	0	9,154,478	5,055,769	30,360,618	46,932,003	65%
DWSN	11,967,255	9,505,905	2,263,311	12,221,878	35,958,348	57,397,642	63%
MAVU	11,640,240	2,011,893	13,795,840	1,552,032	29,000,005	46,939,923	62%
MAVL	2,548,875	1,888,056	4,027,852	53,016,599	61,481,382	77,697,308	79%
DWSE	15,913,565	2,496,245	8,736,859	1,684,966	28,831,635	40,725,659	71%
DWSS	20,997,570	2,023,862	3,597,977	1,821,476	28,440,885	42,342,554	67%
Total	79,217,877	17,925,961	41,576,317	75,352,719	214,072,874	312,035,090	69%
Daily production required in 24x7 supply scenario in million litres per day						855	

The total production required to move to 24x7 service in the entire service area would be approximately 312million cubic meters of production which is equivalent to 855mld of daily production. During 2015, CWA produced an average of 673mld and hence additional resources of (855-673=) 182mld would be required.

However, it is not prudent to switch over to 24/7 supply in the entire service area simultaneously if NRW is to be managed. The switch to 24/7 must be planned efficiently and holistically from production to the DMAs in a phased campaign. Assuming a time line of six years of implementation to switch over to 24/7 to achieve say a 44% resultant NRW level, the requirement of production capacity would be 710mld necessitating additional water production of 37mld.

CWA had already initiated augmentation of water resources by 60mld (60000cum/day) capacity water treatment works at Bagatelle Dam at a cost of MUR1.25billion. Although the associated water transmission works are in completion stage, the dam and treatment works procurement are held up in local courts due to a procurement award controversy. Assuming CWA resolves the procurement issue, the availability of additional 60mld should be achieved in about three years that is by 2019.

Focused NRW Control - Although considerable efforts have been made by the recent NRW consultancy implemented by SCE, the resultant reduction in NRW was not encouraging (although as some of the planned works are still in implementation the overall impact of the pilot is not yet established). Taking into account the lessons that are being drawn from the consultancy, the following conclusions are noted to inform a sensible loss reduction strategy:

- DMAs isolation integrity can be achieved with relatively limited investment as the DMA structure is still intact
- Information management, analysis and monitoring requires modern tools like GIS and ERP systems for improving efficiency of operations and commercial services. There needs to be greater coordination between the operations and commercial divisions.
- CWA experiences a high amount of losses in communication pipes and suffers from challenges with meters (about a third of the meters are not functioning properly and another third are slow moving). Therefore, network rehabilitation should focus on house service connections and include a scientific meter replacement policy.
- About 4,000 bulk customers consume about 30% of the potable water supply and contribute about 35% of CWA revenue. Assuming 10% meter-error in this category would account to almost 3% of losses and 10% loss of revenue. As such it would be ideal to install high accuracy electronic customer meters (ultrasonic and automatically and remotely read) for these customers.
- High pipe breaks in MAVL due to greater proportion of AC pipes indicate that pipe renewal should focus on early replacement of AC, PVC, Steel, GI and CI pipes which are more than 40years of age. CWA desperately requires a scientific and robust asset replacement policy and protocol to sustain the improvements made.
- Customers are treated as sources of revenue and complaints rather than as assets, which are the center of CWA's business. Change management and an overhaul of the commercial division is required to transform it into a modern customer facing and orientated business.

Currently GoM has proposed to support CWA with investment funding of MUR 8 billion and the investment proposals drawn up by CWA to utilize these funds are shown in Annexure 2A and 2B. However, these proposals are ad hoc and are not based on a structured strategy of NRW control and achieving continuous water supply.

In light of above, an effort is made to develop an outline structured investment and asset management strategy, founded on the following principles.

- a) Water resource adequacy to be achieved with Bagatelle water treatment and transmission system to be completed by year 2019
- b) Remove bottlenecks in the existing water extraction arrangements to facilitate inter-zonal transfer to DWS North and MAV Lower zones
- c) Upgradation of water treatment process to meet the increasing turbidity in raw water resulting from climate change and deforestation
- d) Focused and structured water loss reduction program comprising of following components.
 - i. Renewal of DMAs to ensure functional measurement and monitoring instrumentation and integrity of isolation of zone

- ii. Replacement of service connections and customer meters to reduce leakage and commercial losses
- iii. Prioritised pipe renewal program to minimum dependence of Asbestos Cement pipes and old cast iron pipes
- iv. Replacement of identified mains with high leakage and repair history
- v. Pipe-renewal cum remodeling of primary distribution mains to improve water supply and pressure in the network

The above strategy is pictorially shown in the process flow diagram set out in Appendix 3.

Costing of Service Improvements

Basis for Scoping

Asset rehabilitation and replacement assumptions are made duly taking into account the historical capex investments made by CWA since year 2006 including the recent NRW project by itself as well as the network rehabilitation being implemented by the Central Wastewater Authority.

Basis for Costing

The unit costs for planning service improvements are derived from analyzing the recent NRW consultancy project as well as the proposed investments by CWA under BMF Phase I as shown in the following table.

TABLE 14: UNIT COSTS CONSIDERED FOR CAPEX PLANNING

US DOLLAR CONVERSION RATE IN MUR			35			
ITEM OF WORK	Source	Unit	Quantity	Amount	Unit Cost	
				MUR	MUR	US\$
GIS AND IT	NRWU	Number	48	30,178,542	628,800	17,970
DMA CIVIL WORKS	NRWU	Number	48	2,737,675	57,100	1,640
DATALOGGERS	NRWU	Number	55	2,994,466	54,500	1,560
BULK FLOW METERS	NRWU	Number	26	716,095	27,600	790
DMA INTEGRITY REHABILITATION	NRWU	Number	48	19,181,088	399,700	11,420
CUSTOMER SURVEY	AKJ	Connection	400000		40	1
ERP SYSTEM	AKJ	Job	1		30,000,000	857,150
VEHICLES	AKJ	Each	1		1,000,000	28,580
CUSTOMER METERS	AKJ	Each	1		1,200	40
AMR METERS	AKJ	Each	1		10,000	290
DMA INTEGRITY REHABILITATION	NRWU	DMA	1		399,700	11,420
NETWORK REHABILITATION	AKJ	Running Meter	1		2,500	80
NETWORK EXPANSION	AKJ	Running Meter	1		2,500	80

The scoping assumptions are shown in Annexure 4. The capex profile and the projected capital costs are shown in the tables provided below.

TABLE 15: ABSTRACT OF CAPEX INVESTMENTS

CAPEX IN MILLIONS WITHOUT INFLATION	MUR	US\$
CAPEX UP TO YEAR 2020	7,803	223
CAPEX FROM YEAR 2021-25	4,860	139
CAPEX FROM YEAR 2026 -30	2,535	72
TOTAL	15,198	434

All numbers are without inflation.

TABLE 16: CWA CAPEX PROJECTIONS

CAPEX ITEM OF WORK	CAPEX UP TO 2022		CAPEX 2022-30		TOTAL CAPEX	
	MUR Million	US\$ million	MUR Million	US\$ million	MUR Million	US\$ million
SOFT COSTS FOR BILLING AND IT SYSTEMS	268.64	7.68	97.28	2.78	365.92	10.46
WATER TREATMENT REHABILITATION	1,163.00	33.23	-	-	1,163.00	33.23
WATER TREATMENT PLANT NEW (BAGATELLE)	1,250.00	35.71	-	-	1,250.00	35.71
SERVICE STORAGE AND BUILDINGS	155.00	4.43	215.00	6.14	370.00	10.57
DMA RELATED	608.29	17.38	550.48	15.73	1,158.77	33.11
NETWORK REPLACED	4,551.83	130.05	1,021.16	29.18	5,572.99	159.23
ANNUAL NETWORK REHABILITATION	1,597.75	45.65	2,130.33	60.87	3,728.07	106.52
NETWORK EXPANSION	680.94	19.46	907.92	25.94	1,588.86	45.40
TOTAL CAPEX	10,275.45	293.59	4,922.17	140.64	15,197.61	434.23

All numbers are without inflation.

Section 4b: Sector Financial Simulation

Introduction

Section 4a, CWA Operations, summarized the current costs and revenues of CWA and these have been included in the financial simulation for the sector attached at Appendix 1.

Two simulations were developed as part of this assignment: i) a **sector model**, that envisages CWA continues to operate in its current capacity and ii) an **affermage model** that separates CWA as an asset holding company that interacts with an operating company.

The assumptions underpinning both models are detailed in this section. The methodology for developing both models was to use historical data to create a baseline for revenue, cost, and financing assumptions, which in turn was used to create a water balance, project demand, and develop an appropriate structure for projecting revenue and expenses.

This section then summarises some of the scenarios that the Bank team ran on the model.

Objective of financial simulation:

Analyze the impact of efficient private operation on financial sustainability of the sector, under **various scenarios of tariff increases and capex financing** – so as to make recommendations to GOM on financing policy of the WSS under the proposed PPP (tariff increases, capex financing).

Water Balance

The starting point for the simulation was to establish a water balance based on historical demand projections and a technical analysis of the system with respect to existing supply and unaccounted for water. The main water balance parameters for potable water are summarized in the table below.

	2015	
	<i>000s m³/day</i>	<i>000s m³</i>
TOTAL WATER PRODUCED (POTABLE)	671	244,905
UNACCOUNTED FOR WATER	403	146,943
PHYSICAL LOSSES		
VOLUME	268	97,962
PERCENTAGE OF WATER PRODUCED	40%	40%
COMMERCIAL LOSSES		
VOLUME	134	48,981
PERCENTAGE OF WATER PRODUCED	20%	20%
TOTAL WATER LOSSES	60%	40%
TOTAL WATER BILLED	268	97,962

Water Demand

Demand is calculated as the sum of metered consumption + commercial losses + unsatisfied demand. For metered consumption, demand projections were calculated by CWA customer categories and based on an analysis of historical consumption data. Total demand in 2015 was 162 million m³ comprised of 98 million m³ for potable water sales, 15 million m³ for non-potable water sales, and commercial losses of 49 million m³. In the base case, it was assumed that there is unsatisfied demand equivalent to 3% of domestic demand in the first couple years of transforming the system to 24/7 and estimated to be nonexistent afterwards. In any event, it is estimated that the level of unsatisfied demand is quite low due to the prevalence of storage systems at the household level.

Metered consumption projections are driven by two components, both broken down by CWA customer category: i) number of connections and ii) average consumption per connection. Both components were based on 2015 operational data provided by CWA and are summarized in the table below. Growth in connections was projected per category, but the primary drivers of connection growth are the assumptions regarding domestic, business, and industrial growth, which were estimated at 2% p.a. in line with CWA historical data.

CONNECTIONS	PROJECTED GROWTH P.A.	# OF CONNECTIONS	CONSUMPTION PER CONNECTION (M ³ /YEAR)
POTABLE			
DOMESTIC CONSUMERS	2.00%	328,720	228
PRISE ACQUIRED BEFORE 1891	-6.00%	18	291
PRISE AFTER 1891 BUT BEFORE 1895	-20.00%	1	0
BUSINESS CONSUMERS	2.00%	1,141	6,247
PUBLIC SECTOR AGENCY	0.50%	2,533	1,563
INDUSTRIAL CONSUMERS	2.00%	573	6,507
AGRICULTURAL CONSUMER	1.50%	3,977	329
COMMERCIAL CONSUMERS	1.00%	13,873	443
CONCESSION PRISE BEFORE 1969	-5.00%	12	520
RELIGIOUS & CHARITABLE INSTITUTION	3.00%	2,080	300
TOTAL POTABLE		352,928	
NON POTABLE			
BUSINESS CONSUMERS	4.00%	6	33,253
GROUND WATER FOR AGRICULTURAL PURPOSES	3.00%	162	32,337
GROUND WATER FOR DOMESTIC PURPOSES	0.00%		
GROUND WATER FOR NON-DOMESTIC PURPOSES	3.00%	164	34,370
GROUND WATER FOR PRODUCING DRINKS	3.00%	22	55,173
SURFACE WATER	0.00%	11	76,479
SURFACE WATER (VAT EXEMPT)	0.00%	5	25,791
SURFACE WATER (EXCEPTION - VAT INCLUSIVE)	0.00%	2	31,087
COMPAGNIE THERMIQUE	0.00%	1	1,615,578
AQUACULTURE CONSUMERS	0.00%	1	120,139
TOTAL NON-POTABLE		374	
TOTAL CONNECTIONS		353,302	

Average consumption per connection was based on 2015 consumption divided by the number of connections. However, in projecting average consumption per connection through the forecast period, several additional factors were considered, including price elasticity, unsatisfied demand, and unallocated water from commercial losses.

Price elasticity was assumed to be 15% for domestic customers (i.e. a 1% increase in tariff would correspond to would result in a .15% decrease in demand) and 20% for business and industrial customers. As noted previously, unsatisfied demand was estimated as 3% of domestic sales and fully allocated to the domestic category, and increased billing volume due to reduction in commercial losses was allocated primarily between domestic (55%), business (15%), industrial (8%) and commercial (12%), with the balance being allocated across public sector agencies, agriculture consumers, and religious organizations (10% in aggregate).

Tariff Assumptions

The financial model assumes the same complex tariff structure applied by CWA. Due to the lack of detailed billing information by customer category and blocks of consumption per connection, an average tariff was used to project revenue going forward. Based on CWA financial and operational data from 2015, an average tariff was calculated based on total billings per customer category divided by volume per customer category. The resulting average tariff information, disaggregated by customer category is included in the table below.

AVERAGE TARIFF (MUR/M³)

POTABLE	
DOMESTIC CONSUMERS	9.42
PRISE ACQUIRED BEFORE 1891	11.87
PRISE AFTER 1891 BUT BEFORE 1895	0.00
BUSINESS CONSUMERS	34.49
PUBLIC SECTOR AGENCY	23.96
INDUSTRIAL CONSUMERS	18.16
AGRICULTURAL CONSUMER	14.72
COMMERCIAL CONSUMERS	26.52
CONCESSION PRISE BEFORE 1969	12.05
RELIGIOUS & CHARITABLE INSTITUTIONS	19.62
NON-POTABLE	
BUSINESS CONSUMERS	34.00
GROUND WATER FOR AGRICULTURAL PURPOSES	0.70
GROUND WATER FOR DOMESTIC PURPOSES	0.70
GROUND WATER FOR NON-DOMESTIC PURPOSES	7.54
GROUND WATER FOR PRODUCING DRINKS	10.00
SURFACE WATER	1.50
SURFACE WATER (VAT EXEMPT)	1.50
SURFACE WATER (EXCEPTION - VAT INCLUSIVE)	0.75
COMPAGNIE THERMIQUE	3.90
AQUACULTURE CONSUMERS	1.00

Non-Revenue Water

As a result of the capital program, detailed in further detail below, and the presence of an experienced operator, certain reductions in non-revenue water were projected over the forecast period. The projected reductions in physical and commercial losses is provided in the table below.

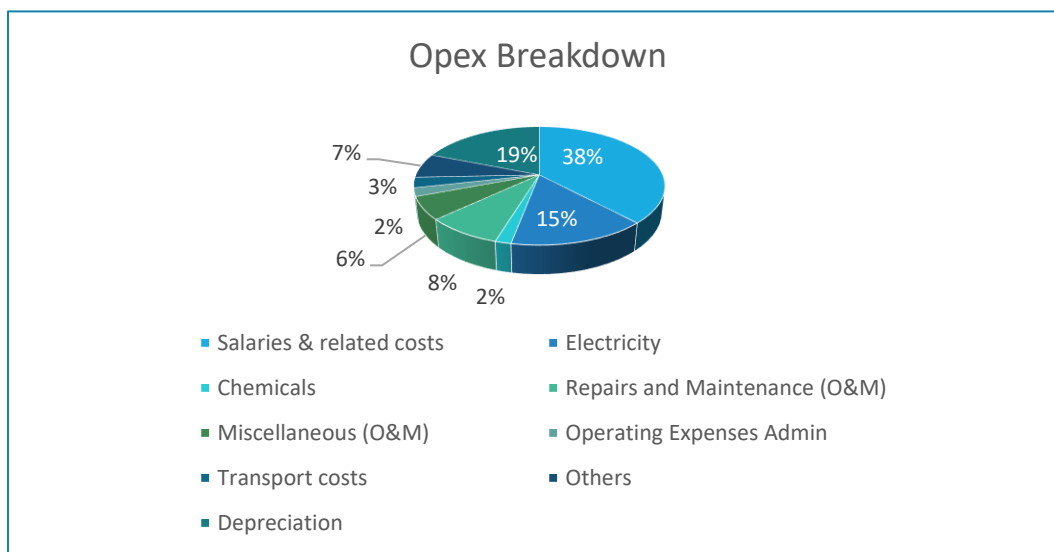
Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Physical Loss Reduction	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Technical Loss as % of Total Water Produced	39.4%	38.9%	38.4%	37.9%	37.4%	36.9%	35.9%	34.9%	33.9%	32.9%	31.9%	30.9%	29.9%	28.9%	27.9%
Commercial Loss Reduction	2.0%	3.0%	3.0%	2.0%	2.0%	1.0%	1.0%	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Commercial Losses as % of Total Water Produced	18.1%	15.1%	12.1%	10.1%	8.1%	7.1%	6.1%	5.6%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%
Total NRW as % of Water Produced	57.5%	54.0%	50.5%	48.0%	45.5%	44.0%	42.0%	40.5%	39.0%	38.0%	37.0%	36.0%	35.0%	34.0%	33.0%

Currently, non-revenue water is estimated to be 60% of total water produced, with 40% of the losses being attributable to physical losses and 20% attributable to commercial losses. It is projected that an efficient operator, implementing the proposed capital works program for rehabilitation and expansion, can reduce total system losses to 33% of total water produced by year 15. As detailed in this table, it is assumed that an efficient operator would be able to start reducing commercial losses quite aggressively – ~2-3% p.a. over the first five years of the contract. However, it is assumed that physical loss reduction will be challenging in initial years as additional water is being supplied into the system to achieve 24/7 service as the DMAs have not yet been established, which make it challenging to identify which pipes to replace. After year 6, it is assumed that the operator can start to make progress in reducing technical losses, achieving a reduction of about 12% over the period of the contract.

Cost Parameters

The cost structure was replicated to conform to the structure presented on CWA's most recent audited profit and loss statement. A breakdown of the key costs as presented in CWA's 2014 audited financial statements is included in Figure 18.

FIGURE 18: OPEX BREAKDOWN



Staff

Staff costs are the largest cost component for CWA. Currently, CWA has around 1,000 permanent employees and around 360 temporary employees. The model assumes that the temporary staff are regularized and that an additional 400 staff are hired within the first couple years of the PPP contract. Based on 2015 cost data a unit cost per employee was derived, which was roughly MUR 425,000. The model assumes that a 10% increase in wages is provided in the first year of the PPP contract and then kept constant in real terms.

Electricity and Chemicals

Electricity and chemicals were both projected using similar methodology and are driven by the amount of water production that is required each year. Operational data from 2015 was used to calculate the amount of energy and chemicals used per m³ produced, which amounted to MUR 1.04/m³ and MUR 0.1/m³ respectively. The water balance and assumptions regarding reductions in technical losses are used to derive the amount of water produced each year, which in turn is multiplied by the cost of electricity/m³ produced and cost of chemicals/m³ produced to calculate the annual cost related to these two items. The cost of electricity is estimated at MUR 240 million at the start of the contract reducing to MUR 230 million in real terms at the end of the contract due to reduction in losses and assumptions regarding energy efficiency. The cost of chemicals is MUR 22 million at the beginning of the contract increasing to MUR 23 million in year 15.

Repair and maintenance

Repair and maintenance is projected based on current expenditure. Repair and maintenance expenditure in 2015 was MUR 101 million. It was assumed that a private operator would likely double this amount initially and then repair and maintenance cost would remain constant in proportion to the number of connections. Therefore, it is assumed that repair and maintenance expenditure in year 1 of the PPP contract is MUR 202 million and grows thereon at the same rate of new connections.

Other cost items

Miscellaneous expense include items such as operating overhead excluding salaries, transport, legal and professional fees, finance fees, etc. and are projected using the 2014 base data contained in CWA's audited financial statements. These cost items are then escalated in line with growth in connections. These costs in aggregate are around MUR 260 million at the start of the contract and then increase to MUR 320 million in year 15.

Depreciation

Depreciation was separated into two categories: i) existing assets and ii) new assets. Existing assets comprise everything that existed on the CWA's 2014 audited balance sheet. A depreciation schedule was provided for 2014, but a schedule projecting the depreciation schedule going forward was not available so for purposes of the model, the amount of depreciation paid in 2014 was carried forward until the asset base was fully depreciated. All new investments were considered in the second category.

In the new asset category, a capex program was projected, which is further detailed in Section 4a. New assets were placed in three categories: i) ten year items – movable assets, IT, meters, connections, etc.; ii) 25 year items – water treatment facilities; and iii) 50 year items – pipes. A depreciation schedule was then created for each year of investment and used as an input into financial statements.

PPP Costs

The costs associated with the recommended PPP approach can be grouped into several components: i) salary; ii) performance fee; and iii) construction supervision. These costs can accordingly be grouped into fixed, performance based, and construction related compensation.

In an affermage arrangement, it is typical to cover some fixed costs of the private operator, often linked to the cost of staffing up. It is assumed that the private operator commences the PPP contract with 10 foreign staff, which reduces to 1 over the forecast period. It is also assumed that there will be foreign technical missions to support management equivalent to 4 foreign staff initially, reducing to 1 through the forecast period. The estimated cost of this arrangement is around MUR 130 million per year initially, decreasing to MUR 78 million in real terms at the end of the forecast period.

The second component, or performance based compensation, is comprised of bonuses for achieving certain pre-defined targets. The details of the performance based compensation will need to be determined following more detailed discussion and contract design, but the quantum of such a performance based compensation is estimated to be around MUR 50 million/year at the start of the contract, increasing to around MUR 120 million/year towards the end of the contract.

The contract supervision fees relate to the typical owner's engineer function found in public work contracts. The rationale for appointing the private operator in this supervision role is that the private operator will likely have the capacity and expertise to perform this role well, but more importantly, aligns incentives as the private operator will have a built in incentive to perform the supervision role well as it will impact the private operator's ability to achieve performance bonuses through the operator contract. As this cost is included in the capex provisions, there is no additional cost to CWA through the PPP contract.

The total cost of the private operator is estimated to be MUR 3 million over the 15 year forecast period. A detailed comparison of the costs associated with the private operator and value for money analysis is included in Section 8.

Model structure and key drivers:

- Demand projections: connection growth (per category), price elasticity of demand, unsatisfied demand, tariff index (base 2015)
- Water balance and service improvement: NRW % (commercial and physical losses), number of hours of service, additional volume needed for 24/7, allocation of commercial losses between customer categories
- Opex: electricity efficiency, labor productivity (staff per '000 connections), unit salary cost, raw water abstraction fee
- PPP costs: private operator costs (expats, overhead/profit, civil works supervision), independent auditors, transaction costs

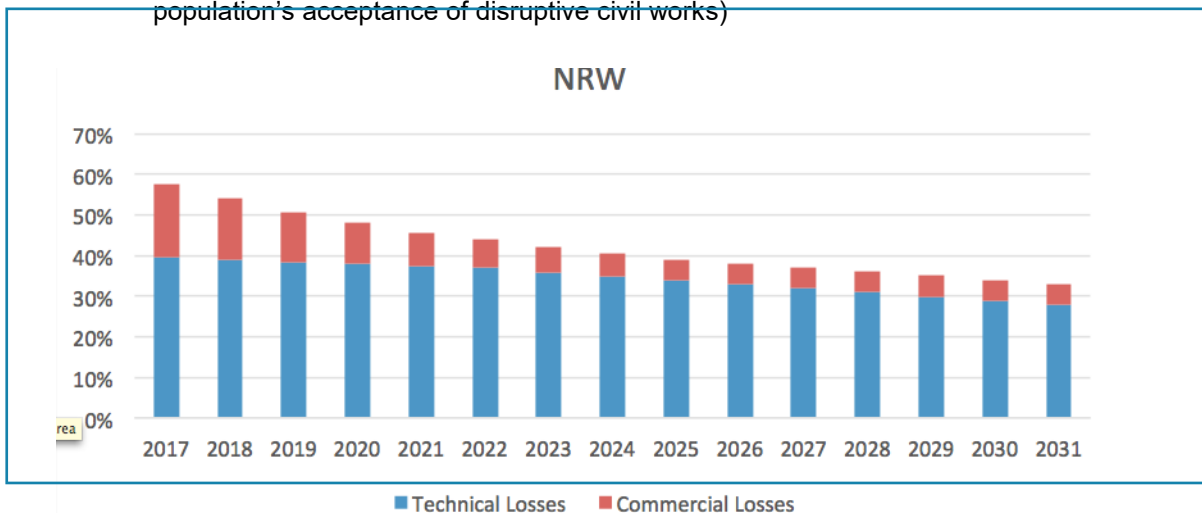
- CWA financing: grant or debt 10 years at 5% with a five year grace period; other financing assumed to be more expensive than GoM and estimated at 10 years at 7% with a two year grace period
- Duration 15 years starting 2017.

Scenarios

Base Case – Performance Improvement & Operations:

The base case scenario assumes that the design of the PPP (incentives structure, availability of funding for capex, staffing reform) will allow reaching significant sustainable improvements in two phases (i) year 1-5: infrastructure rehabilitation in parallel with operational improvement (quality, efficiency), and (ii) year 6-15: sustaining the improvement achieved while gradually reducing expatriate staffs:

- **Continuous 24/7 supply:** by year 3 achieved for 90% of CWA customers and 100% in Port Louis
- **NRW% down from 60% (2015) to 35% in year 15** (40% year 10) with
 - Commercial losses down from 18% to 5% by year 8 – cadaster updated and all customer meters replaced by year 5. This is considered feasible assuming that the new PPP can bring major changes in employees’ management and service quality
 - Physical losses down from 42% (intermittent supply) to 30% (24/7) in year 15 – equivalent to saving about 60,000 m3/day – with all DMAs (about 350) operational by year 5 with active leak reduction, GIS and hydraulic modeling. This is considered a conservative assumption takes into consideration the many uncertainties regarding the status of the underground distribution network and the capacity to carry out an aggressive rehabilitation program over many years (GOM’s ability to finance capex and population’s acceptance of disruptive civil works)



- **Bagatelle WTP** operational by year 2-3 (2018-19) – critical for improvement 24/7
- **Energy efficiency savings:** 10% by year 5
- **Labor:** CWA staff transferred (less 50) to operator (secondment or private sector status) with

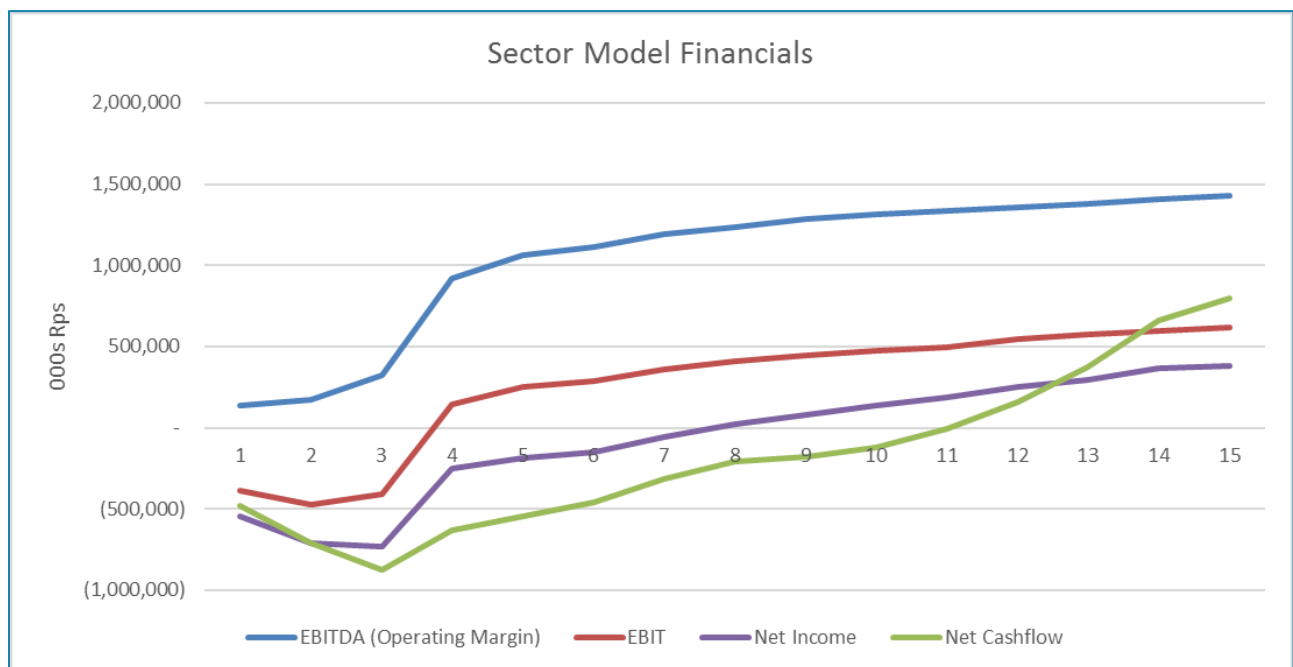
- Incorporation all existing temp/contractual staff
- Net hiring of 400 new local staff by year 3
- Average salary cost increase 10% (year 1) as part of transfer negotiation

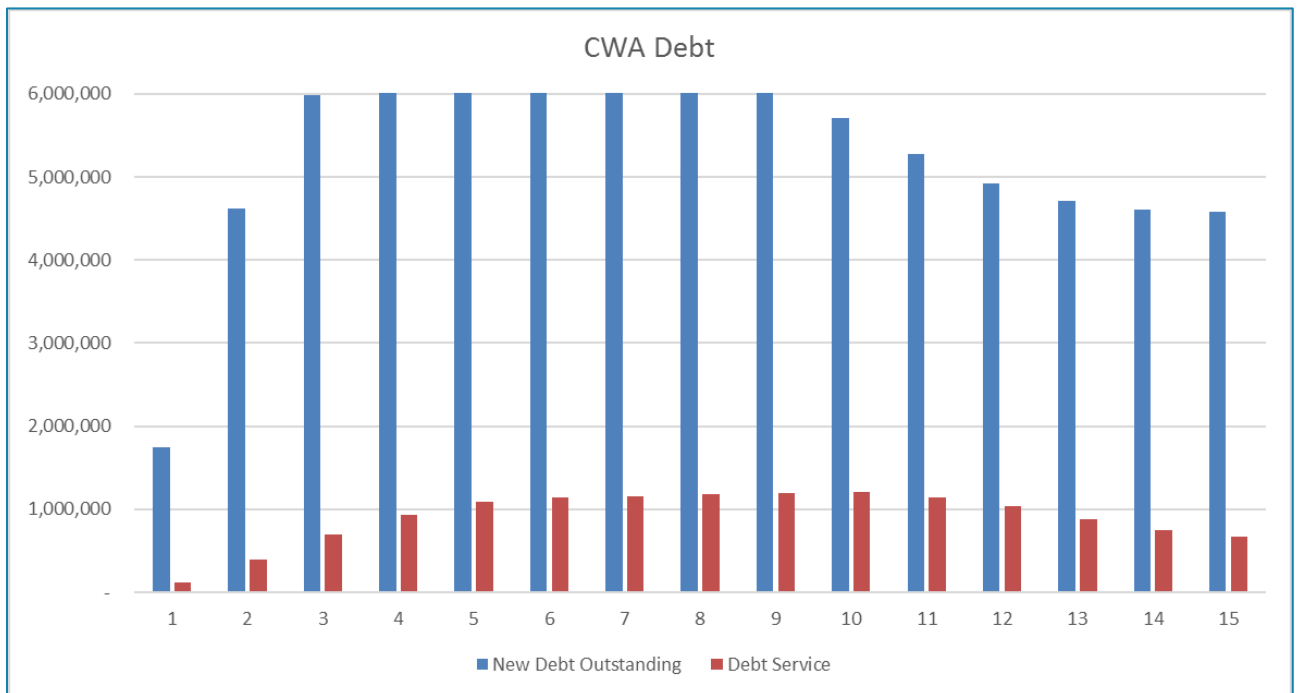
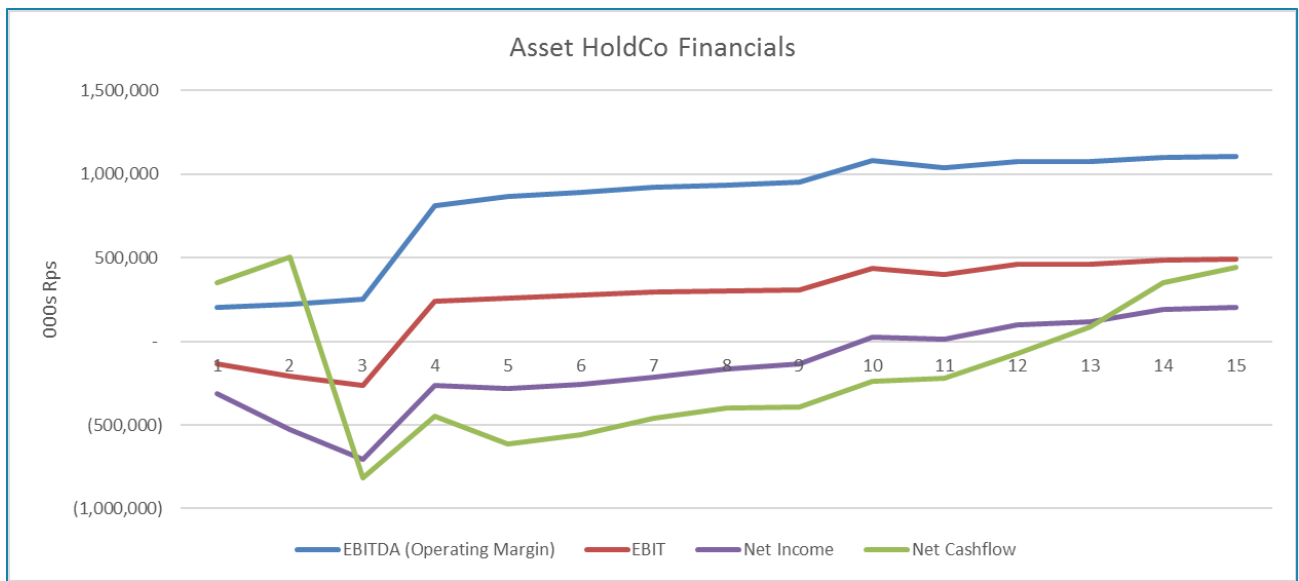
Base Case – tariff policy and capex financing

This scenario follows the recommendation made by GOM during the May 2016 WB mission to assume only the first 3 years of capex to be funded through grant:

- **Capex:** (i) 2017-21: 10.6 billion MUR rehabilitation program (3 billion grant funding from the Build Mauritius Fund, 3.3 billion MUR of GoM loans, and 4.8 billion MUR in financing that CWA is yet to secure, (ii) afterwards 2.5% of net fixed assets (sustaining infrastructure)
- **Tariff increase:** yearly indexation for inflation, plus 30% in year 4 (after significant improvement in 24/7 has been achieved)
- **Raw water abstraction fee:** MUR. 50 per '000 m³ after year 5
- **Operator tariff:** set at 80 % of customer tariff (tender's financial parameter) allowing the private operator to reach financial equilibrium around year 3

Under this scenario, the sector would be able to achieve financial equilibrium (net income) in year 7, but would not be able to generate a significant surplus (net CF) before year 11 i.e. by the end of the proposed PPP. CWA as assets holding company would not be able to become cash positive before year 13, and would not consequently be able to achieve a significant reduction in total debt, down from a maximum of MUR 7.5 billion in year 5 to just MUR 4.6 billion by the end of the PPP.





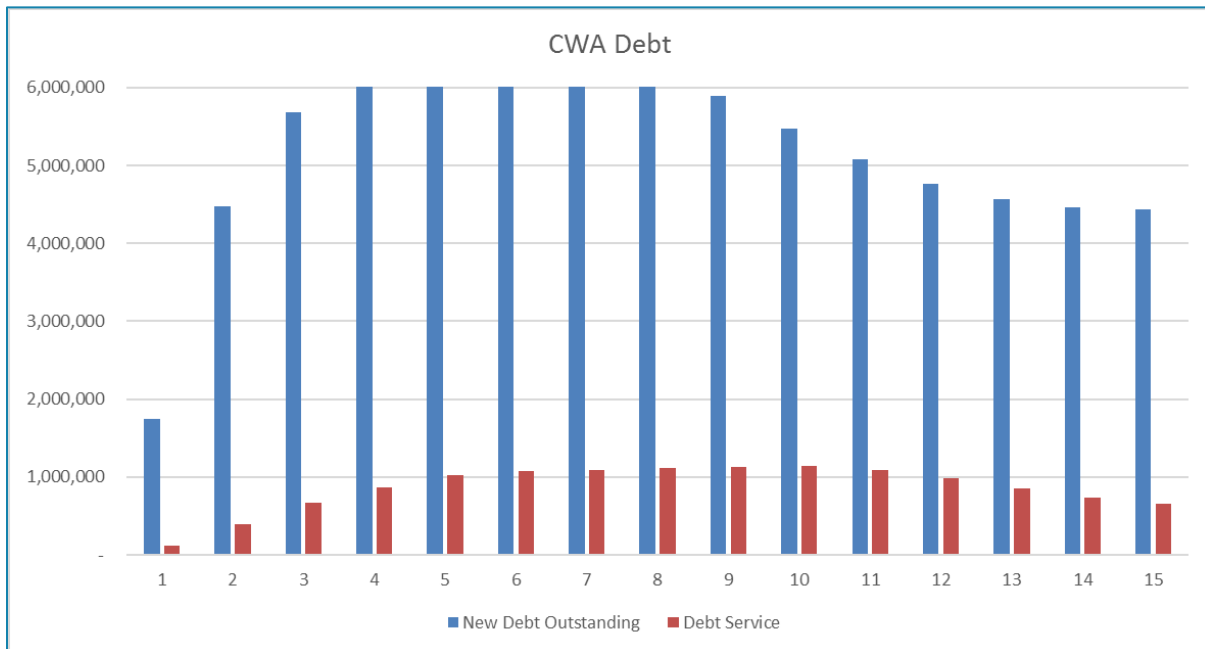
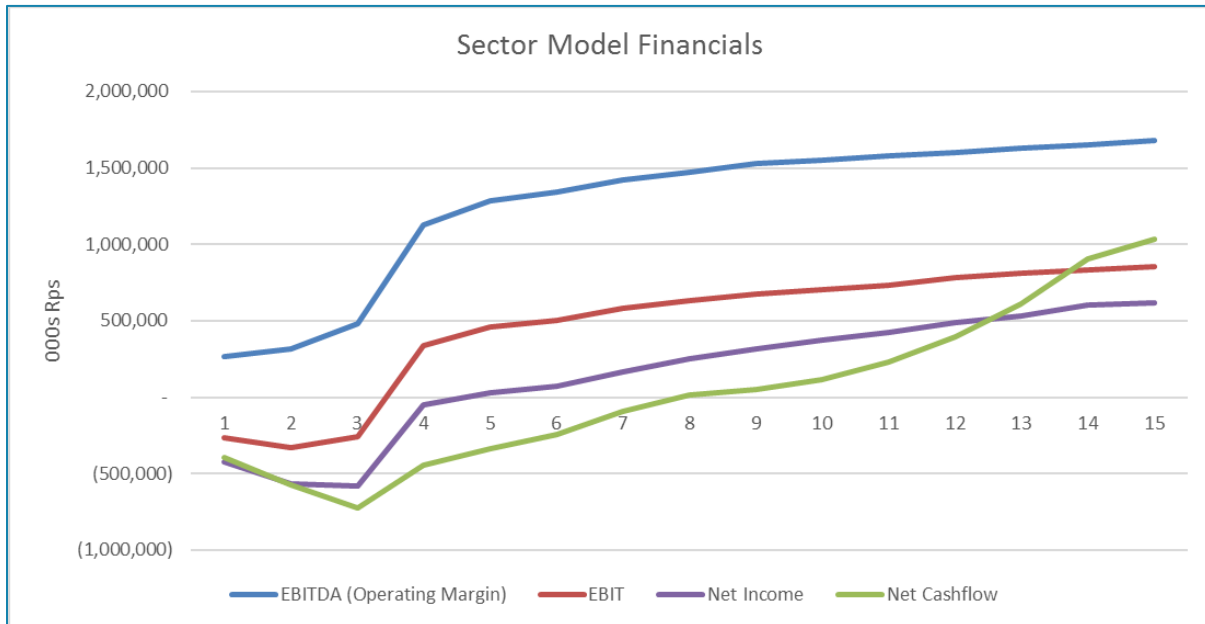
Sensitivities on tariff increases:

Sensitivity analysis has been carried out to test the impact of alternative tariff increases, assuming that some tariff increase would happen at the onset of the PPP (before the tender process is launched)

Case 1: 10% in year 1 and 30% in year 4

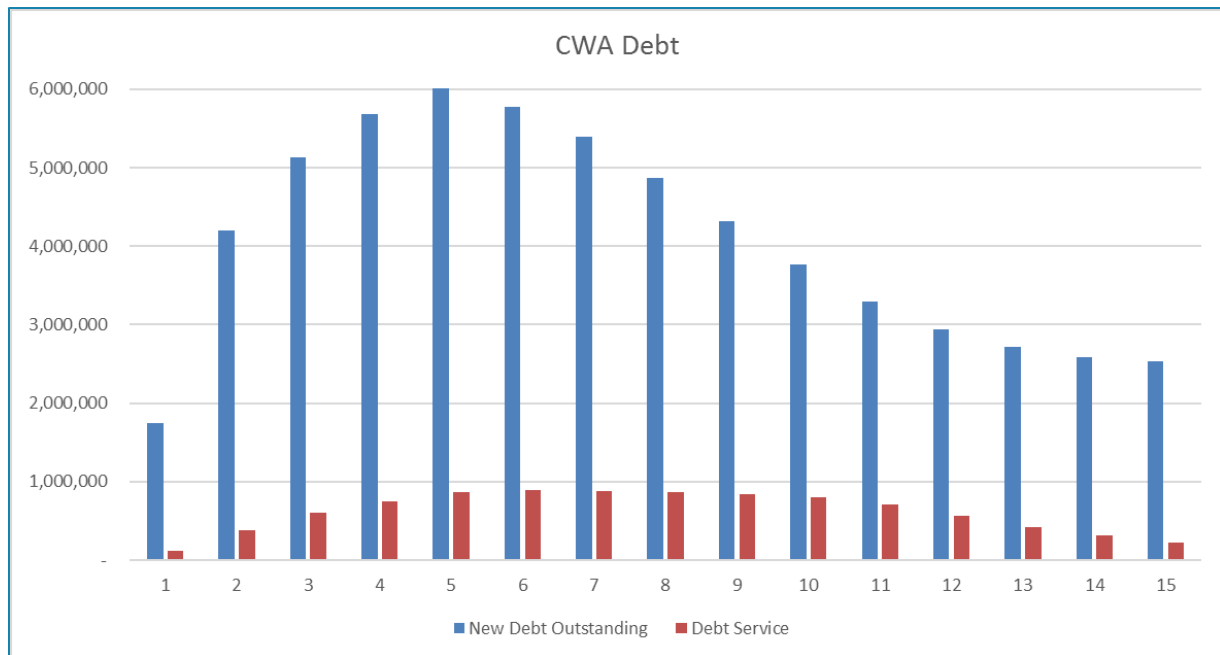
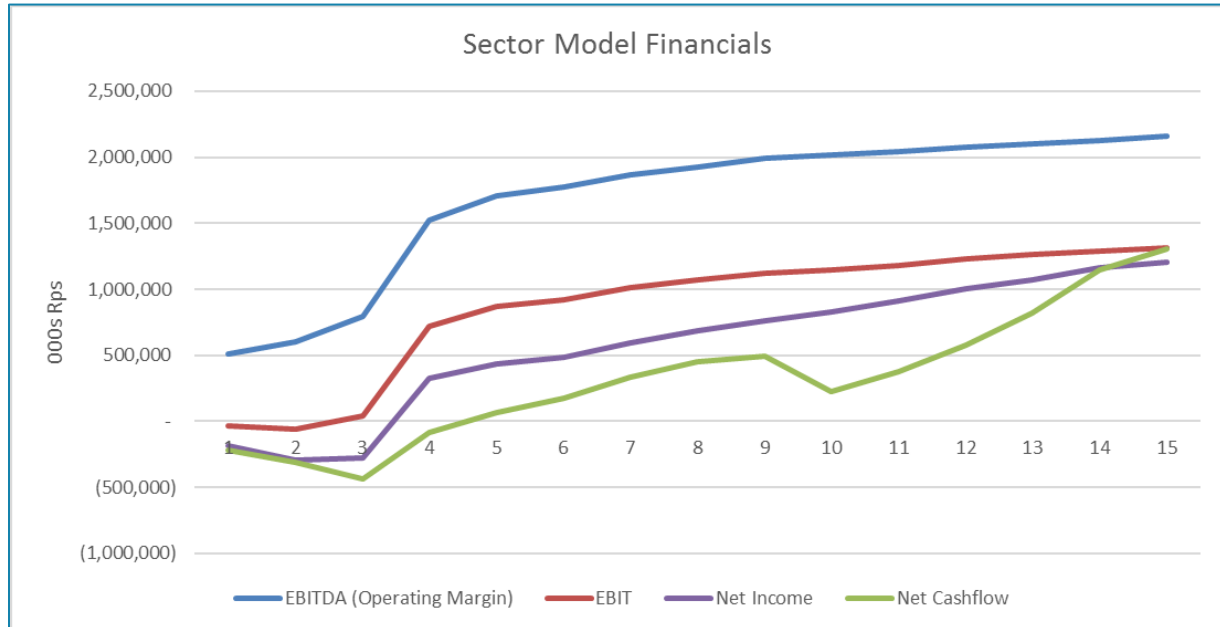
Under this scenario, the sector reach financial equilibrium in year 4 and start generating a cash surplus by year 8. The sector's debt to be carried by CWA would meet its maximum in year 6 at about MUR. 6

billion, and be reduced to about MUR 4.4 billion by year 15 (against MUR 4.6 billion in case no tariff increase is carried out in year 1)



Case 2: 30% in year 1 and 30% in year 4

Under this scenario, the sector would be close to financial equilibrium during the first 3 years of the PPP, and generate a significant cash surplus by year 4. The sector's debt to be carried by CWA would meet its maximum in year 6 at about MUR. 6 billion, and be reduced to less than MUR. .52 billion by year 15



This sensitivity shows that the magnitude of the first tariff increase does not impact the maximum amount of debt to be carried by CWA by year 6 – and which is driven by the massive rehabilitation investment needs and how much of it is funded through grant. The magnitude of the first tariff increase does impact

though significantly the amount of debt still carried by CWA by the end of the PPP (year 15) – thereby affecting its capacity to finance itself in the medium term through non-sovereign debt.

More importantly, the analysis shows that even with the proposed tariff increases in each scenario, the sector generates negative cashflow for the short to medium term (4-8 years) requiring an implicit subsidy from GoM whether or not it provides financing to CWA.

Recommendations for tariff increase:

- The considerable backlog in infrastructure rehabilitation creates major constraints for achieving financial equilibrium of the sector, even assuming significant efficiency improvements through the PPP. As the initial proposal to finance the entire 5 years of aggressive infrastructure rehabilitation through grants to the sector is no longer considered feasible, significant tariff increases would be needed – even assuming that the government would still provide MUR 3 billion of grants for the first 4 years (2017-10)
- It is recommended that the tariff be increased in two phases, with a first increase prior to or in parallel with the launch of the PPP tender and a second increase done in year 4 (2020)
- The base case shows that waiting until year 4 to carry out the first tariff increase would not allow the sector to generate a positive surplus before the end of the 15-year PPP – thereby impacting the GOM's goal to foster self-financing of the sector in the medium term. The first tariff increase for 2016 should be in the range of 10-20%, The main decision factor being political feasibility i.e. GOM's perception of the acceptability of water tariff increase in the current context of widespread dissatisfaction of the population with CWA services
- The second tariff increase for 2020 should be determined later on, in the course of the implementation of the PPP reform and depending on (i) the magnitude of the initial tariff increase, (ii) the performance improvement achieved by the end of year 3 – especially with regards to improving 24/7, (iii) GOM's future financing policy for the potable water sector including targets for achieving self-financing (without debt backed by sovereign guarantee).

Section 4c: Legal and Institutional Framework

This section reviews the legal and institutional framework relating to the Water Sector in Mauritius and any possible PPP transaction. It is not an exhaustive analysis; instead, it focuses on the key issues that will be relevant to the GoM to achieve its objectives of improving service delivery in the sector through involvement of a strategic partner under a PPP and achieving financial stability of the sector.

The section includes:

- Summary of key legal and institutional issues;
- the current legal and institutional framework of the Water Sector in Mauritius, looking at both potable water and water in general, to highlight possible constraints on the sector and CWA arising therefrom, and outline recommendations on possible reforms of the sector;
- legal and institutional issues relevant to CWA entering into a PPP agreement and what if any legal or institutional amendments might need to be put in place to enable the PPP reform to proceed;
- the legal framework for developing and procuring PPPs and the tender process;
- legal issues pertaining to procurement of works for rehabilitation program and other capex;
- legal issues relating to transformation of CWA into a Companies Act Company; and
- labour law issues.

The Bank team includes and has benefited from input from the law firm BLC & Associates, which has reviewed this section of the Report as well as the PPP approach recommended by the Bank team (as set out in the indicative term sheet in section 6) for consistency with Mauritian law. Reference is made to specific advice provided by BLC where appropriate.

This section also benefited from the analysis of legal issues annexed to the IFC report of 2004. Taxation issues were beyond the scope of the report and while the team has flagged certain issues for review on taxation and VAT, it recommends that GoM seek separate advice on taxation issues in respect of any reforms and PPP transaction.

Summary of Key Legal and Institutional Issues

CWA has a clear mandate to supply potable water and to delegate its functions and powers. CWA has a clear mandate under section 21 of the CWA Act to provide potable water to customers and has powers and functions that enable it to do so. CWA has a special power to enter into arrangements with any person for the purpose of discharging its duties subject to approval of Minister of MEPU (section 21). It would have the right, subject to ministerial approval and the other requirements of the PPP Act and Public Procurement Act referred to in this section, to enter into a medium term PPP contract delegating functions of water supply along the lines of the recommended PPP approach set out in this report.

It is possible to transform CWA into a Companies Act company but there is no precedent for this and it will require significant effort –but this is not a prerequisite for implementing a PPP. CWA is a parastatal established under the Central Water Authority Act 1971, operating under the aegis of the

MEPU. CWA management reports to a board, the members of which are appointed by MEPU. As such, it has limited autonomy from GoM. CWA is also subject to public procurement procedures and to Central Procurement Board approval for larger procurements. Its staffing is subject to Pay Research Bureau rules. CWA management has noted that these constraints limit CWA's ability to operate autonomously and as a business. It would be possible legally to transform CWA into a Companies Act company although there is no direct precedent for this transformation of a parastatal performing a public service in this way in Mauritius and the process will require several potentially time-consuming and/ or contentious steps, including but not limited to valuation of assets and liabilities, and transfer of staff. Given that some of the challenges facing CWA can be addressed through the PPP, as recommended by this report, the Bank team recommends that in the shorter term CWA remains as an authority and creates some greater flexibility through delegation to a private operator, which it is within its powers to do.

What is critical, however, is that CWA has sufficiently delegated authority and autonomy from government to implement its roles as asset holder for the water sector and counterparty to the PPP. There are other steps that could be taken to increase CWA's autonomy without legal transformation or legislative amendment -- such as increasing the thresholds for the CWA general manager to approve procurements and possible exemption from the Pay Research Bureau terms and conditions for CWA staff. While the team is not familiar with the details for seeking exemption from Pay Research Bureau terms and conditions, it has been informed by MEPU that this has been the approach taken in respect of Central Electricity Board. CWA already has the right to borrow on its own behalf and raise debentures under section 29 of the CWA Act and so could do so once it becomes credit worthy.

Broader sector reforms are recommended but are not a prerequisite for CWA reform through a PPP transaction and could be carried out in parallel. The CWA Act was promulgated in 1971 and is the oldest legislation governing the water sector. As such it was designed as an umbrella law which set out policy making functions and other functions that are not solely related to potable water supply. Later legislation and actual practice have created overlaps and institutional confusion. While there have been some limited amendments to legislation and associated regulation over the years, these have been mainly related to tariff categorization and process. The legislation governing the water sector needs to be updated to clarify roles of each agency and reflect the roles actually being performed by each of the institutions. Key amendments would cover:

- Removing from CWA functions that it does not carry out;
- setting up a regulator and/or establishing a clear mechanism for adjusting tariffs;
- offering competitive pay to attract and retain competent staff; and
- steps to streamline procurement.

These reforms could be done in parallel with the PPP transaction – they are not a prerequisite to the PPP.

Economic Regulation. Under the CWA Act, the CWA legally has the function to determine both water and wastewater tariffs as well as to bill for and collect these fees. The team understands that, in practice, an intergovernmental committee confirms water and wastewater tariffs that are proposed by CWA and WMA respectively. This arrangement was set up to avoid any potential conflict of interest that might have arisen if CWA would exercise its legal right to determine wastewater tariffs or its own tariffs. GoM has been considering more formal regulation of its utilities for some time and enacted the Utility Regulation Act in 2004 providing for the establishment of a regulatory authority. The Utility Regulatory Authority has not yet been established, and when it is, its initial function is limited to electricity regulation, although there

is a possibility under the Act that its functions could be extended to, among other sectors, water and wastewater. The team understands that there has been discussion within the GoM about extending the Utility Regulatory Authority's functions to cover water and wastewater but that there has been no firm decision or timeline for this. Given that a key objective of the reforms of the water sector is to make it self-financing over time, it is important that customer tariffs are increased so that investment costs can be self-financed and that tariffs are kept in line with inflation. The intergovernmental committee has shown little appetite over the years to support such increases. It is therefore recommended that a more formal mechanism for regulation is established, using the Utility Regulatory Authority also for water and wastewater, and establish a clear methodology and process for periodic review of customer tariffs, as discussed below. While this is not a pre-requisite for the PPP transaction, as the PPP contract will contain its own mechanism for review of the operator tariff, establishing a robust and transparent customer tariff structure will be critical to ensuring the financial viability of the sector the sustainability of CWA while protecting the basic needs of the poorest.

PPP transaction to be developed and competitively procured in accordance with the PPP Act and Public Procurement Act. Procurement of the PPP contract is likely to fall under the PPP Act and Public Procurement Act but there is some potential overlap with the new BOT Law of 2016, regulations for which are yet to be introduced. While the team assumes that the PPP Act will prevail, clarification is recommended to be sought at an early stage with relevant agencies (especially with the PPP Unit in MoFED) on which regime would apply to any PPP approach endorsed by GoM. The PPP Act and guidelines that accompany it require that a feasibility study be developed, setting out the business case for the PPP at an early stage of the proposed PPP transaction to ensure timely procurement. The feasibility study looks at both technical and financial feasibility, as well as value for money and affordability. Once the PPP approach has been approved by the GoM then, subject to Central Procurement Board approval, MEPU/ CWA may proceed to appoint transaction advisors under the PPP Act and commence procurement of the PPP transaction. The competitive procurement of the operator will be carried out in accordance with the Public Procurement Act. It is recommended that the Public Procurement Board be informed of the recommendation in this report that the procurement includes a request for qualification stage for prequalification of potential operators, which is permitted under the Public Procurement Act. It is recommended that this process commence as soon as the GoM has approved the PPP approach.

The PPP Contract should include a mechanism for rebasing operator remuneration and managing change of circumstances. Mauritius has a hybrid legal system and its contract law is heavily inspired by civil law. Therefore, a PPP contract would be subject to the commercial code, but unlike French law there is no administrative law concept of economic balance/equilibrium. For this reason, a periodic review would need to be built into the contract to ensure that changes in circumstance and assumptions affecting the parties are factored into the operator's remuneration.

To the extent that CWA staff are to be made available to the operator, each staff member may only be transferred to the employment of the operator with the express consent of that staff member. The team recommends that a labor relations specialist be appointed at an early juncture to look at current CWA staffing and issues relating to the PPP. Early consultation with stakeholders is important to manage staffing arrangements and any transfers of CWA staff to the operator. The team understands that Mauritian labor law also allows public servants to be seconded to private sector bodies in limited circumstances and for short periods, and this may be a possible suitable approach for staff approaching retirement.

Current Legal and Institutional Framework of the Water Sector and Recommendations for Reform

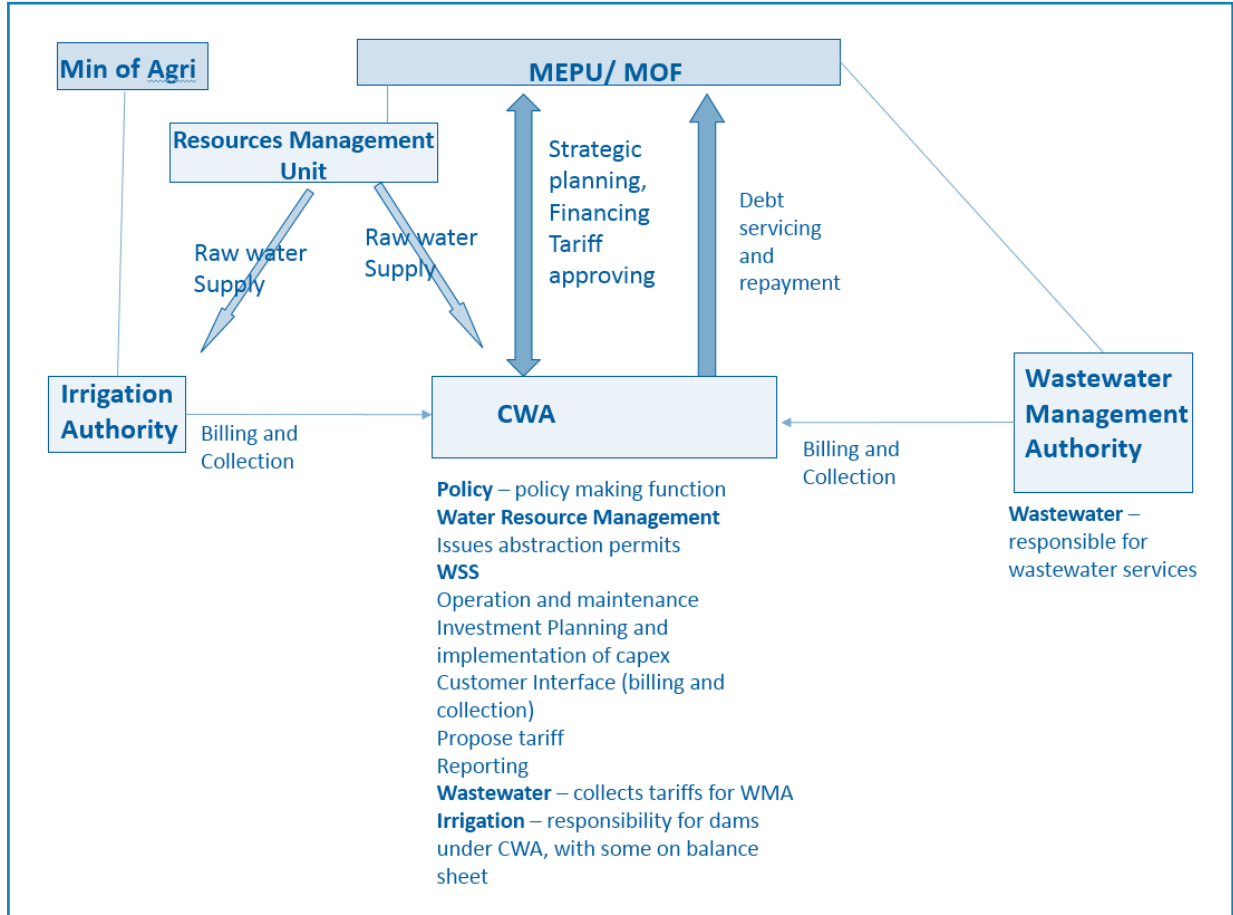
The Water Sector is currently governed by three main laws:

- Central Water Authority Act of 1971 (CWA Act), which is the general law governing the water sector in Mauritius, as well as the law establishing the CWA;
- Wastewater Management Authority Act 2000 (WMA Act), which establishes the Wastewater Management Authority as a parastatal authority, and is the general law governing the provision of wastewater services in Mauritius; and
- Irrigation Authority (IA) 1978 is established as a parastatal authority under Irrigation Authority Act (IA Act).

The CWA Act is the oldest law and was the main water law for the water sector so it contains a number of broad sector wide provisions which were not amended when the two more recent laws were enacted, creating some overlap of functions. CWA, under the aegis of the Ministry of Energy and Public and Utilities (MEPU), has extensive powers in respect of water supply services, but also in respect of water resource management, dam construction, wastewater billing and collection, and tariff setting for all the sub-sectors. It is understood that most of the non-potable water supply functions of CWA are in fact carried out by MEPU or on its behalf by the Resource Management Unit of MEPU. An Intergovernmental committee carries out the tariff approval function. Therefore the current legal framework vesting the majority of these powers in CWA creates confusion, and it is recommended that the GoM amend the CWA act to reflect the actual allocation of functions. It is noted, however, that these amendments are not a prerequisite to putting a PPP transaction in place as the PPP contract will specify which of CWA's functions will be delegated to the private operator.

Set out below is what the team understands to be the current institutional arrangement and allocation of functions in practice. It is recommended that this be reflected in the law, alongside a number of additional adjustments that would create a modern framework worthy of a middle income country such as Mauritius, as noted in this section.

FIGURE 19: CURRENT LEGAL AND INSTITUTIONAL FRAMEWORK – IN PRACTICE



Central Water Authority

The Central Water Authority Act 1971 (i) provides for establishment and governance of the Central Water Authority ("CWA") as a parastatal authority and (ii) is general law governing the water sector in Mauritius.

- **CWA with limited autonomy from government.** CWA is an authority with limited autonomy from government. CWA's board consists of representatives and appointees of government. CWA is subject to government public procurement rules (as discussed further in para IV and government staffing rules [Pay Research Bureau]), and it operates under the aegis of MEPU, which approves staff appointments and procurement above certain thresholds.
- **CWA sole undertaker for water supply.** Section 20 grants CWA a number of functions for water supply, including its designation as sole undertaker for the supply of water for domestic, commercial, and industrial purposes throughout Mauritius and grants it a clear mandate to supply water.
- **CWA has several broad non-water supply related powers** - Section 20 also grants a number of functions to CWA that are in fact carried out by MEPU or the RMU, such as:
 - It may grant rights for the use of water and issue permits, licences, and concessions for this purpose.

- It may construct or cause to be constructed, dams, barrages, reservoirs, power houses, power structures, irrigation and drainage canals, water supplies, and such other works, structures, and devices as may be necessary.

Under Section 4 of the CWA Act, CWA is also responsible for the control, development, and conservation of water resources, even though in practice it is the MEPU/ RMU that carries out this function.

There are also Ground Water Regulations (1973, 2011) setting out powers for CWA including enforcement, as well as charges for raw water abstraction. Again, clarity on which entity should be performing which task is recommended.

Tariff policy and regulation

- Under section 20 of the CWA Act, the CWA:
 - may collect such fees or rates, charges, or other dues on behalf of the Wastewater Management Authority, and
 - can determine and levy rates or fees for the supply of water for any purpose, including sewerage, and so CWA legally has the function to determine both water and wastewater tariffs as well as bill and collect for these fees.
- The team understands that in practice, to avoid the potential conflict of interest that giving CWA the tariff setting function could create, an intergovernmental committee confirms tariffs that are proposed by CWA and WMA for water and wastewater respectively. There is, however, no established tariff methodology or review process. The team understands that the last tariff increase for CWA took place in 2012, after a decade of tariff freezes, and that there is no provision for automatic adjustments e.g. to take into account inflation. Currently, the average tariff stands at US\$ [0.35] per m³ (2014), which covers all O&M costs of CWA but not capital investment. GoM has been providing additional budget transfers (amounting to US\$5.5 million in 2014) to fund CWA's most urgent repair and rehabilitation works, and also finances its infrastructure investments through soft loans and grants (approximately US\$30 million per year).
- As there has been limited appetite over the years for the inter-governmental committee to increase tariffs even to keep up with inflation, a more structured and formal approach to tariff review is necessary if GoM wishes the sector to become self-financing.
- GoM has been considering formal regulation of utilities for some time. The Utility Regulation Act was enacted in 2004, providing for the establishment of the Utility Regulatory Authority as a body corporate of a public body, to carry out such regulatory functions as may be assigned to it under the Act or a relevant utility legislation. The Authority is to principally regulate, control, and supervise utility services as specified in Part B of the First Schedule to the Act. Initially such services are to cover electricity services only, but the Act foresees the inclusion of wastewater disposal services and services relating to the sourcing, collection, production, treatment, distribution, or supply of water for domestic, agricultural, commercial, industrial, or other purposes. The Authority is yet to be established.
- The team understands that there has been discussion in GoM about extending the Utility Regulatory Authority's functions to cover water and wastewater but that there has been no firm decision or timeline for this. Given that a key objective of the water sector reforms is to make the water sector self-financing in time, it is important that customer tariffs are gradually increased, then maintained in line with inflation and that there is a clear methodology and process for periodic review of customer tariffs. The team therefore recommends that the Authority is

established and its functions are extended to cover water and wastewater. The team notes that such reform can be carried out in parallel with establishing the PPP transaction. As there will be a methodology built into the PPP agreement for review of operator tariff, such reform is not required for the commencement of the PPP transaction. It would be important to GoM and for the credit worthiness of CWA for GoM to introduce such reforms if the GoM wishes to achieve its objective of having the sector become self-financing over time.

Billing and Collection. CWA bills and collects tariffs in accordance with section 20 of the CWA Act on behalf of the WMA (which is a practical approach followed in many jurisdictions). If CWA is to operate on a commercial basis, however, consideration should be given to ensuring that WMA pays CWA an arms-length fee for providing this tariff billing and collection service.

Immunity for poor performance. Under Section 42, CWA has immunity for adequacy of quality, sufficiency, and regularity of water supply, but this immunity does not seem to be justified and may allow complacency on the part of CWA, and therefore the team recommends that it be repealed. This could be managed in the short term through a performance contract between CWA and MEPU, which would set the level of service required to be achieved by CWA and whereby CWA agrees to waive such immunity.

CWA has the right and power to borrow commercially as and when it becomes credit worthy. CWA (section 29) may “*with the consent of or in accordance with any general authority given by the Minister -*

- borrow money in such manner as the Minister may determine and subject to such conditions as the Minister thinks fit to impose;
- mortgage or charge its undertaking or property or any part of its undertaking or property and issue debentures, stock or other securities as security for any debt, liability or obligation of the Authority.”
- Therefore, once CWA becomes financially stable it would have the power to raise commercial finance, bonds, and debentures without any form of legal transformation or amendment to the CWA Act.

CWA exempt from various taxes, duties including import duties on materials. Under Section 47 of the CWA Act, CWA benefits from various exemptions. The team recommends that GoM determine whether such exemptions would continue to benefit the capex program if this is managed on behalf of the CWA by an operator, and also whether this would extend to items funded by the operator such as vehicles, IT systems, and items pre-funded -- such as items specified in the PPP agreement for rehabilitation of the network. The team also understands that water supply is zero rated under Annex II of the Value added Tax Act 1998, as amended: “*Water supplied by the Central Water Authority and the renting out of a meter and the carrying out of infrastructure works by the Authority.*” While it is assumed that this would continue even if such water is supplied by an operator on behalf of the CWA, the team recommends that this should be confirmed with the relevant agency.

The Wastewater Management Authority Act 2000 establishes the Wastewater Management Authority (WMA) as a parastatal authority, and is the general law governing the provision of wastewater services in Mauritius. In contrast with the CWA Act, the WMA Act contains detailed provisions relating to the sector, including provisions applicable to activities of third parties that may impact on the sector. WMA has express right to contract out, subject to such conditions as it thinks fit, any works or services it is empowered to carry out.

The main overlap with the CWA is that CWA has the right to set wastewater tariffs. CWA also bills and collects tariffs on behalf of the WMA (which is a practical approach followed in many jurisdictions). If CWA is to operate on a commercial basis, however, consideration should be given to ensuring that WMA pays CWA an arms-length fee for providing this service.

Other sectoral matters are addressed in other statutes, such as the Environmental Protection Act and the Central Tenders Board Authority Act.

Irrigation

The Irrigation Authority (IA) is established as a parastatal authority under the Irrigation Authority Act (IA Act). The IA operates under the aegis of the Ministry of Agriculture and has responsibility for:

- studying and developing policy in respect of irrigation;
- implementing and managing irrigation projects; and
- distributing water for irrigation purposes.

There is therefore overlap with provisions in the CWA Act that require CWA authorization for construction of new irrigation works and gives CWA the function of constructing dams etc.

The Bank team understands that there is an agreement from 1979 between CWA and IA whereby CWA is required to complete irrigation works and make them available to IA, and also to make available to IA on an ongoing basis certain minimum quantities of water in exchange for an agreed fee. The team has not seen the terms of this agreement. The team understands that fees are not charged on a commercially arm's length basis, nor is there systematic payment by IA to CWA. The team also understands that certain irrigation-related assets are still under the legal ownership of CWA. While these have been identified for transfer to IA, such transfer has not yet been completed and is still on CWA books (liabilities also to the account of CWA). These overlaps could be resolved without any legislative amendments and would clarify the functions of the institutions operating in the Water Sector.

Recommended reforms of the institutional and legal framework

CWA has a number of functions that it does not currently perform and which are performed by MEPU, RMU, or other agencies. The team recommends that the CWA Act should be amended to reflect the status quo and to create clarity, in particular:

Functions of CWA that are carried out by RMU should be clearly transferred to RMU (allocation of water and abstraction permit regime, dam construction, and responsibility for assets and liabilities of dams).

Responsibility for setting water sector policy should reside with MEPU and not CWA.

In the short term, approval of customer tariff for water and wastewater should be formally acknowledged as the responsibility of the intergovernmental committee and a clear methodology and process for tariff review should be established. Over the medium term GoM should also consider, once it has established the Utility Regulatory Authority, to include water and wastewater as part of the regulator's mandate.

Additionally, issues pertaining to irrigation such as appropriate charges for irrigation water and roles/responsibilities should be clarified. IA and MoA should have full authority over irrigation matters, including construction of new works, without requiring approval from CWA, although it would be appropriate for CWA to be consulted on schemes which might impact it or be relevant to potable water supply. Assets already identified by GoM for transfer to IA should be transferred (together with liabilities). Any fees due to CWA should be paid.

Cost of raw water and allocation thereof should be reviewed. As noted in section 4b, it is assumed in the financial simulation that from year six, CWA could pay a raw water tariff of MUR 50 per 1000m³.

The Bank team does not consider that these reforms are prerequisites to the PPP transaction and could be carried out in parallel with the PPP. However, they are critical to the long term sustainability of the sector.

Legal and Institutional Issues Relevant to CWA Entering into a PPP Agreement

Can CWA outsource its functions?

The first question to be considered is whether CWA can outsource some or all of its functions of water supply. Section 20 of the CWA Act provides that the duties of the CWA are, among others, to be the sole undertaker for the supply of water for domestic, commercial, and industrial purposes throughout Mauritius. Therefore, CWA has a clear mandate to supply water.

Section 21 of the CWA Act further grants certain special powers to the CWA, subject to the approval of the Minister of MEPU, in particular, to enter into arrangements with any person for the purpose of discharging its duties under section 20 of the CWA Act.

On the basis of the special powers granted under section 21 of the CWA Act but subject to other applicable legislation (e.g., Public Procurement Act and PPP Act), CWA could outsource its water supply functions under Section 20 to an external third party along the lines of the recommended PPP approach of a hybrid affermage, subject to approval of the Minister of MEPU.

Is it possible under Mauritian law for CWA to enter into a hybrid affermage agreement as outlined in the indicative term sheet set out in section 6?

While Mauritius has a hybrid legal system, its contract law is heavily inspired by civil law principles. Unlike French law, however, Mauritian law does not recognize a concept of economic balance/equilibrium. Therefore, a periodic review mechanism would need to be built into the contract to ensure that changes in circumstances and assumptions affecting the parties are taken into account. BLC confirmed that *“The same could be achieved contractually provided always that all key contract parameters are clearly defined or can be objectively determined. Those key parameters which we have in mind include (a) the proposed operator tariff (b) the end-user tariff (c) the revenue portion that goes to the CWA (d) capital investment commitments of the CWA and (e) the regime for the possibility of reviewing the operator’s tariff. The last parameter will probably require fairly detailed discussions between the CWA and a prospective operator bidder. Parameter (e) would need to be translated into precise objective drafting as the tariff review regime will go towards updating a key contract condition and the mechanics of same would need to be objectively determinable to the satisfaction of a Mauritian court.”*

Tax and VAT issues

As noted in Section I above, GoM should confirm that CWA’s various exemptions from tax and zero rating status for water supply would continue if some of its functions were outsourced to an operator.

Legal Issues Relating to the Development and Procurement of a PPP Transaction

The laws governing process and procurement of PPP projects are the Public Procurement Act 2006 (Public Procurement Act), the Public-Private Partnership Act 2004 (PPP Act) and the new Build Operate Transfer Act 2016 (BOT Act). MoFED confirmed to the team that it would expect the PPP transaction for CWA to fall under the PPP Act rather than the BOT Act, but the team recommends that this be revisited with the PPP Unit and MoFED once MEPU and CWA have concluded an agreement on their preferred PPP approach.

Development of the PPP Transaction

The PPP Act establishes the PPP Unit within MoFED, defines the responsibilities of implementing agencies, and defines the key elements of PPP-related agreements and studies. It is a concise but broadly drafted law and detailed regulations for the PPP Act have yet to be developed. There is a PPP Guidance Manual (developed by MoFED in 2006) which provides an overview of PPPs and their relevance in Mauritius, and also guidance on the PPP design and implementation process, including setting out in detail the stages of approval for development of a PPP transaction and in particular the requirement for the Cabinet to approve the feasibility study for the transaction (and detailed guidance on what a feasibility study should contain). The Manual is found at

<http://mof.govmu.org/English/FMKit/Pages/Volume-VII---Public-Private-Partnership-Manual.aspx> and includes a condensed version.

Under the PPP Act, the PPP Unit's main task is to assess projects on the basis of well-defined criteria. These are, respectively, affordability, value for money, and appropriate risk transfer, which constitute the three basic principles of PPP project appraisal. Contracting authorities (such as CWA) have ownership of their PPP projects from inception right through to the end of the partnership agreement. Besides identifying, developing and monitoring their implementation, they are also responsible for arranging relevant feasibility studies to be carried out to demonstrate comparative advantage of implementing a particular project under PPP.

Section 7 specifies that the feasibility study shall:

- a. *“demonstrate comparative advantage in terms of strategic and operational benefits for implementation under a public-private partnership agreement;*
- b. *describe in specific terms –*
 - i. *the nature of the contracting authority's functions, the specific functions to be considered in relation to the project, and the expected inputs and deliverables;*
 - ii. *the extent to which those functions can lawfully and effectively be performed by a private party in terms of an agreement; and*
 - iii. *the most appropriate form by which the contracting authority may implement the project under an agreement;*
- c. *demonstrate that the agreement shall –*
 - i. *be affordable to the contracting authority;*
 - ii. *provide value for money; and*
 - iii. *transfer appropriate technical, operational or financial risk to the private party;*
- d. *explain the capacity of the contracting authority to effectively enforce the agreement, including the ability to monitor and regulate project implementation and the performance of the private party in terms of the agreement.”*

The CWA must ensure that the feasibility study meets the requirements of the PPP Guidelines and submits the study for the recommended PPP approach to the PPP Unit of MoFED to move forward with endorsement of the approach by GoM.

Build Operate Transfer Act 2016 (BOT Act)

This act was promulgated in addition to existing legislation regarding the relationship between government and private sector bodies, namely the Public Procurement Act 2006 (the PP Act) and the Public-Private Partnership Act 2004 (the PPP Act). This piece of legislation is potentially relevant as it could be considered as a possible option for the outsourcing of the targeted CWA management or distribution network functions.

The new act specifies that in relation to build operate transfer (“BOT”) projects, the Procurement Act and the PPP Act shall not be applicable. A BOT project is defined under the act as a project based on the granting of rights, under a BOT agreement, to a private party, to build, to set up, own, operate, rent,

lease, finance, modernize, manage, maintain or develop, and to transfer the undertaking, in accordance with the BOT agreement. It states that a BOT includes any agreement which may provide for a project based on BOOT (Build, Own, Operate, and Transfer), DBFOT (Design, Build, Finance, Operate and Transfer) or MOT (Modernize, Own/Operate and Transfer) models.

The act, however, provides that certain provisions of the Public Procurement Act shall be applicable to BOT projects entered into with a foreign state, namely in relation to the conditions applicable for procurement.

A special unit is also set up under the act for a BOT Projects Unit, which is responsible for dealing with BOT projects. Once a government body identifies a BOT project that does not involve a foreign state as counterparty, and that may be implemented under the act, there is a specific procedure set out which essentially consists of the following steps:

- prepare (or cause to be prepared) a feasibility report which is submitted to the BOT Projects Unit for its assessment;
- submit to the Central Procurement Board (a body set up under the PP Act); and
- develop and monitor the BOT project.

When a government body enters into a BOT agreement with a private party, the act also sets out a list of provisions which shall be found within that agreement, and which include: (i) the rights and obligations of the contracting authority and private party, (ii) the period of execution of the project, (iii) the relevant financial terms, (iv) the management of performance of the private party, (v) the sharing of technical, operational, commercial and financial obligations and responsibilities among the parties, and (vi) the return of the assets to the government body at the termination or expiry of the BOT agreement.

While the team understands that the objective of the GoM in enacting the BOT Act was to develop greenfield projects, and so the PPP options considered under this report would not fall under this category of project, this should be checked by MEPU and CWA at an early stage to avoid delays and confusion.

Procurement of the PPP Transaction

Procurement of PPPs is governed by the Public Procurement Act, as amended by the PPP Act.

The Public Procurement Office (the "PPO") , under the Public Procurement Act, is the focal point to guide all the public bodies and governing bodies of procurement proceedings. It regulates, monitors, and coordinates these proceedings and is also required to supervise such activities so that they comply with the provisions of the Public Procurement Act or with any other regulations.

The PPO formulates policies in relation to procurement, including directives, procedures, instructions, technical notes, and manuals for the implementation of procurements. It issues standard forms of contracts, bidding documents, pre-qualification documents, requests for proposals, and other similar documents intended for public bodies implementing procurements only. Moreover, the PPO is entitled to recommend and facilitate the implementation of measures to improve the functioning of the procurement. One of the ways to achieve this target is to solicit the views of the business community on the effectiveness of the procurement system.

The Public Procurement Act defines a public body as any Ministry, or other agency of the Government including local authorities, parastatal bodies, and such other bodies specified in the Schedule. Part IV of the Schedule specifically refers to the CWA.

BLC notes that *“In view of the above, (i) the CWA must be regarded as a public body, which implies that (ii) if the CWA wishes to outsource procurements of any goods, services or other works, the provisions of the PP Act will apply to such procurement.”* **Major Contracts.** Under the Public Procurement Act, a distinction is made between major contracts and any other contracts. Such major contracts are defined as a contract for the procurement of goods and services or the execution of works to which a public body is or proposes to be a party and where the estimated fair and reasonable value exceeds MUR 100 million (“Major Contracts”). The team assumes that the PPP contract is likely to be treated as a Major Contract if the recommended PPP approach is followed.

In the case of Major Contracts, the public body is under the obligation to transfer the procurement proceedings to the Central Procurement Board (the “Board”). The Board, in respect of Major Contracts, establishes appropriate internal procedures for its operation, vets the bidding documents and notices which are submitted to the public, receives, and publically opens bids. The Board also selects persons from a list of qualified evaluators to act as members of the bid evaluation committee. Lastly, the Board’s approval is mandatory before any award of Major Contracts.

CWA and MEPU will need to ensure that the process for development and procurement of the transaction follows the both PP Act and the PPP Act. Any possible overlap in jurisdiction between the Board and the PPP Unit should be raised with the agencies in good time to ensure that this does not create a bottleneck to the project.

Pre-qualification stage for PPP Contract

Irrespective of the value of the procurement, the following procedures will apply to the bidding proceedings.

- Public bodies or the Public Procurement Board are entitled to proceed with pre-qualification proceedings before going through with the bidding process itself.
- Pre-qualifications will be used to identify qualified bidders before any invitation to bid, and are limited to large or complex works, high value procurements only (terms not defined in the PP Act). It is likely that prequalification may be used by the Board for procurement of Major Contracts. All prequalification documents and information must be provided to all bidders who respond to the invitation in order to enable them to prepare and submit their bids. Once the pre-selection is done by the public body, a list of the successful prequalified bidders will be circulated by the public body.

Process for Public Procurement

- The Board or the public body, as the case may be, may choose from among a number of procurement methods provided by the Public Procurement Act. However, the Public Procurement Act provides that open advertised bidding shall always be the preferred method of selection -- except when the public body has reasons to believe that such method will not be efficient or practical for the procurement in question or will be too costly given the value of the procurement in question.

- When using open advertised bidding, the public body is required to publish the invitation to bid or to pre-qualify in a national newspaper with wide circulation. The same criteria is applicable for open international bidding (media with wide circulation), notwithstanding the ability of the public body to confer a margin of preference to local or regional goods, services, or contractors.
- The public body may also limit the participation to an open advertised bidding to bidders who are citizens of Mauritius or to entities incorporated in Mauritius. Such limitation is required to be stated in the invitation to bid or to pre-qualify or in the bidding documents.

Open international bidding

This procurement method must be selected where (i) the estimated value of the procurement exceeds MUR 200 million for goods and work and 10 million in respect of consultancy services, (ii) the goods, work or services are not available under competitive price and other conditions from more than one supplier in Mauritius or (ii) in the event that there is no response to the open advertised bidding.

In respect of open international biddings, the PPO is entitled to issue instructions in relation to selection criteria and shall provide for a percentage or margin of preference which shall apply in favor of regional goods, services, work, and contractors.

The team assumes that any PPP contract will exceed these thresholds and would therefore be subject to open international bidding.

For completeness, and for relevance in respect of activities that will arise under the rehabilitation program, which is so critical to the success of a PPP approach, the other forms of available procurement process are set out below.

Restricted bidding

The public body must opt for this method where (i) it has reasons to believe that the goods, services, or work to be procured are only available from a limited number of bidders, (ii) it has concerns about a disproportion between the potential amount of bids against the value of the procurement (not exceeding MUR 5 million), (iii) to limit the participation to the bid to suppliers to ensure that goods and services will be provided.

Sealed quotation

Requests for a sealed quotation must only be used for procurement of readily available commercial standards and goods, and procurement of small works or small services where such goods, work or services do not exceed MUR 5 million.

Community end-user procurement

The community end-user procurement method has to result in enhancing the economy, quality, or sustainability of the service to be procured, or the very objective of the project is to create employment and involvement of the beneficiary community.

Departmental method

The departmental method may be employed where governmental resources will be used, and one of the following criteria is satisfied:

- a. an activity is not likely to attract bidders, at least not at a reasonable price, in view of its size, nature, location or scattered location, or financing or high costs for outside suppliers;
- b. an activity is such that, if carried out by a contractor, it would impose an unacceptable risk on the contractor because the cost cannot be determined in advance;
- c. the risk of unavoidable work interruptions is better borne by the public body than by a contractor;
- d. it has been demonstrated that departmental execution is the only practical method for construction, maintenance, and conservation works under special circumstances;
- e. an activity for a pilot project of a particular nature for the development of a technology work method cannot be carried out by a contractor;
- f. works must be carried out without disrupting existing operations by the public body's staff because they are familiar with those operations; or
- g. there is an emergency such as a natural disaster which calls for immediate action.

Request for proposal in respect of consultancy services

In respect of consultancy services, where a request for proposal is used, the public body shall draw up a shortlist of consultants among those who have the capacity to perform the required services based on its knowledge and information where the value of the contract does not exceed MUR 10 million.

Direct procurement

The direct procurement method allows the public body to purchase goods, services, or work from a single source without competition. Such method is allowed where the value of the procurement does not exceed MUR 500,000 provided that the total cost per single item does not exceed MUR 100,000.

Emergency procurement

It is possible for the public body to purchase goods, services, or works from a single supplier without competition in cases of extreme emergency. The scope of such emergencies include situations where the country is confronted or threatened by or actually confronted with a disaster, catastrophe, war or Act of God, where the life or quality of life or environment may be seriously compromised, or when the condition or quality of goods, equipment, or publicly owned capital goods may seriously deteriorate unless action is urgently and necessarily taken to maintain them in their actual value or usefulness. Last but not least, emergency procurement may be used where a capital project may be seriously delayed for want of an item of a minor value.

Evaluation of bids

Examination and evaluations of bids submitted by bidders, in accordance with the provisions of the Public Procurement Act, will be performed by either the public body itself or, in case of Major Contracts, by the examination committee of the Board. Once they have put forward the bid with the lowest bidding price and which meets all the criteria set out in the bidding documents, a notification will be circulated among the bidders, identifying the successful bidder.

Challenge of procurement award

Prior to the award, as requested by the Public Procurement Act, a delay to challenge the decision is granted to all unsatisfied bidders. Such challenge must be made first to the Chief Executive Officer of the public body in charge of the procurement. An appeal of his decision can be done in front of an Independent Review Panel as provided by the Public Procurement Act. Following the decision of the Independent Review Panel, it is possible for the unsatisfied bidder to make an application for leave for Judicial Review, lodged with the Supreme Court of Mauritius.

Legal issues relating to procurement of works and services in respect of capital expenditure and rehabilitation

The team was informed that a key constraint and source of delay for CWA in implementing previous attempts with reform are CWA's procurement processes. If the proposed reforms are to achieve the desired transformation in service delivery, then these processes need to be streamlined as much as possible.

As noted above, CWA is a public body under the Public Procurement Act and so is obliged to follow the procedures set out in Section III above. Whilst some of the investment projects such as those for treatment works would be categorized as Major Contracts and so overseen by the Board, most would be categorized as ***Smaller Contracts***. The procurement process for projects whose value do not exceed MUR 100 million remains with legally CWA. However, the Bank team understands that MEPU and the board of CWA have imposed further limitations on CWA in terms of the thresholds for procurement. The general manager of CWA cannot approve projects above these thresholds without MEPU or CWA board approval. These limits are not enshrined in law and could be amended. If CWA demonstrates good management of its procurement processes and transparency, then there may be willingness to raise these thresholds and reduce scrutiny of CWA. The CWA board has recently approved a new director level position to manage procurements and it is anticipated that this should assist processes within CWA.

The team also understands that CWA has its own procurement processes established, and these are cumbersome and outdated. It recommends that CWA review these to achieve greater transparency and speed of process.

The team has also proposed that CWA could, in parallel with the PPP procurement, proceed with procurement of key items, such as customer meters and pipe, installation of which could then be overseen by the operator. The team also suggests that specific numbers of items that can be costed in the bids or pre-set by CWA, such as customer meters, could be included within the scope of the PPP contract and that the operator could then source and implement itself or subcontract. This section considers the legal implications, if any, of this.

For subcontracting purposes, the Public Procurement Regulations of 2008 (the "Regulations of 2008") provide that the public body is required to seek from bidders all qualification information and

documentation for any major subcontractor (the term is not defined in the Regulations of 2008) which will be involved in the performance of the awarded contract. The scope of bid evaluation of the CWA would typically include the qualifications of a subcontractor if it considers the subcontractor's role as critical.

Another area which may affect subcontracting is that, subject to the complexity of the equipment and availability of resources in the local market, the public body may request proof of local, after sale service from the bidder.

BLC noted that neither the Public Procurement Act nor the Regulations of 2008 provide for procedures to follow if, during the performance of the procurement contract, the contractor must subcontract part of the procurement. In light of the above mentioned provisions of the Regulations of 2008, it is therefore likely that the choice of the "critical role" subcontractor will be primarily subject to (i) bid document requirements and, eventually (ii) the provisions of the awarded contract.

The team concludes that specific items could be included in the PPP contract and costed in and that if and to the extent that these activities were to be subcontracted, and such subcontracting related to a critical role, the operator should disclose such subcontractors during bidding. This would be a requirement set out in the bidding documents of the PPP contract. In addition, if any investments were funded by an IFI, the procurement guidelines of the IFI are likely to apply.

CWA Transformation into a Companies Act Company

CWA management asked the team whether it would be possible to transform CWA into a Companies Act company to improve its efficiency, increase its autonomy from GoM, raise commercial finance, and also enable strategic investors (and employees) to acquire shares in CWA.

The legal advisors confirmed that it is theoretically possible under Mauritian law to transform a parastatal authority into a Companies Act Company but that it is not aware of this having been done before. The privatization of Mauritius Telecom, for instance, did not involve such a transformation as the entity was already a Companies Act Company.

The process for transformation is as follows:

- First, for the setting up of a private company, a reservation of name for the New Company should be made at the Registrar of Companies to confirm name availability. Thereafter, an application will have to be made to the Registrar of Companies, together with the business plan, the prescribed forms (including the application form, consent of directors, consent of shareholders, and consent of company secretary), the applicable prescribed fees. This is currently MUR 3,200 if payment is made at the office or MUR3,100 if payment is made online. Other required documents include the constitution (we have assumed that one will be adopted) and the required legal certificate from a law practitioner certifying that the said constitution complies with the laws of Mauritius. The incorporation process usually takes 2 to 3 days and thereafter, the New Company will be issued with the relevant certificate of incorporation.
- Investors may acquire shares in the New Company either for cash and/or non-cash consideration. Generally, the New Company shall comprise of at least one non-redeemable share and a share in the New Company shall confer on the holder:-
 - the right to one vote on a poll at a meeting of the company on any resolution;

- the right to an equal share in dividends authorized by the Board of Directors; and
- the right to an equal share in the distribution of the surplus assets of the company.
- The above rights may be restricted, limited, altered, or added to by the constitution of the New Company or in accordance with the terms on which the share is issued. Given the sensitivity around water assets being transferred out of the public domain, the rights attached to shares and ability to transfer such shares would need to be carefully crafted.
- It is likely that some of the assets and liabilities of the CWA would be transferred to the New Company during the restructuring. Any agreements that CWA has entered into with service providers that are still in force may need to be assigned and novated to the New Company. If these agreements do not expressly provide for assignment or novation of contracts to a third party, the prior consent of the relevant service providers will have to be sought. There may also be specific constraints regarding novation of liabilities from an authority to a company as CWA as an authority may benefit from special treatment or immunities that are not available to a private company.

Key observations in respect of transforming CWA into a Companies Act Company

For the implementation of the PPP and the incorporation of a joint venture vehicle, it is assumed that the CWA Act will have to be amended or repealed. Therefore, it is important to consider the effects of such amendments or the repeal of the CWA Act.

- Currently, the CWA has several functions which include overseeing the quality of water and establishing tariffs. If the CWA Act is repealed, it is important that another legislation be enacted to regulate the water sector in Mauritius. New legislation would be required, among other things, to address the following:
 - the establishment of a regulatory body to perform regulatory functions, including ensuring the sustainability and viability of water utility services, protecting the interests of both existing and future customers, promoting efficiency, promoting competition to prevent unfair and anti-competitive practices in the water utility services industry;
 - rules governing water utility service providers;
 - issue of permits and licences for water utility service providers; and
 - any other matters that are of social or economic importance in the water sector.
- The new regulatory body will be performing some of the duties of the CWA that are of social and economic importance. There are other laws that provide duties and powers to the CWA (for example, the Ground Water Act) and the new legislation will have to address these duties and powers.
- The timeframe to achieve the complete transformation of the CWA, as a parastatal body, to a private company will depend on several factors, including:
 - Negotiations to be made between the CWA and its employees (the rules applying to transfer to the New Company would be similar to those applying to a transfer to an operator (as set out in section IV);
 - the number of stakeholders that will be affected by this transformation and discussions and negotiations that need to be made with these parties;
 - amendments to be made to the existing documentation and agreements of the CWA; and

- assets and liabilities of the CWA and how the CWA will value these assets and liabilities.

Depending on these factors and willingness of the different parties to complete the transaction, the timeline for the transformation may vary from three months to five years. Drawing a more precise time line would require further internal CWA due diligence and engaging with relevant third parties.

Recommendation

In light of the different parts of this report, the team does not see an immediate need to convert the CWA into a private company in as much as:

- the CWA has the right to outsource its management function under a form of affermage arrangement. There is a procurement regime in place which allows for such outsourcing and PPP legislation is in place to allow for the involvement of a strategic partner on a contractual basis.
- CWA is already empowered to borrow funds and raise debentures, with approval of MEPU, and so transformation is not necessary for that to happen.
- CWA could potentially achieve greater independence from MEPU through:
 - a raise in thresholds for procurement requiring MEPU approval;
 - exemption from the Pay Reserve Bureau rules so that it would have more flexibility on terms and conditions of employment¹⁴; and
 - tasking the Utility Regulatory Authority with regulation of the water and wastewater sectors to de-politicise customer tariff reviews.
- If in due course it is found that greater flexibility is required or that it wishes to bring in a private investor, then the GoM would still be free to proceed with the transformation of CWA, which should not impact the PPP contract.

Labor Law Issues

In the recommended PPP approach, the majority of current CWA staff could, subject to their agreement, be made available to the operator. While the team recommends that MEPU and CWA seek specialist advice on labour issues, this section summarizes key legal issues identified by the team.

Transfer of existing CWA staff

Under Mauritius law, the transfer of undertaking would be done by way of contract. There is no automatic transfer by operation of the law. The Operator would be required to employ the employees on no less favorable terms than those of the former agreements and maintain their continuity of service, respecting

¹⁴ BLC is not aware as to whether the CWA can obtain an exemption from the Pay Research Bureau for its employees to have conditions of employment similar to employees of the private sector. As it was noted by MEPU that Central Electricity Authority had been given such an exemption at the application of MEPU, CWA should address this directly with MEPU.

existing years of service, which would be provided for in the new contract with the partner ("New Contract").

The New Contract would also need to be signed by all the employees with the Operator, on the assumption that they are provided an employment agreement on no less favorable terms with continuity of service.

Alternatively the Operator may agree on its own terms and conditions with the employees, but there is a risk that the employees refuse the new terms and conditions of employment if it is not to their advantage or is less favorable than the existing terms of their employment.

Terms and conditions of CWA existing staff

As a statutory body, CWA employees are governed by the recommendations of the Pay Research Bureau. The benefits that they are usually entitled to are not necessarily similar to those granted to employees in the private sector. Depending on the grades of the employees, they may be entitled to several fringe benefits.

The team understands that one of the fringe benefits that some employees are entitled to is a "duty free car." It allows the employees to be exempt from payment of duties upon the acquisition of a car. Depending on the grades of the employees, this entitlement for a duty free car can be for every three, five, seven years or once in their career. The New Company would not be able to extend this benefit as the beneficiaries of duty free cars is not extended to employees in the private sector.

Employees of statutory bodies, such as the CWA, benefit from pension schemes established by the Statutory Bodies Pension Funds Act of 1978 and the Statutory Bodies Family Protection Fund Act of 1965. The Statutory Bodies Pension Funds Act of 1978 provides for a pension fund to be established for every statutory body, inter alia for the CWA to which these bodies make contributions for their officers. Such pension funds are currently administered by the State Insurance Corporation of Mauritius ("SICOM"). Contributions by each statutory body are compulsory from the date an officer is employed permanently and on a full-time basis by a statutory body or an officer is recruited under a traineeship, studentship, cadetship, or apprenticeship scheme by a statutory body. Contributions are equivalent to 12% of pensionable emoluments, which are defined as including salary, car benefit, house allowance, rent allowance, and any additional remuneration, and are to be paid to the SICOM at the end of each month. This excludes duty allowance, entertainment allowance, or any other allowance paid to an officer at the time of his retirement. The rate of contribution is however subject to adjustment to be determined by the actuary of the SICOM in the light of an actuarial investigation to be carried out in respect of every pension fund at least every five years. Such pension benefits, calculated in accordance with the provisions of the said Act, are paid (i) in the case of a contractual employee, in accordance with his contract of employment and (ii) in the case of any other employee, in such manner and subject to such conditions as may be prescribed.

Section 14 (5) of the Statutory Bodies Pension Fund Act of 1978 provides for the transfer of accrued pension rights of an officer who leaves employment with a statutory body to take up employment in the private sector or to become self-employed. An officer having completed at least one year's of service with the statutory body may have his portable benefits transferred to such superannuation fund as may be established by the employer who employs him or to such personal pension scheme to which the employee may have adhered to, on leaving the statutory body. Accordingly, the New Company will have to ensure that the accrued rights of the employees are preserved.

Similarly, the Statutory Bodies Family Protection Fund Act of 1965 provides for financial assistance to associates of the Statutory Bodies Family Protection Fund (the "Fund"), and pensions to be paid to the surviving spouses and eligible children of the associates upon the death of the associates of the statutory bodies. The following officers of statutory bodies are deemed to be an associate: (i) an officer who attains the age of 18 and was appointed before 1 January 2013; and (ii) a female officer who has attained the age of 18 shall as from 1 July 1993 be deemed to be an associate.

However, contrary to what could be possible under the Statutory Bodies Pension Fund Act 1978, the Statutory Bodies Family Protection Fund Act 1965 does not provide for the transfer of accrued rights of employees of statutory bodies under this legislation in case they take up employment with the private sector. Hence, the New Company will have to ensure that these accrued rights of employees, whose services would be continued, are maintained upon the transfer of undertakings by catching up the contributions made before the transfer of undertakings through relevant schemes.

MEPU/ CWA would need to determine what funds had accrued under these various funds before any staff could be transferred.

Potential Challenges in respect of the transfer

The transfer of employees to the partner would need to be subject to consultation with unions. In order for the Company to obtain consent of the existing employees of the CWA, it would have to find the right packages where the unions and employees are convinced that they would be better off with the partner.

Deemed transfer of business

There may be a deemed transfer of business if the employees currently employed by the CWA are employed by the partner. Moreover, there would be a deemed transfer of the business if the functions that are currently performed by the CWA -- for example, meter reading, inspectorate, invoicing and customer service -- would be performed by the partner.

There would not be a deemed transfer of business from the consumers' perspective if the CWA outsourced certain functions to a contractor but the responsible/governing authority remains the CWA. However as discussed above, the difficulty arises as to whether it would be possible to transfer the employees to the operator.

Transfer/ secondment of public sector employees

The team is not aware of any transfer of business which has been done by a statutory body to a private company in Mauritius.

However, it should be noted that public sector employees holding substantive appointments are, subject to the exigencies of service, eligible to grant of leave without pay to take employment in:

- parastatal and other statutory bodies, as well as in other institutions with approved service status, for the probationary period of employment up to a maximum aggregate period of two years over 10 years;

- the private sector in Mauritius for an aggregate period not exceeding one year over a period of 10 years;
- International Organizations (of which Mauritius is a member), foreign countries under a scheme approved by Government, and member countries of Regional Organizations like SADC for the period of the initial contract or an aggregate of three years, whichever is longer over a period of 10 years. The duration of the leave without pay may be extended, subject to the approval of a High Powered Committee, for an aggregate period not exceeding five years, upon production of evidence that contributions in respect of service provided abroad have been made and a pension is payable for continuous service.

The above sub paragraph provides for secondment at the request of the employees of the public sector. Any secondment of the employees of the CWA at the request of the CWA would be subject to following conditions:

- the consent of the employees;
- any collective agreements relating to the employees;
- the conditions of the employment of the employees during the secondment is on no less favorable terms than under their employment contract;
- the years of service of the employees are continued;
- there is no change in the job titles of the employees (to avoid any claim of demotion);
- a guarantee that at the end of the secondment, the employees will have the same position as they had in the CWA prior to the secondment.

Employees of the Operator at the end of affermage

The team recommends that the proposed PPP agreement would have a handover provision whereby employees of the Operator working on operations would be transferred or made available to the CWA or a new operator, subject to Mauritian law and the employment agreement of each employee.

BLC is not aware of any similar arrangement being made in Mauritius. From an employment law perspective, the CWA would have no obligation to employ the employees of the Operator at the end of the affermage. However, to the extent that the affermage agreement between the Operator and the CWA provides for the transfer of the employees of the Operator to the CWA, then the latter will be contractually bound to employ the employees of the Operator on the terms agreed under the affermage agreement.

In terms of the transfer of the employees of the original operator to another operator, this would be binding only if the agreement between the new operator and the CWA provides for same. In addition, this is subject to the consent of the original operator and the employees of the original operator.

SECTION 5

Options for involvement of a private partner in CWA

As noted in section 4a, there have been a number of attempts to reform CWA and to reduce NRW over the years. Most of these attempts have involved short term approaches using specific service contracts or very limited management contracts.

As noted in section 1, the GoM recognizes that these attempts have not worked and that a different, more holistic approach is required. This section considers six scenarios that might be considered for improving performance of CWA and turning CWA around, taking into account specific international experience:

1. **Status quo:** No change to CWA's status and no PPP (to look at the base case public sector comparator).
2. **Management contract (MC).** The private operator is paid an incentive-based fee (based on performance targets) for managing the existing public utility, while the government remains in charge of all investment. Typically the operator provides key personnel to work alongside the existing management/ fill certain management positions, with the existing staff remaining with the utility. The typical duration is three to six years. It is a "limited risk transfer" scheme whereby the private operator takes only limited operational and commercial risks, and consequently the results are usually modest. A hybrid of this could be a longer term performance based operations contract with increased risk transfer and operator with operating control (likely take-over of workforce¹⁵).
3. **Performance based contract for non-revenue water.** The operator takes over a discrete part of the network (zone) and typically designs and installs DMAs and then reduces NRW over a specified period. Focus can be on delivery of 24/7 water supply if it is possible to have sufficient water/ storage in zone. Often used for demonstration effect and can include a capacity building element to train utility workforce on this approach so that can be replicated. Typically it takes three to seven years to ensure that improvements are sustained. This approach is particularly useful when government wants to introduce an NRW approach and create DMAs¹⁶. If PBC is to include commercial as well as physical loss reduction, then operator needs to have sufficient control or oversight of metering and billing processes to be able to identify and manage losses.
4. **Lease/ affermage contract.** The private operator takes most operational and commercial risks, while CWA remains responsible for all or most investments. Bills are collected directly by the operator, and the tariff revenues are shared between the operator (to cover O&M fee) and the government (to cover costs, investment debt service). Operator provides staff (usually takes over existing staff of utility). The typical duration is 10-15 years. A hybrid version of this could include performance targets for NRW reduction, achieving 24/7 supply and including operator obligation to manage capex rehabilitation program (example is Senegal).

¹⁵ such as the Karnataka project discussed in this section

¹⁶ Such as the HCMC contract in Vietnam discussed in this section

5. **Joint venture/ empresa mixta.** CWA transformed into autonomous company and some (usually less than 50%) of shares in utility sold to a strategic investor. The strategic investor is usually granted an operating or management contract and is responsible for day to day operations. Operator will require day to day management control and certain minority shareholder veto rights if it is minority shareholder. Long term arrangement – typically 20-30 years. Section 4c also looks at the pros and cons of reform of CWA into an autonomous Companies Act company (as a standalone reform or in combination with another option). Similar steps to those listed in Section 4c would also be required for the joint venture arrangement.

In section 4c the Bank team also considers the scenario where there is the transformation to a Companies Act Company (whether or not a PPP is developed).

Each option has advantages and disadvantages. Mechanisms for managing or mitigating those disadvantages for parties, to some extent, as will be discussed in the following section.

Scenario 1 - No change – CWA remains as Authority with no additional outsourcing

Scenario 1 is the base case of no change to the legal form of CWA or PPP transaction, but with an introduction of changes within CWA organization and to approvals, to increase autonomy, and to improve management. Also legislative changes to CWA Act to clarify functions of the CWA, MEPU and other agencies.

FEATURES	ADVANTAGES	DISADVANTAGES	COMMENT
Maintain CWA as an authority	Simple - Keeps political issues to a minimum	CWA continues with inefficiencies of procurement and operations	Whether government implements PPP or not, recommended to transform CWA
Continue current NRW program	Capacity established in NRW unit can gradually work around the island	NRW program benefits likely to be slow and limited as team not in charge of meter reading or procurement and isolated from operations	Procurement processes and thresholds would need to be simplified
Increase thresholds for GM approval of procurement and simplify procurement processes within CWA	Faster and more transparent procurement processes	May be difficult to change culture of different departments competing for capex without proper prioritization strategy	There will still be threshold of MUR 100 million for Central Procurement Board approval requirement – should this be revised?
Fill management vacancies, promote good staff	Rebuild utility and resolve succession planning	Statutory wage scales and functions - Difficult to attract and keep talent – limited performance incentives.	CWA might be able to seek exemption to Pay Review Bureau requirements
Amend CWA Act to clarify roles and mandates of Ministry, CWA and other institutions	Required under any scenario to ensure that functions and powers are with right level of government	Hard to change approach from operator of water assets to provider of services	Legislative changes are recommended to be carried out in parallel with whichever option that is selected

Scenario 2 Management Contract

Typical features

- Typically short term (three to five years) – can be longer if elements of performance built in.
- CWA continues to operate facilities and provide services and oversee workforce.
- Private partner provides expertise to work alongside CWA.
- Usually includes a capacity building element for staff of authority.
- Can give private partner specific tasks and include some performance based incentives.
- Difficult to pass significant risk to private partner as they have limited control.
- In practice likely to achieve limited improvement as limited incentives or ability for private partner to turn around the authority.

Such an approach is generally appropriate when there is limited data and where government seeks limited support from the private sector or where it would be difficult to transfer staff under a private partner.

Given the challenges identified in CWA and the need for turn-around, and that versions of this approach have been used by CWA in the past without success (as discussed in Section 4a), it is likely that something more extensive, with greater risk sharing with the private sector, is appropriate.

ADVANTAGES	DISADVANTAGES	MAURITIAN CONTEXT
Easy to put in place as private partner works with management to improve performance	May not achieve much in efficiency gains as operator depends on cooperation of CWA existing staff that operator does not control	CWA capacity still requires to be built up
Expertise and knowledge transfer to local staff who learn on the job with oversight from experts	Difficult to pass performance risk to private party if not controlling workforce and operations	Capacity established in NRW unit can be absorbed by operator
Key role of coordination between parties – roles need to be well defined	Coordination problems can easily occur between the public and private partners, generating multiple conflicts	Likelihood of moving to dispute
Set out some simple requirements for operator	Difficult in practice to ring-fence the relative responsibilities of the private operator and the government	Limited international examples of successful management contracts
Private partner helps to rebuild utility	Will need to ensure that there is resource in CWA that private party can work with	Private partner can be side-lined by management if contract and incentives not carefully crafted and performance improvements from management contracts are often short-lived and can erode over time without proper skills transfer
Staff remains with CWA	Staff cannot be rewarded on performance	Important to consult with unions

In term of results, Management Contracts have often been disappointing in solving issues that require a serious operational overhaul. This is because of their short-term, limited scope nature. The private partner has in practice only limited control over the utility, and still depends upon cumbersome procurement

procedures, for example. This is a major shortcoming when the utility needs to manage high levels of NRW, which is one of the key challenges facing CWA.

Management Contracts are suitable in situations where the institutional and technical capacity at government and utility level is very low, and the overall sector risk very high, making other options impractical. This is the case for many Sub-Saharan African countries, but not the case of Mauritius.

For all these reasons, a Management Contract does not appear as the most optimal option for CWA.

Example of Management Contract

Armenia – Yerevan Management Contract

Problem

- After the collapse of the Soviet economy, most of the water supply and sanitation systems in Armenia were in disrepair.
- The country was faced with increasing demand, deteriorating assets, and dilapidated infrastructure.
- There was a steadily decreasing and costly provision of services.
- Despite an abundance of water in the country, there was intermittent supply (few hours per day).

Solution

- Four-year performance based management contract for Yerevan.
- The operator was responsible for the operation and maintenance of the water and sewerage infrastructure, from source to tap, as well as billing and collections.
- In addition, the operator managed an investment capital fund supported by Government contributions and a World Bank credit to improve and upgrade the most critical elements of the system.
- The operator paid partly against performance.

Results

- The duration of the water supply (with a base value of 6 hours in the year 2000) increased to 18 hours in 2004. Fifty percent of the customers had continuous 24-hour water supply, due in large part to the network sectorization.
- There was service improvement, combined with the improved collection procedures and metering campaigns. There was increased revenue collection, from 20% when the contract was signed to over 100% (including arrears) in 2003.
- The utility's energy consumption, the biggest O&M cost item, was reduced by 30%, exceeding the 20% contract target. The energy savings translated into an estimated US\$4.83 million of annual electricity cost savings.
- NRW was not reduced – but as Armenia had a lot of water resources, this was not a priority for Government.
- The project was so successful that Government then moved to a lease contract for Yerevan.

This was an example of a successful management contract. Success was due to a number of factors, including the cooperation of the parties and the desire of all parties to make improvements. There are other examples of successful management contracts, such as that in Johannesburg, South Africa, but also examples where the management contract approach has yielded very limited or short-term results.

Scenario 3 – Performance Based Contract for NRW reduction, move to 24/7

Typical features:

- Five- to ten-year contract (initial rehabilitation/ fixing period (which where necessary may require establishing DMAs) + sustaining period
- Contractor responsible for a specific service – such as leakage reduction or NRW reduction:
- Bill of quantities based activities, which are included in the contract price such as:
 - Install bulk meters
 - Create District Metering Areas - DMAs (to systematize leakage control)
 - Some network strengthening as part of DMA creation
 - Install new, or replace malfunctioning, consumer meters
 - Undertake customer survey
- Performance based activities:
 - Finding and fixing leaks – thus reducing physical losses
 - Improving billing and collection rates – thus reducing commercial losses
- Contractor may have a discrete team that is not part of the overall operations of utility (for leakage reduction only) -- although it is better if there is some interaction with utility operational staff and an opportunity to build utility staff capacity through secondment of the utility staff to the leakage reduction team.
- Contractor sometimes just focuses on network operations, and not facilities.
- Capex is publicly funded.
- Need to incentivize contractors to
 - find and fix the biggest leaks, prioritizing work that is likely to have the biggest impact on reducing leakage levels
 - keep focused during life of the contract on maintaining low levels of leakage

Different Options:

- Bundled model – the contractor is responsible for finding and fixing leaks and is paid a performance fee (per cumulative m3 saved) on top of a fixed fee. Incentive depends on ratio of performance to fixed fee.(HCMC 30% fixed).
- Unbundled model – the contractor is responsible for finding leaks, and then sub-contracts to third parties to fix them. There is a lower risk to contractor (brings only knowledge) but with fixing leaks being a cost pass through there are also lower incentives. (Incentives can be introduced, for

example via a mix of low fixed fee plus capital efficiency gain share plus payment per cumulative m3 saved).

- Management contract model – the contractor manages the public utility staff to find and fix the leaks. Performance is dependent on the attitude and incentives of the utility staff. As per typical management contract, bonus payments are made on delivery of results (see option 2).

ADVANTAGES	DISADVANTAGES	MAURITIAN CONTEXT
Focus on a discrete activity	Does not necessarily bring holistic solution for utility turnaround – that has to be managed separately	A variant of this was attempted by Singaporean team – did not control repairs or meter readers – limited results
CWA continues to carry out other operations and can be reformed from within	If CWA remains responsible for procurement and implementation of repairs and for metering, then operator will be constrained	Singapore team faced these challenges – limited results
If focus on leakage, CWA continues to manage billing and collection – may be easier for public body to be customer facing	Existing practices will continue in meter reading and billing – limited opportunity for change	Collection efficiency quite high already Most of island connected
Utility staff remains unchanged	Utility staff cannot be rewarded against performance	Important to ensure that “contracted” staff are properly accounted for

Example – Ho Chi Minh City – Vietnam

Problem:

- Service population of approx. 1 million people
- Number of connections 140,811
- Length of distribution system 662,063m
- High NRW levels

Solution

- Contract – four years - three years improvement plus one year maintenance (there have been subsequent contracts)
- Output based design, build and operate DMAs
- small fixed fee + performance fee per m3 leakage reduction
- “Priced Activity Schedule” for DMA establishment (lump sum price per DMA established)
- Bill of quantities (BoQ) (supply and installation) for unforeseen works and works to connect new customers
- Operator used own staff

Result:

- Volume of water saved = 92,000 m³/d
- Almost half the pre-project amount of leakage
- Saved water could serve 500,000 people in HCMC
- Saved power (23,000 kwh/d) could serve 2,500 HH in HCMC

How:

- Number of DMAs created: 114
- <1% of distribution system replaced (3422m/662063m)
- 8,535 connections replaced = 6%
- 12,000 leaks fixed in 662km of pipe = one every 50m
- Performance based payment – fixed + variable per m³/d saved

These levels have been maintained since the contract and so have proven sustainable.

The Bank team has concluded that while PBCs can be successful in focusing on specific problems, CWA requires a more extensive engagement with the private partner, given that:

- CWA already has DMAs in place and that these need to be reinstated;
- the key objective of GoM is to achieve 24/7, which calls for a more holistic approach; and
- the NRW twinning contract with Singapore was found to be sub-optimal as there was limited oversight, there was no control or oversight of meter reading, billing or indeed procurement by the operator which resulted in limited linkage between the commercial and operational divisions.

Scenario 4 - Affermage/ Lease Agreement

Typical features

- 8 to 15 year contract.
- Operator is responsible for operating the system and providing the service to customers.
- Operator is paid based on volume of water billed and collected x a bid tariff (called the operator tariff) and this fee is to cover all cost of operations and maintenance (so the incentive is internalized in the fees to keep physical and commercial losses (i.e., NRW) to a minimum.
- Capex is all publicly funded.
- Operator takes on required staff of utility.
- Operator does not take regulatory risk of customer tariff increases.

Appropriate when base data is good and tariff is likely to cover O&M including operator's fees and where there is willingness to transfer or redeploy utility staff.

ADVANTAGES	DISADVANTAGES	MAURITIAN CONTEXT
Clear delineation of responsibilities between utility as lessor and lessee		Capacity would still need to be built in CWA to ensure that it is strong counterpart
Lessee can work with utility to achieve holistic solutions to NRW and intermittent supply Lessee would be customer service focused	Customers would have new service provider – lessee may have less leverage getting government agencies to pay	Billing can be sent out in name of CWA
Incentive to improve collection efficiency and increase connections	There is limited incentive to reduce NRW if paid against volume of water produced – so best to have payment against amount billed and collected (if data allows for this risk to be transferred)	Collection efficiency quite high already Most of island connected NRW is the key area – so internalizing this risk into fee and possibly adding additional targets for NRW
Lessee can be asked to carry out additional activities such as invest in some small rehab/ new systems		Could require lessee to bring limited finance for small rehab
Lessee controls staff, incentives for performance can be introduced Easier to promote good performers	Can cause social unrest if unions not properly consulted and workers' rights not respected	Important to ensure that "contracted" staff are properly regularized
Regulatory risk remains with utility	Lessee to be paid fee which is (bid fee x water billed and collected) and which is contractually indexed against inflation so if utility does not achieve similar increases in tariff it could face deficit	Backing of government for increases in tariffs to ensure cost recovery and keep up with inflation

The following examples are hybrids of the long term operations and affermage contracts and the team considers that features from each of these could be combined to create the hybrid affermage scenario that the team is recommending.

Case study - Senegal Affermage (1996 onwards)

Problem

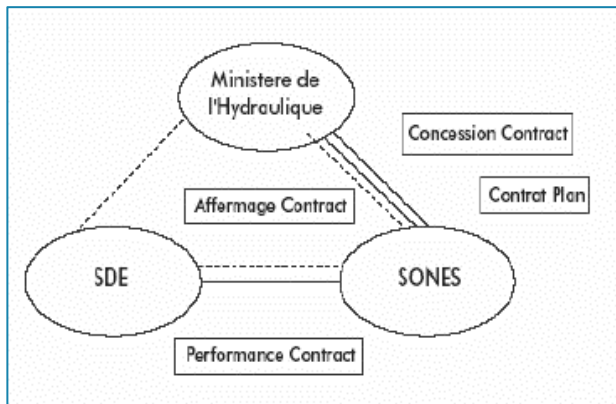
- In the 1990s, Senegal undertook major reforms of urban WSS sector (serving 1.7 million people), with World Bank IDA credit and introduced an affermage in 1996.
- The 81% urban population had access to piped water (household connections and standpipes).
- NRW was approx. 31% and 5.7 employees per 1000 water connections (so market was quite well performing).

BUT

- in Dakar, there was intermittent supply (16/7) of uncertain quality (relied on coastal aquifers that could be contaminated by sea water). The surface water was expensive (required treatment and pumping 240km), and farmers along transmission line used 11% of water at very low tariff.
- National utility, SONEES, could not cover operating costs due to government agencies not paying their bills, so SONEES stopped paying its electricity and chemical bills.

Solution

- The establishment of three main institutions to cover water: Ministry, a state-owned asset-holding company (SONES), and a private operator (SDE), and four contracts (drew on experience from Cote d'Ivoire, Guinea).
- 30- year concession contract between Ministry and SONES (publicly owned autonomous asset holding company)



- Sector performance contract between

ministry and SONES (contract plan)

- 10 year affermage contract between Ministry, SONES and SDE (private) [which has been extended]

- 10-year performance contract between SONES and SDE

- SDE granted 5% of shares to staff (SDE comprised shareholders of SAUR,

local companies (37%) and staff (5%)

- Hybrid affermage signed in 1996. The operator's remuneration was based on the amount of water produced, with performance element linked to achievement of NRW, increase in connections and bill collection targets, creating incentives to serve more customers while reducing water losses.
- The operator was required to finance some investments in network rehabilitation from cash generated from operations.

- Government allocated specific resources to finance increased access to piped water supply to the poor. A national fund was created to allow subsidies of social connections (financed by donors through loans to asset company) and set up payment booths. Worked through an NGO to identify need for social connections.
- Affermage but with some elements of concession:
- Transfer to operator financing and implementation of some rehabilitation and extension works.
- Operator's contract is based on quantity of water produced (not sold), corrected by predetermined targets for NRW and bill collection. If operator fails to achieve targets, penalty applies, which is different from traditional affermage where the operator is paid volumetric operator's fee x quantity of water billed and collected, and so the incentives for saving water and reducing NRW were externalized.
- Customer tariff (operator tariff plus payment to SONES) is set in reference to a financial model of SONES' operations (first developed during selection of operator).
- Specific fund and incentives for connections to poor.

Results

- Access to piped water increased from 81% to almost 100%.
- Customers with household connections increased from 241,200 to 635,000 (90% of population).
- Staff productivity went from 4.9 to 2.1 staff/ 1000 connections.
- Revenues cover operations and debt service.
- Attracted mixture of donor funding and private debt (from Senegalese commercial banks without a guarantee).
- Flexible – independent mediators acceptable to all parties have been used to resolve difficult issues (such as resetting NRW baseline when found to be incorrect in 1998, two years after commencement).
- A monitoring committee of government, SONES, and operator oversees implementation of contractual arrangement and runs the financial model.

The average tariff decreased in real terms over time (but started high) – from \$0.59 in 1996 to \$0.85 in 2014.

Points to note:

- Project started with 81% connectivity, many of which were standpipes - additional household customers with potential to generate extensive additional revenues, so lessee is willing to take a risk on increasing revenue.
- Tariff was already sufficient to cover costs of operations and some capex if government paid for water and so the tariff did not need to be increased significantly, hence there was a limited regulatory risk and limited risk that demand would fall.
- In early years, there was significant donor funding to improve performance.
- Staff was given stake in private operating company.

ADVANTAGES	DISADVANTAGES	COMMENT
Clear delineation of responsibilities between lessor and lessee		Capacity would still need to be built in CWA to ensure that it is strong counterpart
Lessee focused on customer service	Customers would have new service provider – lessee may have less leverage getting government agencies to pay	If public agencies resist paying, billing could be sent out in name of CWA
Lessor and lessee agree on a capex program to achieve outputs and targets	If cannot agree, then this may lead to dispute or termination so affermage contains dispute resolution	Independent engineer and dispute review mechanisms could be used to reduce likelihood of disputes escalating
Incentive to improve collection efficiency built into specific targets efficiency and incentive to increase connections through targets and penalties	There is limited incentive to reduce NRW if paid against volume of water produced rather than billed	Collection efficiency quite high already; Most of island connected
Lessee asked to fund key activities such as invest in some small rehab/ new systems Faster – no further public procurement required		Could require lessee to bring limited finance for small rehab
Lessee controls staff, incentives for performance can be introduced Easier to promote good performers	Can cause social unrest if unions not properly consulted and workers' rights not respected	Important to ensure that "contracted" staff are regularized

The Senegal approach has yielded good results and proved over the longer term to provide the stability for the utility and asset holder to raise private finance. One of the features of the Senegal approach is the transformation of the utility into a company limited by shares, which gave it greater autonomy from government. This is a feature that could be introduced in the medium term if GoM concludes that such an approach is advantageous. The Bank team recommends focusing on the PPP transaction in the first instance to achieve the turnaround in performance, given the objective of GoM to achieve service improvements as soon as possible. GoM might then consider a transformation of CWA at a later date if the GoM makes the policy decision to proceed with it and establishes a process for such transformation. As noted in Section 4c, there is no direct precedent for such transformation of an authority into a limited company in Mauritius and so such reform will require careful consideration and planning.

In the Senegal model, the lessee was not taking collection risk as it was being paid based on volume of water produced rather than billed. It was therefore necessary to include other targets and incentives to encourage the lessee to reduce NRW and to manage resources. The model of affermage recommended by the Bank team internalizes incentives to reduce NRW, as the lessee would be being paid based on volume of water billed and paid and so taking collection risk. Given that the collection rate for CWA is currently high, the private partner should be willing to take the collection risk.

Another feature of the Senegal affermage was that the lessee managed the capex program. It is recommended that this be the case for CWA as capex planning and oversight of capex implementation is relatively weak in CWA. It will also allow the private party to manage the risk of achieving 24/7 Supply within a tight time frame.

Karnataka – long term operations agreement hybrid

This is an approach recently signed for one city and being bid out for 2 other cities in Karnataka.

Problem

- Population in three cities ranges from 0.5 to 1 million each.
- Water utility function is part of municipal services – blurred lines of responsibility without a ring-fenced water operation.
- Intermittency of supply.
- Part of population is unserved; a number of households are served by standpipes rather than household connections.
- There are significant levels of NRW throughout the supply chain from source to tap. Energy cost is a pass through to the state and so there is limited incentive for the municipality to reduce leakage.
- Base data is very poor.

Solution

- Pilot projects in three cities have demonstrated that 24/7 Supply is feasible and so cities wish to scale up to cover whole of cities.
- Tripartite agreement including state body that oversees spending of state funds, municipality, and operator (state entity is the approving body in initial years).
- Operations plus (contract management) contract over 15-17 years comprising one-year preparatory period, four years rehabilitation and move to 24/7 plus a 10-12 year sustaining period contract.
- Operator is responsible for operating the whole system from source to tap and for customer services from the end of year one.
- During year one, operator carries out due diligence and prepares a system improvement plan and business plan, including the capex program (to be agreed with utility and state body), as well as procurement of some key items such as IT systems.
- From year two, Operator operates and maintains the systems in line with KPIs. The KPIs for the period until 24/7 is achieved in a DMA, similar to those achieved by the utility prior to contract.
- Operator is given specific targets for developing DMAs and reducing NRW/ establishing 24/7 supply during four-year rehabilitation period, against performance incentives, and then sustaining performance during the 10-year period that follows.
- Parties agree on an investment plan at the end of year one (and updates thereof). Capex is publicly funded.
- Operator is responsible for management of the capex (and paid a fee for this).
- Payment involves a fixed fee for operations, a fee for managing capex program, a performance fee against NRW/ leakage reduction targets, and a gain share for capex savings and for energy efficiency savings.

- Limited numbers of staff are to be transferred to operator as most staff may be deployed elsewhere and there is an aging workforce. Operator is to recruit staff.
- Corporatize water activity by establishing an SPV for utility with capacity to oversee contract and manage business and asset planning.

Results - This contract has just been signed – so lessons are yet to be learned.

ADVANTAGES	DISADVANTAGES	COMMENT
Clear delineation of responsibilities between state body, utility, and operator	Utility needs to develop capacity to ensure that it is making informed decisions	Capacity would still need to be built in CWA to ensure that it is strong counterpart
First year enables operator to carry out surveys and develop business plan	Delay in operator starting operations	CWA already has DMAs and performing relatively well so period can be reduced/ removed
Agreement of SIP and business plan enables buy in of all parties	Failure to agree business plan can trigger termination	Third party review mechanism in addition to alternative dispute resolution
Source to tap - Operator can manage holistic solutions to NRW and intermittent supply	In some cases bulk and distribution managed by different agencies and so existing arrangements needed to be disbanded	Very important element if seeking to achieve efficiencies throughout system
Capex efficiency share should encourage operator to find optimal balance between replacement and repair	Need reasonable data/ extensive analysis to establish capex envelope – as most assets underground it may be inaccurate	Transaction advisor had carried out extensive analysis to make cost estimates – which required time and extensive resources – may be possible to achieve with less upfront analysis
Operator would be customer service focused	Customers would have new service provider – operator may have less leverage getting government agencies to pay	It is not clear that this is an issue in the Karnataka context
Clear targets for reaching 24/ 7 over a phased period	Tight timeframe and complex work of establishing DMAs and achieving 24/7 raises potential for delays	For CWA, whilst there is a lot of rehab work required, DMAs are already established
Operator fee to cover operating costs + bonuses and penalties to incentivize achievement of targets and KPIs	Incentives are externalized – makes payment structure a bit more complex	
Operator is incentivized to achieve efficiency in energy use through energy efficiency gain share	Artificial incentive required in Karnataka case due to cost pass through for power	This creates some additional complexity in managing the contract but necessary in the context of electricity pass through for power costs
Operator manages staff, incentives for performance can be introduced Easier to promote good performers	Can cause social unrest if unions not properly consulted and workers' rights not respected	Important to ensure that "contracted" staff are properly regularized
Regulatory risk remains with utility	Operator to be paid fee which is contractually indexed against inflation so if utility does not achieve similar increases in tariff it could face deficit	Move to volumetric customer tariff supported by government

This approach is particularly appropriate where there is limited base information and where staff can be transferred to operator or redeployed as in the first year the operator is to develop a system improvement

plan and agree on key procurement priorities with the public party. It also allows lead time for key procurement. Another feature which was included here was the operator playing the role of contract manager and carrying some risk for delays in achieving 24/7. This enables the operator to manage the transformation and it is recommended that this approach be followed. Another feature is that the operator was required to provide specific systems such as IT systems. It is recommended that this feature be included in the recommended approach for Mauritius.

In Karnataka the operator fee was not based on volume of water billed and collected but rather a fixed operating fee, together with a number of performance penalties and bonuses, as there was a concern about passing all collection risk to the private partner. Regulatory risk remains with the public party. Electricity costs were a pass through as this is the arrangement in the state. The project team therefore sought to introduce incentives into the project to ensure efficiency, such as an energy efficiency gain share.

A key issue was that while there was an envelope of funding available for capex, given that most of the assets were underground and that DMAs would need to be created, there was a risk that the operator would utilize the funding available without optimizing expenditure. The project was crafted to encourage the operator to optimize capex through a combination of capex efficiency gain share between the parties for the amount of the overall envelope saved (which gain share would only be paid out over time once the operator had shown that the performance improvements were sustained) and by requiring the operator to contract with third parties for most of the capex, so limiting the benefit that the operator would derive from the capex to its management fee.

The Bank team recommends building incentives into the PPP contract with CWA for the Operator to optimize capex. One mechanism is setting the management fee for the capex at 3%, which would be below the typical level that would be charged on top of a works contract, so that the operator does not gain significantly from carrying out additional works. Thought could be given to whether additional capex saving measures could be introduced – and the transaction advisor will need to look at how this could be achieved – such as through a capex efficiency gain as provided in the Karnataka project.

Scenario 5 - Empresa Mixta/ Joint Venture

Used a lot in Spain and Latin America, and also used in France.

Features

- Utility transformed/corporatized into a company.
- Strategic investor invests capital into company in exchange for shares.
- Employee share ownership program put in place.
- Staff, assets, and liabilities transferred into company.
- Government retains majority stake but day to day operating control is typically passed to private sector under a management or operations contract (as with empresa mixta in Spain) – so operating autonomy is with operator.
- Operator nominates general manager.
- Operator is often responsible for financing new investments.
- Government appoints some of the board members and has a right to dividends (to the extent that there are distributable profits).
- Shareholder agreement governs appointment of directors, dividend policy, and shareholder rights (e.g., minority given enhanced voting rights or rights of veto over certain issues).
- Empresa mixta is long term – typically from 10 to 50 years.

This approach could be appropriate where there is already a robust financial position so that the value of each party's contributions can be established to allocate shares, and where the government is happy to divest shares in the utility that is, among other things, holding water assets, to the private sector.

Examples

Country	Utility	City/ State	Year <i>empresa</i> <i>mixta est.</i>	Ownership shares		Main private partner	Duration of management contract
				Public	Private ¹		
Brazil	Companhia de Saneamento do Paraná (SANEPAR)	State of Paraná	NA	60%	40%	Grupo Dominó (<i>consists of Vivendi, Andrade Gutierrez, Opportunity Daleth & Copel</i>)	NA
Brazil	SANEANTINS	State of Tocantins	1989	23.4%	76.6	Empresa Sul-Americana de Montagem (EMSA)	NA
Brazil	SABESP	State of Sao Paulo	NA	50.3%	49.7%	Listed on the NYSE and BOVESPA	NA
Brazil	Aguas de Guararoba	Region of Campo Grande ²	2000	9%	91%	Grupos Bertin and Equipav	30 years
Colombia	Aguas de Cartagena (ACUACAR)	City of Cartagena	1995	50%	50%	AGBAR	26 years
Colombia	AAA Baranquilla	City of Baranquilla	1996	35.1%	64.9%	Canal Isabel II	20 years
Colombia	ACUAVIVA	Palmira	1997	40%	60%	LYSA	15 years
Colombia	Metro Agua Santa Marta	Santa Marta	1989	13%	87%%	Canal Isabel II	NA
Cuba	Aguas de La Habana	City of Havana (partial)	2000	NA	NA	Interagua ³	25 years
Cuba	Asociación Económica Internacional Aguas Varadero	City of Varadero	1994	NA	NA	AGBAR	23 years (renewed in 2001)
Mexico	Aguas de Saltillo (AGSAL)	Saltillo	2001	55%	45%	AGBAR	NA

Advantages and Disadvantages

ADVANTAGES	DISADVANTAGES	COMMENT
Government has stake in utility	Government bears risk of performance while not necessarily being in control	Reputational risk keeps both parties accountable
Transparency as has board representation and right to accounts	In practice operator runs day to day activities and so government has to remain vigilant	Need to ensure that board representation is strong and that reporting is strong
Government gets benefit – lease fee, dividends	Payments to government will come from revenue and so tariffs will need to be increased further Dividends are only payable if there is a net profit	Need to ensure that revenues are sufficient to cover various costs and fees
Staff remain within utility	Staff transfers and T&Cs to new CWA will need to be negotiated	Need strong negotiation teams on both sides – may need mediation
CWA would need to be transformed into a Companies Act company	Need to transform CWA into Companies Act company – complicated and possibly contentious	

The empresa mixta has proved successful in countries that have had a series of improvements over time. In many jurisdictions where they have been extensively used, including in Latin America and Spain, there is a specific legislative framework that eases the transition into an empresa mixta and governs the framework. This is not present in Mauritius, but something similar could be achieved in the longer term, as discussed elsewhere, if the GoM decides to transform CWA into a company under the Companies Act and then divest some of the shares to the private sector.

SECTION 6

Indicative Term Sheet for Recommended PPP Option

PROVISION	DESCRIPTION	COMMENT
OBJECTIVE	24/7 potable water supply target, to be achieved in phases over 5 years, source to tap	Bonus and penalty regime
CONTRACT DURATION	15 years	
	First period of 5 years to move to full 24/7	
	10 year sustaining period	To sustain improvements, reduce NRW and for operator to recover its investments
OPERATOR OBLIGATIONS		
<i>OPERATIONS</i>		
OPERATOR TO:	Operate system (from source to tap, including bore holes and treatment facilities) from commencement of contract.	
	To provide: <ul style="list-style-type: none"> years 1-3, min average of 17 hours of service (+ individual hour targets for 6 zones) years 4-5, min average of 22 hours of service Years 6 onwards, 24/7 supply 	
	To update DMAs ¹⁷ in phases <ul style="list-style-type: none"> Updated DMAs pa over 5 years full 24/7 by end year 5 	penalties for delay in reaching targets, bonus for reaching full 24/7 early ¹⁸
	To meet typical industry KPIs for quality and pressure of water, continuity of supply, reporting, customer response times etc	some of KPIs linked to penalties
	From year 6, required to sustain 24/7 and reduce NRW by 1.5 % pa [subject to setting baseline NRW once 24/7 achieved]	Failure to meet NRW target linked to penalties

¹⁷ Definition of Updated DMA = 24/7, hydraulically isolated, commercial IT billing system in place, cadaster updated, GIS in place, hydraulic model.

¹⁸ If financing is not made available by CWA for capex for Upgrading DMAs or for Bagatelle dam, rebasing of KPIs and relief of certain KPI obligations.

COMMERCIAL		
OPERATOR TO PROVIDE (AND FINANCE):	Commercial IT billing system and GIS system, update of customer cadaster	Operator to be free to determine which system as long as can demonstrate meets output specifications set in contract Penalties for failure to meet KPIs
	Autonomous complaints center which is compatible with IT billing system, KPI for response time on complaints with penalties for failure to meet KPI	
CAPITAL INVESTMENT PROGRAM		
OPERATOR TO:	Prepare service improvement plan (to be agreed with CWA), updated annually	
	Provide contract management services (including outline design) for projects, procured under Public Procurement Act and CWA procurement procedures	
	Implement (itself or through a subcontractor) specific works on behalf of CWA to be costed in bid, such as: <ul style="list-style-type: none"> • Priority pipe replacement of asbestos pipe trunk mains that has already been identified by CWA (at specified cost) • Supply and installation of customer meters – 200,000 slow moving meters over the first few years 	
OPERATOR FINANCING OBLIGATIONS		
OPERATOR TO FINANCE ITEMS SUCH AS:	New/ update IT billing and GIS	Cost of financing to be recovered through operator tariff
	Vehicles	
	Ongoing customer meter replacement (once 24/7 achieved)	
	Customer meters	
OPERATOR FEES		
OPERATOR TARIFF	Bid tariff (based on % of 2015 customer tariff) x volume billed and collected <ul style="list-style-type: none"> • in years 1-2 increased by [x]% pa (correcting mechanism) • in years 11-15 reduced by [x]% pa (correcting mechanism) subject to contractual indexation for inflation, etc.	Subject to rebasing/ periodic review with methodology for review
EARLY 24/7 ACHIEVEMENT BONUS CONTRACT MANAGEMENT FEE	MUR ● per day for period that conversion to 24/7 is achieved before target date 3% of capex for contract management for years 1-6 (rehabilitation program)	
CWA FUNCTIONS AND OBLIGATIONS		
ASSET HOLDER	Remains as authority, asset, and land holder	
CUSTOMER TARIFF	Proposes customer tariff, approved by intergovernmental committee. If and when	

REVENUES	regulator for potable water sector is established, then regulator will approve customer tariff.	
	All revenues less Operator Fees for account of CWA	To pay for debt service, overhead and capex etc
RAW WATER TARIFF	Mechanism for ring-fencing future capex	
	CWA to pay MUR [50] per 1,000 m ³ from year 6	
DELEGATION OF FUNCTIONS	Delegates to Operator functions of potable water supply to customers (section 21 of CWA Act)	
APPROVES CAPEX/ SIP BUSINESS PLAN	Approves financing capex, SIP and business plan (agrees with Operator)	Mechanism for agreement (independent engineer will advise on whether draft SIP is likely to meet targets)
STAFF	Makes available/ transfers to Operator CWA staff working on water supply operations (subject to agreement of staff)	Labor specialist should assist MEPU and CWA on best approach (transfer/ secondment etc) – and consult with stakeholders including unions
MONITORS	Monitors Operator performance (with support of Independent Engineer) and enforces PPP agreement	
OTHER NON-POTABLE WATER FUNCTIONS	Retains other functions not relating to potable water supply under CWA Act	Unless and until such functions are formally transferred to another agency through legislative amendment etc
OTHER		
REPORTING	Operator obligation for testing and reporting to CWA	
INDEPENDENT ENGINEER/ EXPERT REVIEWER	Paid by both parties. Expert engineer with experience in water networks to review the system improvement plan, bids, capex program and then implementation of capex	Should be in place at bidding stage to support bid evaluation
MONITORING	CWA (with support of Independent Engineer paid by both parties) monitors Operator performance	Applies bonuses and penalties
REVIEW OF SERVICE IMPROVEMENT PLAN TERMINATION AND EXPIRY OF CONTRACT	Operator and CWA have annual mechanism for agreeing investments Handover of vehicles and equipment (computers, lease) Provide handover support to CWA Operator's staff working on operations to transfer to next operator (new operator or CWA) (subject to agreement by staff) Early termination – compensation in accordance with industry practice	Dispute resolution if cannot agree

DISPUTE RESOLUTION	Regular meetings between parties (Steering committee) Independent Engineer to opine on technical matters Adjudicator International Arbitration	
GOVERNING LAW	Law of Mauritius	

SECTION 7

Risk Matrix for Recommended PPP Option

RISK	PARTY	MITIGATION
Operations to meet service standards	Operator subject to KPIs for performance Penalties for failure to meet certain KPIs	Provided that capex is made available for rehabilitation
Maintenance risk to meet service standards (SIP will set out O&M manual)	Operator responsible for pre-defined maintenance activities and periodic maintenance	Replacement of parts and pipe etc up to a certain size will be at cost of operator, larger replacement will be a cost for CWA
Opex risk	Operator	Incentive to control costs (although some costs which are hard to determine may need to be shared (eg pension obligations))
Customer interface	Operator – KPIs for response time to complaints	
Demand risk (risk of demand falling)	Operator and CWA as they share tariff revenue	Financial equilibrium clause in case of adverse impact on demand due to tariff increase
Billing and collection risk	Operator [and CWA]	Minimum collection rate required as KPI with penalty for non-performance
Rehabilitation works – design and quality	Operator – required to meet KPIs for maintaining and improving service levels	
Rehabilitation program – delay	Operator required to meet deadlines and KPIs – penalties for non-performance and delay	Strong incentive to avoid delay
Permits (wayleaves to lay pipes, permits to dig up roads)	Operator	CWA and MEPU to provide reasonable assistance
Capex	CWA	Customer tariff maintained at level to provide funding for capex
Exchange rate risk on capex Interest on capex	CWA	Exchange rate risk can be minimized to extent it can and it is appropriate to source locally
Land acquisition and resettlement for new facilities	CWA	
Bagatelle WTP delay in construction and commissioning	CWA	Operator released from KPI re 24/7 to extent on critical path
Regulatory risk (risk that customer tariff is not increased in line with increase in costs + operator tariff)	CWA	Methodology established for periodic review and set out in the PPP agreement
Change in law	CWA	Operator with obligation to mitigate Qualifying change of law narrowly defined
Inflation risk	CWA – Operator tariff will be adjusted against for inflation etc – [RPI]	Customer tariff review that provides for inflation

Risk of not meeting performance levels	Operator	Incentives through bonuses and penalties Release events (such as in drought circumstances)
Raw water quantity	CWA/ MEPU to provide a minimum level of raw water Operator with duty to manage water scarcity within certain parameters and to have a plan to deal with drought situations	CWA and MEPU to ensure that minimum amounts made available to Operator (emergency regime built into contract for drought situations). Operator also with built in incentives to reduce NRW and hence increase amount of water available to reach customers
Raw water quality	CWA/ MEPU obliged to provide raw water that falls within design parameters of water treatment plants	Operator duty to use best efforts to treat water outside parameters in accordance with good operating practices Release events if cannot meet KPIs
Cost of raw water	CWA	From year 6 recommended that pays a raw water tariff
Availability of funding for capex	CWA Operator	Performance Contract with GoM Release from KPIs
Staffing	CWA to develop strategy and consult with stakeholders Operator to take on CWA staff that are made available by CWA and agree to transfer Operator to provide staffing sufficient to carry out operations Agreement to specify what happens to staff on expiry or early termination of the affermage	CWA to manage
Subcontractors of operator	Operator	To nominate major contractors in bid
Subcontractors of CWA	Operator to manage Risk of delay and quality of workmanship – operator to oversee and manage but ultimately risk of CWA	Operator to manage/ supervise contractors, responsible for outline design, design review Independent engineer to review work
Failure in agreement between CWA and Operator on SIP Failure in coordination	CWA and Operator	Independent Engineer Aligned incentives Early alternative dispute resolution mechanism
Insurance	Operator/ CWA	Operator to insure for its activities and for professional indemnity, operator equipment Need to determine what makes most sense re facilities
Force majeure	Operator and CWA share risk	Release events from KPIs duty of operator to mitigate
Political risk	CWA	
Intellectual property risk	Operator to ensure that has relevant IP rights for operations and transfer license at end of contract	
Change of ownership of operator	Operator [limited right to change shareholding, with CWA agreement]	

Assignment	Each party will need consent of other	
Environmental risk	Existing conditions – CWA Conditions arising after contract comes into force - operator	Operator duty to mitigate, carry out due diligence Insurance
Early Termination	CWA default – CWA (termination compensation) Operator default – operator (termination compensation) Force majeure - shared	CWA with step in rights if operator in default CWA can step in in emergency

SECTION 8

Value for Money (VfM) Analysis

Objective of VfM: Estimate costs vs. benefits of the proposed PPP, so as to verify that the benefits expected from the PPP will outweigh the costs – even with all capex being financed through government’s grant and debt during the first years.

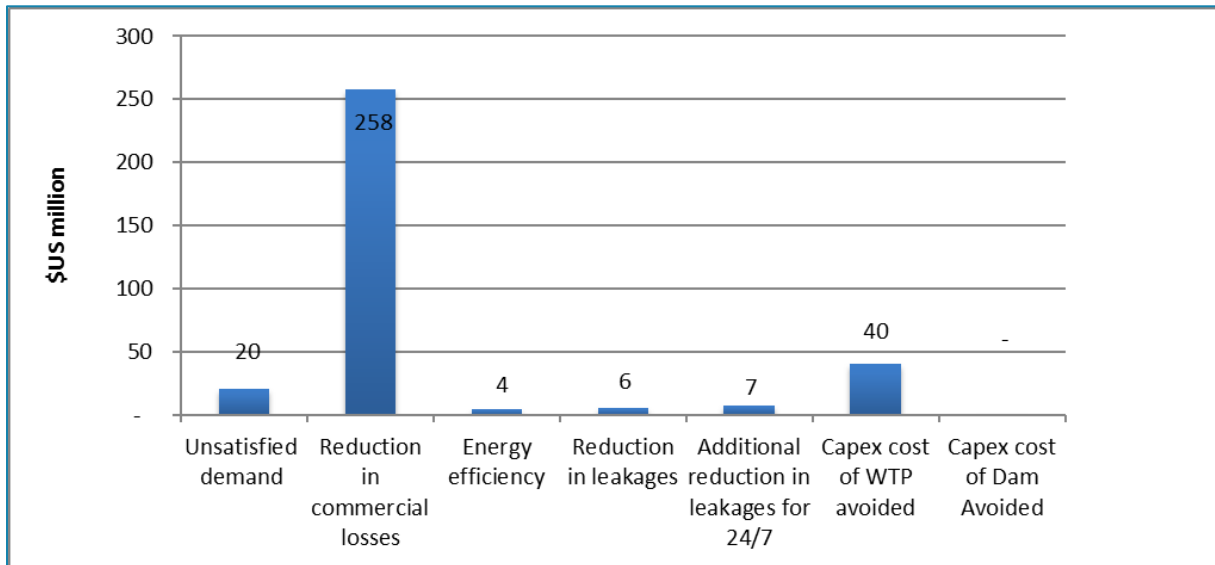
Methodology of VfM: The VfM analysis has been conducted under the base case as defined above, with 30% tariff increase in year four. To be conservative, the VfM analysis has been limited to financial costs and benefits i.e., additional costs incurred by GoM through the implementation of the PPP versus accrued financial benefits in terms of reduced cost and increased revenues. It does not include estimates of economic benefits that do not translate into direct financial (i.e. monetary) benefits for GoM. These include providing 24/7 to all the island’s population, employment creation (considering that the proposed PPP reform will not result in layoffs for CWA staff but in the creation of many new local jobs), or environmental benefits such as reduced raw water abstraction and reduction of carbon emission through improved energy efficiency (since the island’s power production is based on fossil fuels). The advantage of limiting the cost-benefits analysis to financial flows is that it is less subject to assumptions, and more conservative – and as the analysis below shows, it is sufficient to make a compelling case in favor of GoM’s carrying out the proposed PPP.

Estimate of financial costs of the PPP: Under the base case, the estimate of total costs related to the PPP over the 15-year duration is 100 million USD, of which about 96% corresponds to the private operator’s fees (private management, corporate overhead, and performance fees), the rest being shared between the cost of independent technical auditors and the transaction cost (both RAS and PPP transaction advisors).

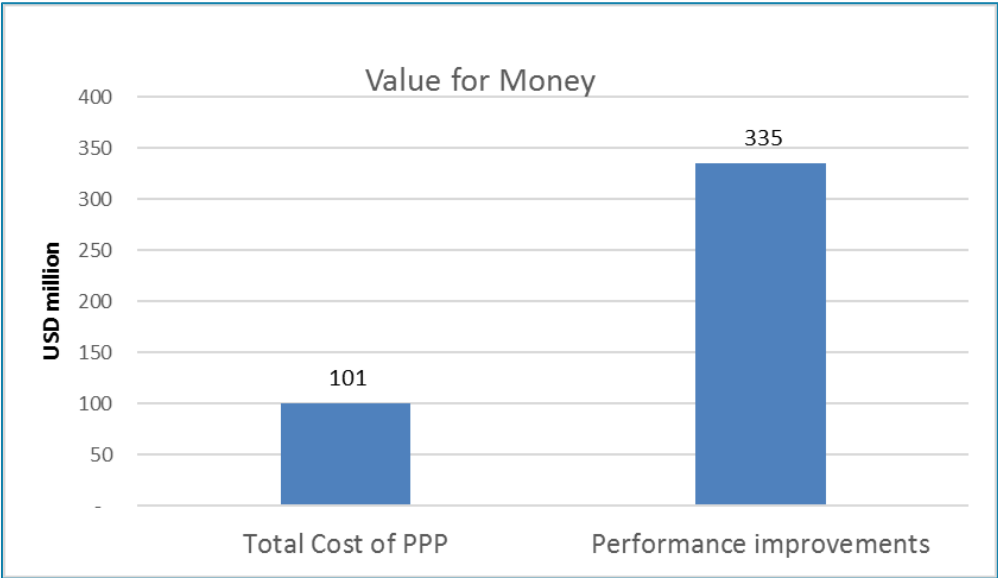
Operators Fees	96,756
Independent Auditing Expert	2,300
PPP transaction Cost	
Transaction Advisor	1,100
RAS Phase 2 (including other consultants)	405
Total Cost of PPP	100,561

Estimates of financial benefits of the PPP: Financial benefits of the PPP, which directly translate into improving the financial situation of CWA, include: (i) improved revenues through reduction of commercial losses (less under-metering, fewer water thefts, and billing mistakes), (ii) improved revenues through removal of unsatisfied demand due to water shortages, (iii) reduced power expenditures through energy efficiency improvement, (iv) reduced water leakages, and (v) equivalent capex value of leakage reduction (equivalent WTP capacity).

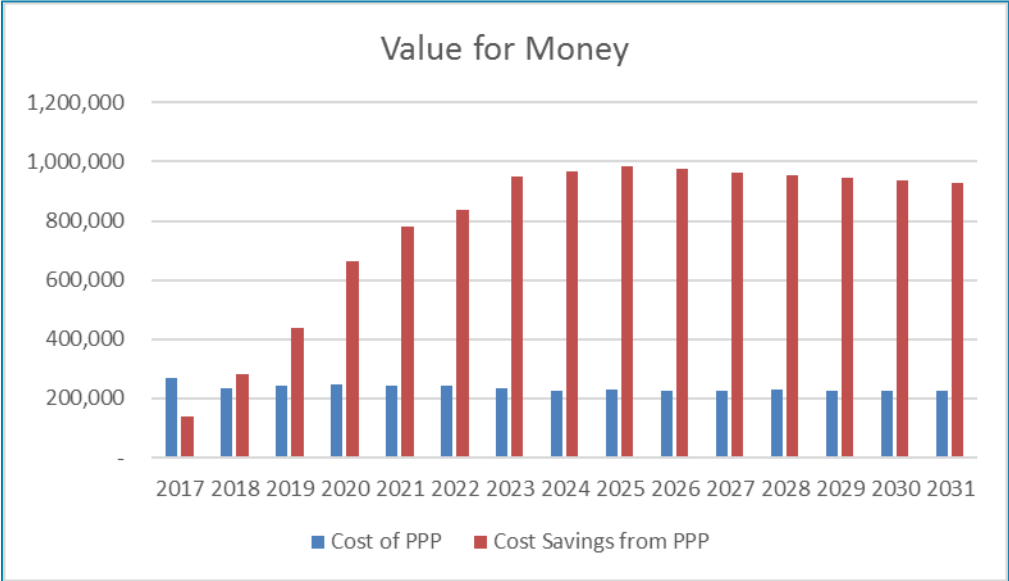
Under the base case, the estimate of total financial benefits related to the PPP over the 15-year duration is USD 334 million, of which about 72% corresponds to additional revenues through reduction of commercial losses. It is important to highlight that, given the current situation of CWA, such commercial losses reduction could not be achieved by merely replacing meters and installing a modern IT billing system, but requires a comprehensive and far reaching change in the utility's commercial management that can only be achieved under a PPP. The graph below shows the estimates for the various components of financial benefits. The relatively small value of financial benefits from reduced leakage is related to the low production costs of CWA, based on existing production requirements and facilities, as well as having a distribution system largely based on gravity. The estimate of capex costs of WTP avoided is based on the actual unit cost figures from CWA's latest WTP investments, and does not include the cost of associated dams.



Value for Money of the Proposed PPP: Overall, the financial benefits of the proposed PPP largely outweigh the financial costs, over the 15-year duration of the contract, generating an estimated cumulated net surplus of USD 200 million.



The graph below illustrates the comparison of costs vs. benefits year by year. It shows that the financial benefits shall outweigh the costs every year including in the first year of the contract (lump sum cost of transaction). Most of the financial benefits shall accrue during the first five to six years of the PPP, in parallel with the sharp reduction in commercial losses and the implementation of the infrastructure rehabilitation program – which is also the period when GoM will be investing significant amounts of public money for investment. After that period, the private operator will concentrate on ensuring the sustainability of the achieved improvement, gradually transferring management to local private staff while also recouping for the risks taken in early years for meeting the contract’s KPI for performance improvements.



SECTION 9

Preliminary Market Sounding

The World Bank team suggested that the following could be candidates to bid for the recommended PPP approach*:

- Aquapor (Portugal)
- Biwater (UK)
- F.C.C Aqualia, S.A (Spain)
- Indústria e Gestão de Águas, S.A.(Portugal)
- Manila Water (Philippines)
- Maynilad Water Services. INC (Philippines)
- Miya (Israel)
- Ranhill Utilities Sdn Bhd (Malaysia)
- Saur (France)
- Suez (France)
- Veolia Water (France)

** Assumption that international operators are likely to go into consortium with local partners.*

The GoM agreed that some of these candidates should be approached as part of a preliminary market sounding exercise. The World Bank team approached Veolia Water, Suez, Aqualia, Maynilad, and Manila Water and received feedback from Veolia Water, Suez and Manila Water.

The World Bank team circulated a list of questions to each of the private parties approached, as attached at Appendix 5.

In summary:.

- Manila Water indicated that it is limiting its focus to South East Asia currently and so would not be interested in bidding on the project, but they provided feedback on the recommended approach.
- Other firms approached are interested in a medium term management or lease contract, depending on the quality of the data.
- Concerns were raised in respect of political economy regarding transfer of staff and tariff increases and that GoM would need to manage this at an early stage of the process.

- There was mixed feedback on willingness to accept a payment linked to volumes of water billed and collected (some firms suggested to have an initial benchmarking period to set performance targets) but overall enthusiasm for an affermage approach.
- Willingness for fees to be linked to performance.
- There was Potential appetite to finance some specific and limited investments (such as GIS systems, vehicles).
- Limited interest in a joint venture approach at this stage.

SECTION 10

Bid Process and Qualification Criteria

As explained in more detail in Section 4c, development and procurement of the PPP transaction is likely to fall under the PPP Act and the Public Procurement Act. CWA as the public authority will be the procuring authority. It should be noted, also, that if an IFI loan is used to finance some of the PPP transaction, then IFI procurement guidelines may apply.

CWA will need to consider whether to carry out procurement in one or two stages. The Bank team would recommend two stage approach because:

- a. If a two stage approach is followed, there is a prequalification process whereby bidders are shortlisted if they exceed specified thresholds of technical and financial capacity, thus ensuring that only qualified and suitable candidates submit a bid. In the second stage, shortlisted bidders are then evaluated on a single financial criterion. The financial bid with the lowest percentage of 2015 customer tariff will be awarded the PPP contract. This approach is transparent and easy to evaluate.
- b. Another benefit of the two stage approach is that since bidders need to undertake detailed assessments to submit a priced bid, they will be more willing to incur the costs of putting together a serious bid if they know the number and identity of their fellow prequalified bidders and so can assess their chances of success.

If a single stage process is followed, then there is no prequalification stage. Any candidates can present bids, whether suitable or not. In a complex project like this, both price and quality of proposal (and the technical and financial standing of the bidder) could be relevant to CWA and so technical and financial bids would have to be evaluated. A qualitative assessment of the technical bid would be controversial, especially in the context of water, and is harder to ensure transparency in evaluation. The CWA/ GoM would not be able to justify the selection of a more expensive bid based on qualitative benefits. Therefore, including qualitative assessments in the final selection should be considered with caution.

Prequalification Criteria. Given the complexity of the project and the need for bidders with significant experience in operations and in moving to and sustaining 24/7 Supply, the Bank team recommends the following prequalification criteria:

Technical standing:

Experience:

- as an operator or a management contractor in a city (or cities) of similar size with implementation of a turnaround program including moving to 24/7 Supply and other services as required in this contract.
- in design and project management of water supply distribution projects.
- in developing information systems required for utility operations.

Financial standing:

- (Minimum net worth, Positive net cash accruals in three out of last five years)

GoM might also could consider a local content requirement or premium for evaluating bids, subject to applicable procurement regime (if WB or other IFI procurement, then local content premium not permitted). There will be natural incentives for international bidders to team up with local firms (in Indian project a number of the bidders did so) as expatriates are expensive and in the Mauritian market there should be some potential capacity of local partners.

SECTION 11

Roadmap for PPP and Associated Reforms

This report sets out the Bank team's recommendations for reform of CWA and the water sector in Mauritius. If the GoM decides to proceed with the recommended approach of a PPP transaction, it will need to follow the process set out in the PPP Act and Manual.

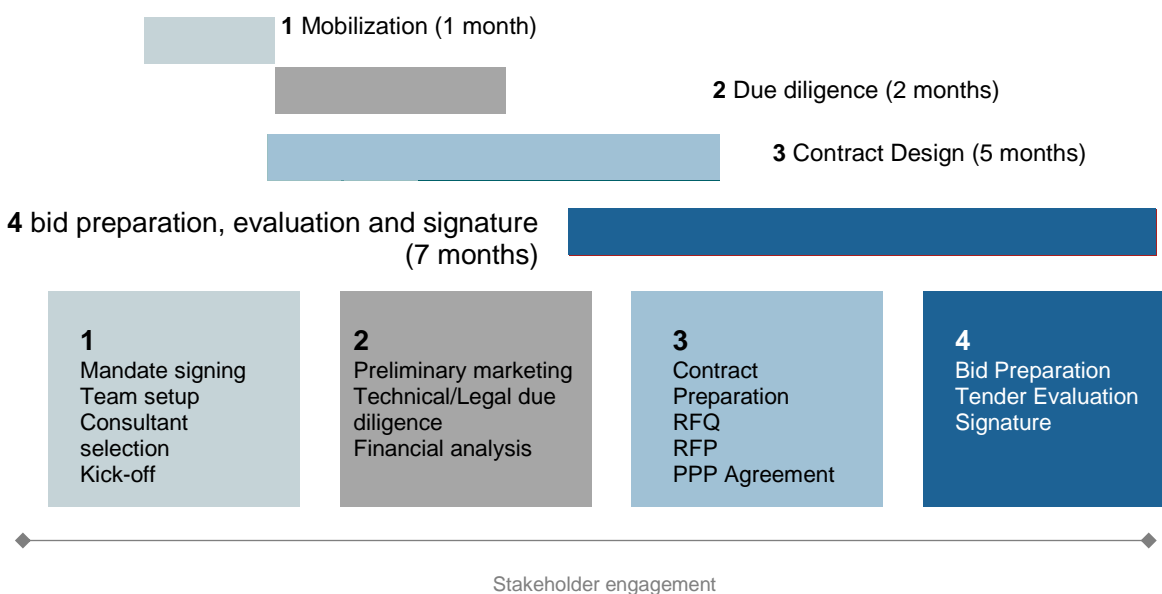
Once a decision has been made to move forward, it can appoint transaction advisors. A suggested set of TORs for the transaction advisor is set out in Appendix 5.

The selection of the transaction advisor should take from two to six months depending on whether the GoM can accelerate the process through sole sourcing (subject to local procurement law).

Once the transaction advisor is on board, then the process of developing full bidding documentation should take four months if accelerated, as suggested below. The Bank team suggests that once the GoM has approval to move the transaction forward it could launch a request for prequalification whilst getting the transaction advisor on board (subject to the approvals required for this as set out in Section 4c form the Central Procurement Board) to further accelerate the process. GoM could be guided in setting the prequalification criteria by the suggestions set out in Section 10 of this report.

The procurement of the private partner would then run in parallel with preparation of the bidding documents.

Possible Accelerated Timeline for Transaction Advisory Work to get to contract signature (with possible overlap of some activities) – leading to a total period of 10 or 11 months from mobilization.



Critical tasks for GoM that could affect the timeline

- PPP approval process;
- Appointing transaction advisor;
- Labor negotiations;
- Resolving pension liability; and
- Evaluation of bids and approval of winning bidder.

Ongoing improvement of CWA performance and capacity building. In the meantime, CWA and MEPU could continue with procurement and key recruitment into CWA to prepare it for its key functions as asset holder. The Bank team has identified a set of activities that could continue in parallel in respect of CWA, including:

Staffing:

- Appointment of labor specialist to assist MEPU and CWA on CWA staffing issues (including formalizing relevant contract staff) and addressing pension liabilities.
- Consultation with unions on implications of reform.
- Fill/start process for key appointments under the future CWA structure (e.g. new director of procurement).

Investment:

- Procurement and installation of 30-40% of current park of customer meters (only domestic meters for which technical specification would not be an issue, and provided CWA is confident about the specification and quality assurance).
- Proceed with priority replacements of critical concrete trunk mains (AC and CI) currently being procured (see Section 4a for priority list).

Associated Reforms and Continued Support from the World Bank

As noted in Sections 1 and 4c, any turnaround of the water sector in Mauritius would require a comprehensive approach focused on reform of the overall legal and institutional framework of the sector. A PPP approach would be predicated on CWA having a strong team to carry out its functions.

The Bank team stands ready to provide support on water sector reform and capacity building of CWA, as per the initial proposal of a second phase RAS, made by the team in November 2015. Such advice would be provided alongside that of a transaction advisor.

Potential activities that the Bank team has discussed with GoM might be included in a second phase RAS include:

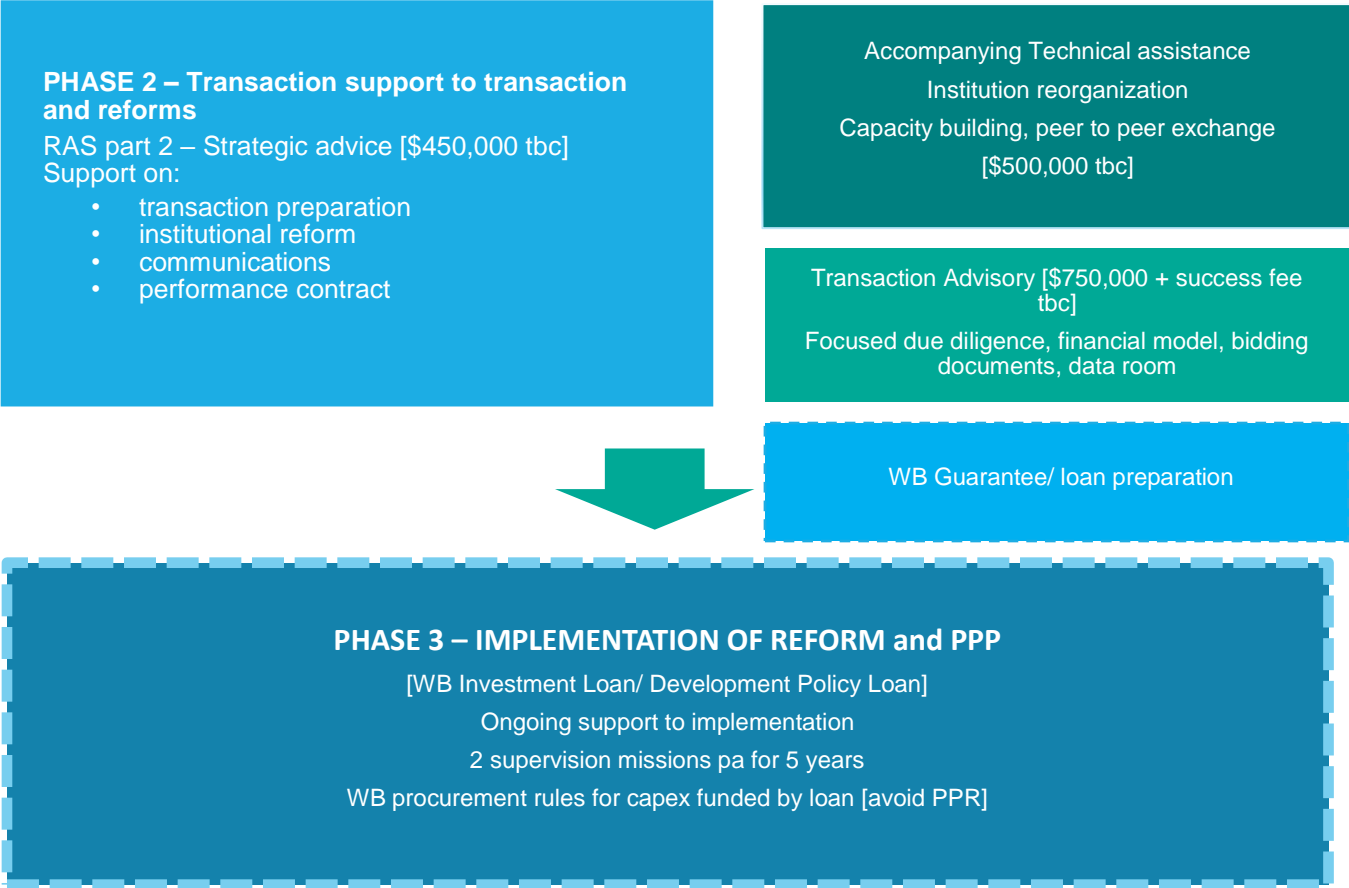
Possible activities that could be covered by a second RAS engagement with the Bank could include:

- Strategic advice on PPP transaction/ Feedback on outputs of PPP transaction advisors
- Support in drafting performance contract or MOU between MEPU and CWA (setting out KPIs vs. tariff increases, clarity of role of CWA)
- Support to reorganization of CWA (asset holding authority and counterpart to PPP Contract), capacity building program
- Support for establishment of a dedicated PPP node within MEPU, capacity building on PPP supervision
- Support GoM to develop and implement RAS 1 recommendations on sector reform, including:
 - Develop terms of reference for the various consultants to carry out the water sector reform (review of outputs of legal specialist etc)
 - Relationship of CWA to WMA and IA, (including clarity on assets and liabilities and functions)
 - Advice on structure and staffing of water unit of regulator
 - Training and guidance on tariff setting methodology and
- Develop full financial model of the water sector using the financial simulation as the starting point, to serve as support for future tariff policy and monitoring the gradual shift to self-financing
- Support stakeholder consultations on sector reform
- Support preparation of new Water Bill (comment, provide inputs).

Further support may also be provided through traditional Bank lending instruments such as a development policy loan (DPL), a sector investment loan, a program for results (PforR) financing, guarantee and risk mitigation products, and other instruments that could support the capex envisaged under the PPP. It should be noted that where the Bank provides a loan, there is substantial advisory support included during the preparation and implementation of the loan which would be available to the

GoM, including supervision missions twice a year. In addition, such continuous presence of the Bank during the first years of PPP implementation could also provide comfort to potential bidders, thereby resulting in a more favorable bidding environment. A summary of the guarantee and risk mitigation products that the World Bank Group offers is attached at Appendix 3.

The possible support of the Bank team as highlighted in November 2015 is set out below:



APPENDIX 1

Financial Simulation for Mauritian water sector

Attached in separate document.

APPENDIX 2

Report of Jalakam Solutions Pty Limited on CWA Operations

Attached in separate document.

APPENDIX 3

World Bank Guarantee Group Instruments – Guidance Note

Can be found at: <http://ppp.worldbank.org/public-private-partnership/library/world-bank-group-guarantee-products-guidance-note> and is attached in separate document.

APPENDIX 4

Further reading for international precedents provided in Section 5 (PPP Options)

Case Studies and Further Reading

More detail can be found on some of the examples set out in section 5 of the report under the following links:

Public-Private Partnerships (PPPs) for Urban Water Utilities: A Review of Experiences in Developing Countries (Philippe Marin, World Bank 2009) analyzes the market growth of PPPs in the developing world since 1990, and the performance of more than 65 large water PPP projects—representing more than 100 million people—for access, service quality, operational efficiency, and tariff levels. - <http://www.ppiaf.org/publication/public-private-partnerships-urban-water-utilities-review-experiences-developing-countries>

Water PPPs in Africa 2014 (World Bank Group, Water and Sanitation Program (WSP), July 2014) https://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/ppp_testdumb/documents/africa_water_ppps_in_africa_en.pdf

Mixed Ownership Companies, Empresa Mixta: <http://ppp.worldbank.org/public-private-partnership/library/mixed-private-public-ownership-companies-empresa-mixta>

Reforming Water Utilities in Western Africa (case studies) (including affermage in Senegal) – Fall, Marin, Locussol, World Bank 2009 - <http://documents.worldbank.org/curated/en/2009/06/10626151/reforming-urban-water-utilities-western-central-africa-experiences-public-private-partnerships-vol-2-2-volume-two-case-studies>

Using Lease and Management Contracts for Water Supply – PPIAF Gridlines 2006 <https://www.ppiaf.org/sites/ppiaf.org/files/publication/Gridlines-12-Using%20Mngmt%20Lease%20Affermage%20Contracts%20-%20KRingskog%20MEHammond%20ALocussol.pdf>

Characteristics of Well Performing Water Utilities – World Bank 2006 <http://siteresources.worldbank.org/INTWSS/Resources/Workingnote9.pdf>

Using a private operator to establish a corporatized public water utility: the Management Contract for Johannesburg Water – Marin, Palmer World Bank 2009: <http://documents.worldbank.org/curated/en/2009/06/10948264/using-private-operator-establish-corporatized-public-water-utility-management-contract-johannesburg-water>

APPENDIX 5

Preliminary Market sounding questionnaire

Mauritius – Central Water Authority: PPP options for performance improvement and capacity building

Background

The GoM has requested just in time analysis by the World Bank on possible PPP options for reform of the potable water sector in Mauritius. The World Bank team has identified two main possible options, a management contract and a hybrid affermage contract, with a preference for the hybrid affermage. A summary of the indicative term sheet for the preference hybrid affermage is attached in the annex and is carrying out this informal market testing at an early stage to provide GoM with feedback on the feasibility of this option.

Mauritius is a small island nation with a population of about 1.3 million people, located in the Southwest Indian Ocean with an inland surface of 2,040 km² (main island of Mauritius, plus Rodrigues island and dependencies). With renewable water availability per capita at approximately 1,083 m³ per year, Mauritius is water-stressed, with over-exploited aquifers and heavy dependency on rainfall.

Potable water services on the island are provided by the parastatal Central Water Authority (**CWA**), which provides universal access to the population (total of 351,000 customers). However, a significant percentage of the population suffers from intermittent supply day under normal conditions (i.e. even during the wet season) – a figure that can increase significantly during the dry season. Given Mauritius' relatively high standard of living (GDP per capita at US\$ 16,100 in 2013), customers are becoming increasingly unhappy with the potable water shortages, which are also a bottleneck for economic development.

Intermittency of supply is partly due to water availability constraints, but also due to poor operational performance by CWA in controlling water losses in distribution. Although CWA appears on several counts to be a reasonably well-run public utility (e.g. universal coverage for water, bill collection rate at over 99%, staff productivity at 2.8 staff per thousand connections), Non-Revenue Water (**NRW**) levels have remained at over 50% for over a decade. Water production and transportation is relatively cheap in Mauritius as most of the system is gravity fed, so there has been limited incentive for CWA to manage losses. Whilst there have been a number of piecemeal attempts to manage this over the years through short contracts with third party operators, such initiatives have failed to yield results.

The GoM wishes to improve the island's water security, in the context of adaptation to climate change and CWA's performance for continuity of supply, and to gradually foster the self-financing sustainability of the sector over the 10-year horizon. It has stated that it is interested in bringing in a strategic partner to assist it improve CWA's performance and has asked World Bank to carry out a short diagnostic to advise it on PPP options.

The World Bank's mandate with the GoM is not intended to replace the role of a transaction advisor if the GoM decides to proceed with a PPP and further market sounding would be carried out at an appropriate stage by the transaction advisor.

Questions:

1) Country Risk perception

- Given current country risks in Mauritius and the global business environment, would your company be potentially interested in bidding for a long term (15 year) performance based hybrid affermage/ lease type contract - to work as a strategic partner with CWA, provided the PPP includes usual risk mitigation features as expected for this type of PPP?

2) Risk perception of CWA as counterpart

- Do you know CWA or MEPU, and would you be comfortable with having CWA or MEPU as contractual counterpart?
- Would you require any form of comfort from government for operating fee? for ensuring that funding for capex is made available? Is this a deal breaker?
- In case some form of guarantee is required, could there be value in having this guarantee backed by a Partial Risk Guarantee (PRG) from an IFI (such as the WB PRG program)
- Would you see as a positive element that a portion of the public funding allocated to capex under the proposed PPP would come under a WB loan – considering inter alia that this would ensure the regular involvement of WB over the first years of the PPP?

3) Risk perception of tender process

- Given past record (cancelation of Port tender) and lack of expertise in PPP in the country, would you be comfortable with a tender process led only by CWA (with support of a transaction advisor), without extensive support from an IFI?
- What aspects of the tender process would give you greatest cause for concern? What could be potential mitigants?

4) Form of PPP – risk perception

- GoM is looking at a range of options for the PPP project, from a management contract under which the staff and operational responsibility for service delivery would remain with CWA, through to a long term operations contract alike a lease where staff and significant operational responsibility would be passed to the private operator, with remuneration based in part on performance, with responsibility of running the water services together with oversight for a system rehabilitation and improvement program. Would your company be interested in bidding for such projects?
- It is perceived that passing greater control to the private operator would facilitate performance improvements. Do you have experience or examples of management contracts where significant performance improvements have been made even though there has not been a change in oversight of the workforce and where procurement is still following fully public procurement processes?
- A key challenge for CWA is the unwieldy procurement processing that it is required to follow when procuring goods, works and services. World Bank has suggested that specific items needed to get the rehabilitation and performance transformation under way could be priced into the PPP contract and then provided by the operator. From your experience, are there other features that can be introduced into a project so that procurement processes for the rehabilitation investment can be streamlined?

- Would you be ready to consider providing financing for a portion of the required investment – for instance about 5-10% focused on specific investments such as rolling assets or meters?

5) Timing

- Considering that the GOM is anxious to have a strategic partner on board as soon as possible, what is your estimate (range) for the number of months between PPP contract award and the first day of operation?

6) Technical specifications

- What level of technical details would you expect in the technical specifications of the tender documents?

9) Equity stake in CWA

- GoM is contemplating, whether it parallel or in combination with the PPP project, transforming CWA into a private limited company majority owned by GoM, to give it greater autonomy. If GoM were willing to sell a stake in CWA to private investors, is this something that your company would be interested in?
- What would be the size of stake that you would be willing to take?
- What aspects of such a stake might give you cause for concern?
- How would you value such a stake? How much equity funding would you be ready to provide?

11) Staffing

- In your experience, typically how many foreign staff would be required for such a project (short and medium term)?
- What would be a back of the envelope estimate for costs for such staff?
- Would you prefer that CWA be transferred to the private operator under a new labor status, or for the operator to manage them under their current status as civil servants?

APPENDIX 6

Suggested Term Sheet for Transaction Advisor

The Services

The Central Water Authority (**CWA**), with the support of the Government of Mauritius (**GoM**), seeks a Transaction Advisor to assist it in attracting an experienced operator to increase the continuity, efficiency and quality of water service provision in Mauritius. CWA (the **Client**) has already engaged the World Bank for a study that identifies the different PPP options, and which also included preliminary technical, legal and financial due diligence. This has resulted in an indicative term sheet (the **Term Sheet**) for a hybrid affermage type PPP arrangement that has been accepted by CWA and GoM as the preferred mode of attracting private sector participation. Therefore, the scope of this Transaction Advisor assignment will be to build from the World Bank study dated • 2016 (the World Bank Study) and other existing data provided by CWA, supplement this information with any additional technical, legal, environmental and social, and financial analysis necessary to develop the most appropriate bidding strategy. This will include drafting the PPP agreement and associated tender documents, based on the above mentioned Term Sheet. The scope of work also envisages providing the necessary support to CWA in the selection and negotiation (up to financial close) of an experienced operator.

Phase I – Due Diligence

Transaction Advisor will undertake a due diligence assessment of the current operations, investment requirements, institutional organization and legal framework of water operations carried under CWA. More precisely, this will include, technical, financial analysis and modeling, environmental and social due diligence towards developing a recommended transaction structure, building on the PPP approach and Term Sheet set out in the World Bank Study, to be discussed and approved by CWA and appropriate GoM authorities. The Transaction Advisor will also retain the services of a communication specialist that will assist in communicating with all stakeholders through the project preparation cycle.

1. TECHNICAL, ECONOMIC, SOCIAL AND ENVIRONMENTAL

The Transaction Advisor shall carryout technical, economic and social and environmental due diligence, which shall include, without limitation:

- 1.1. **Review any background studies:** Review studies related to the performance of CWA, its strategy, organization audits, existing technical assistance studies, investment and other relevant information, including the analysis carried under out under IFC Transaction Advisory mandate from 2003 and the World Bank Study from 2016.
- 1.2. **Prepare a summary technical description:** Prepare technical description of the network of CWA, based on data and information available at CWA and building on the analysis set out in the World Bank Study, including a description of the technical situation and state of operations and assets. This description should cover, without limitation:
 - 1.2.1. map showing the areas served, in square kilometers, in water
 - 1.2.2. description of the water distribution system, water supply system including, pumping, treatment and reservation of water, and current service indicators (water and quality standards, water coverage, water supply continuity, network pressure, etc.)
 - 1.2.3. description of the water collection (off-take points and capacity) and bulk water storage

system

1.2.4. measured and unmeasured consumption for water

1.2.5. number of consumers, revenues, average consumption, by type of consumers for last 3 years.

- 1.3. **Update the assessment of the operational situation of the Water Assets in Mauritius as set out in the World Bank Study:** The Transaction Advisor will make an independent assessment of the situation of the fixed assets of the water system to update and verify the operational analysis developed in the World Bank Study, to develop the key performance indicators (identification of relevant indicators and setting baseline and targets) for the project and to develop linkages between the use of the proposed capital investment funds and the performance obligations of the private operator. The Transaction Advisor will be expected to conduct field visits as needed to inspect any significant operating asset/equipment items, facilities, operations centers, warehouses, maintenance facilities. The Transaction Advisor will comment on overall adequacy, validity and reliability of CWA information.
- 1.4. **Project Investments:** The Transaction Advisors will review the major investments proposed to be made in the system by CWA and as detailed in the World Bank Study to understand the contractual implications thereof on:
- 1.4.1. upgrading the district metering areas (speed of implementation and likely timetable that one can reasonably expect the private operator to achieve)
- 1.4.2. validating the overall budget adopted by GOM for the first 6-year assets rehabilitation program – or if applicable proposing alternative amounts
- 1.4.3. linking capital investment to key performance indicators
- 1.4.4. determining what aspects of the capital investment program would be on the critical path for the performance of the private operator and the extent to which the operator would need to have its performance obligations or targets excused or relaxed if such capital investment is not available in accordance with the contract.
- 1.5. **Project Consumer Demand and Growth:** The Transaction Advisor will review and detail the historical growth in demand for water and will project the demand for the next 15 years by different categories of consumers using three scenarios (pessimistic, average, optimistic). This analysis should be done for the last three years and should relate demand growth with population growth of Mauritius and projected GDP/regional growth, as well as hypothesis related to the achievement of 24/7 for all customers and the evolution of per capita consumptions for households. When revising demand projections, the Consultant shall comment on the validity of assumptions and data.
- 1.6. **Estimation of Water Balance (NRW):** using the IWA methodology, and based on studies and reports from CWA, the Consultant will estimate the various components of the water balance (technical vs. commercial losses, and relevant sub-categories) for each of the 6 distribution zones and for CWA as a whole, both for the current year and for the 2 previous years. It shall comment on the various components of the water balance, including about the reliability of the various estimates, and discuss what level of NRW reduction could realistically be achieved under the 15-year duration of the proposed PPP contract using three scenarios (pessimistic, average, optimistic) and making appropriate links with key contract structuring features (e.g. amount of funding available for rehabilitation, built-in incentives).
- 1.7. **Review of Previous Programs to Reduce Technical and Commercial Losses:** The Transaction Advisor will review and comment on the effectiveness and potential problems of previous programs to reduce both technical and commercial losses and other procedures

implemented by CWA, either on its own or with outside assistance, reduction. He will comment on overall adequacy, validity and reliability of CWA's NRW team.

- 1.8. **Projection of operating costs:** The Transaction Advisor will provide information needed to make financial projections under different scenarios of efficiency gains. In this exercise, the Transaction Advisor will analyze the operating costs of the CWA, including maintenance costs, administrative costs and the costs of billing, will benchmark them against the costs of other similar water companies, and will indicate the possible efficiency gains during next 10 to 15 years and in view of existing investment plans.
 - 1.9. **Review tariffs and regulatory regime:** Review existing and historic tariffs for different categories of customers to determine the basis for tariff setting, any cross-subsidies and subsidies given, the relationship between tariffs and average cost (estimated values or benchmarking costs if a proper study is not available), describe the tariff adjustment methodology and process and treatment of financial and social objectives.
 - 1.10. **Assess safety and environmental and social related issues:** The Transaction Advisor must review safety aspects of system operations of CWA. He will also conduct an environmental diagnosis of activities related to or associated with the provision of water services to identify possible investment needs for preservation and restoration of the environment giving the situations that should be highlighted in the Bidding Documents. The Consultants should include an analysis that assesses existing and potential environmental and social issues/risks associated with the operations of CWA, as well as the prospected rehabilitation civil works to be carried out directly by the private operator, in line with the [Equator Principles] and Mauritian law and will recommend measures to prevent or minimize (if not preventable) related impacts and potential community health risks and labor standards associated with the transaction in line with [Equator Principles] and Mauritian law.
- 2. Legal and Regulatory Due Diligence -** The Transaction Advisor will carry out all necessary legal due diligence for the project, drawing on reports prepared for CWA including the World Bank Study. This will include, without limitation:
- 2.1. **Legislative and regulatory document review:** Review all applicable laws, existing regulatory framework, GoM resolutions and other aspects of the legal and statutory framework, including the responsibilities and relationships of relevant government entities at different levels, in order levels to identify the opportunities, issues and constraints that would/could arise with the introduction of private sector participation in the operation of water system and delivery of water services to ensure the legal feasibility of the transaction structure as outlined in the term sheet in the World Bank Study.
 - 2.2. **Evaluate contingent liabilities:** Evaluate, from a legal standpoint, any contingent liabilities that might arise depending on the options in relation to labor obligations, such as workers' compensation and pension liabilities, etc.
 - 2.3. **Evaluate environmental liabilities:** Evaluate, from a legal standpoint, any contingent environment liabilities from previous operations and in the event conservation or environmental preservation is a financial burden, suggest mechanisms to ensure continuity of conservation or environmental preservation
- 3. Financial –** the Transaction Advisor shall provide advice on financial aspects of the transaction including, without limitation:
- 3.1. **Develop a PPP Transaction Financial Model for CWA.** This will, as appropriate:

- 3.1.1. include financial analysis of CWA with clear justification of main assumptions used such as demand, operating costs, key performance indicators and quality requirements, planned investment, requirements of working capital, financial costs, etc;
 - 3.1.2. allow for sensitivity analysis of CWA's cash flows for different scenarios of demand, tariffs, coverage rate, key performance indicators, changes in operating costs, investment;
 - 3.1.3. allow for modeling the tender's outcome based on the financial bid criteria as set in the Term Sheet, so as to assist CWA in analyzing the implication of the various financial bids to the sector's financial profile.
4. At the end of Phase I, the Transaction Advisor will submit to the Client a draft Due Diligence Report presenting the summary of the due diligence workstreams and updates to the Term Sheet as applicable. The Client will then review the Due Diligent Report and provide comments, if any, within [] weeks of submission of the draft Report. The Client will then determine whether to proceed with the transaction and inform the Transaction Advisor if it wishes to move forward with Phase II.

PHASE II – TRANSACTION

5. The Transaction Advisor will commence Phase II of the transaction after CWA gives the Transaction Advisor written notice to proceed with the transaction. Phase II typically involves Transaction Advisor promoting the transaction, preparing bidding documents, assisting the Client in conducting the public tender, evaluating the offers and assisting the parties in reaching commercial closing. Main tasks of Phase II are:
- 5.1. **Communication Strategy:** - Transaction Advisor will undertake a stakeholder analysis and assist CWA in the development of a communication strategy for the implementation of the transaction. This will ensure involvement of all key stakeholders in Mauritius in the process of the transaction and the timely sharing of information with stakeholders and public, as appropriate.
 - 5.2. ¹⁹**Active Marketing:** the Transaction Advisor will market the transaction to a broad range of strategic partners, to explain and promote the transaction and to capture investor feedback on possible modifications/adaptations to the original transaction structure design.
 - 5.3. **Pre-qualification:** In this instance, as the basic transaction structure is already well understood, pre-qualification could occur in parallel with Phase I activities and will pre-qualification activities will include:

¹⁹ Not needed if pre-qualification launched in summer 2016 in parallel with recruitment of transaction advisors

- 5.3.1. Recommendations to the Client the most suitable design for the pre-qualification, particularly with regards to the prequalification criteria, and provide assessments/ guidance to the Client about the universe of investors/ operators likely to meet the criteria;
 - 5.3.2. Drafting of prequalification procedures and documents for issuance to potential investors/ operators; and
 - 5.3.3. Assisting in the evaluation of the documentation submitted by bidders and assist in the evaluation of offers.
- 5.4. **Facilitate Bidder Due Diligence:** In order to enable pre-qualified strategic partners to carry out their own due diligence process, Transaction Advisor will, with the assistance of CWA:
- 5.4.1. Assist the Client in establishing a Data Room, which will include all relevant information and data on the prospective transactions;
 - 5.4.2. Prepare a Due Diligence Procedures memorandum, to be approved by the Client, which sets out procedures to be followed by prospective bidders for site visits and inquiries to Government officials; and
 - 5.4.3. Assist the Client in organizing one or more bidder's conference, to allow prospective bidders equal and transparent opportunity to seek clarification and/or comment on and/or propose modifications to tender documentation
6. **Drafting of the Bidding Documents:** The Transaction Advisor will prepare bidding documents for the transaction that include the Request for Proposal (**RFP**) (together, **Bidding Documents**) with a detailed definition of the bidding criteria and the proposed PPP Contract and other relevant project documents (together, **Project Documents**) governing the relationship between the different parties.
7. **Bidding and Contract Signature** - The Transaction Advisor will assist the Client to conduct a fair and transparent bid process, attracting competitive bids, and maintaining public support for the bidding process outcome. Transaction Advisor's main tasks include:
- 7.1. Assist the Client in reviewing and evaluating comments by prospective bidders concerning the draft tender documentation; recommend revisions to the draft tender documentation based on feedback by prospective bidders; and
 - 7.2. Prepare final tender documents, for Client approval, and subsequent issuance to prospective (prequalified) bidders.
 - 7.3. Assisting the Client in ensuring adherence by all bidders to the approved bidding process ;
 - 7.4. Issuance of Request for Proposals and Project Documents;
 - 7.5. Responding to any requests for clarification received from bidders
 - 7.6. Assisting the Client in evaluating proposals, including assessment of any deviations for implications or rejection;
 - 7.7. Assisting the Client in drafting bid evaluation reports including recommendation for award.

8. Necessary Transaction Advisor skills and experience

- 8.1. The Transaction Advisor will comprise a team, managed by a single lead PPP advisor. The members of the team will have the skill and experience necessary to undertake the range of tasks set out in this terms of reference. Each individual on the team must be personally available to do the work as and when required. The team leader will be held accountable, in terms of the Transaction Advisor contract, for ensuring project deliverables and for the professional conduct and integrity of the team.
- 8.2. The skills and experience required in the Transaction Advisory team are as follows:
 - 8.2.1. financial analysis, with relevant and successful water PPP experience through to financial close, and demonstrated experience with the design and tendering of affermage contracts
 - 8.2.2. water PPP procurement and structuring
 - 8.2.3. legal, with relevant law and experience in the drafting and negotiating of PPP agreements
 - 8.2.4. technical due diligence and advice on water PPP structuring and contracts, included demonstrated experience with affermage contracts
 - 8.2.5. Project planning management
 - 8.2.6. Project facilities management
 - 8.2.7. relevant expertise in water PPPs, with emphasis on affermage and PPP schemes designed around public financing of investment for the implementation of major infrastructure rehabilitation
 - 8.2.8. negotiations
 - 8.2.9. contract management
 - 8.2.10. project management.
- 8.3. The team shall include key specialists:
 - 8.3.1. a team leader with a minimum of [] years experience of structuring PPPs;
 - 8.3.2. a technical specialist with a minimum of [] years experience of advising and or working with water utilities and water distribution networks; and
 - 8.3.3.a legal specialist with a minimum of 10 years of experience of drafting PPP agreements and a local legal expert with a minimum of 10 years experience of advising on infrastructure projects and on the legal frameworks of agencies or parastatals of the GoM.

9. Remuneration schedule and disbursement arrangements

- 9.1. The total sum budgeted by the GoM for remuneration of professional services under these terms of reference is [*insert amount*]. Bidders are advised to bid within this figure, and to allocate resources according to the remuneration schedule below. Remuneration of the Transaction Advisor will be payable in [MUR], on a fixed price for each of Phase I and Phase II). Phase II may or may not transpire at the end of Phase I, and should be costed accordingly.

9.2. Remuneration schedule

The following remuneration schedule is set for each part of the contract. Bidders should adhere to these in their proposals, within the total budget given. Deliverables completed per the remuneration schedule

will be approved by the project officer, after which invoices may be submitted for payment as per the remuneration schedule. The Client will pay within 30 days of receiving the approved invoice.

Task	Date	Fee
Due Diligence Report, draft delivered to CLIENT		
Due Diligence Report, final version delivered to CLIENT		
Draft Bidding Documents provided to Client for comment		
Bidding commenced		
Bids submitted		
Preferred bidders selected		
Award		
PPP Agreement becomes effective		

9.3. Disbursement arrangements

Out-of-pocket expenses will be paid by the Client at cost within an agreed ceiling. All claims for travel and other legitimate disbursement expenditure must be pre-approved by the project officer before they are incurred. An email system for these approvals will be set up when the Transaction Advisor contract is signed. Pre-approved project expenditure on international travel, related reasonable accommodation costs, expenditure on document reproduction, translation and interpreter services or any other legitimate pre-approved project disbursement expenditure will be reimbursed at cost. Other legitimate Project costs such as telephone, fax, photocopies and internet access will be reimbursed at cost. Payment will be made within 30 days of the CLIENT receiving approved and substantiated invoices, and does not form part of the remuneration schedule. Bidders are required to propose a ceiling for such disbursements. This ceiling will not be evaluated as part of the price proposal.

10. Management of Transaction Advisor by the Client

The Transaction Advisor will be appointed by the Client. A project officer has been appointed by the Client to take full responsibility for managing the Transaction Advisor's work and for ensuring delivery on the project. The project officer is *[insert name of project officer]*, and can be contacted at *[insert contact details]*.

The project officer has established a project team to engage regularly with the Transaction Advisor for efficiently completing the various delivery items. The project team will meet at least monthly and the Transaction Advisor will report progress at these meetings, as instructed by the project officer.

The project officer will confirm that the Transaction Advisor has satisfactorily completed each deliverable before invoices can be submitted to the Client for payment.

It is anticipated that the team-leader and co-team leader of the Consultant's team will be located in [LOCATION] for [%] of the duration of the contract.

Within 20 working days of the signing of the contract, the Transaction Advisor shall submit an Inception Report giving a detailed work plan and assignments for each individual in the team.

The Transaction Advisor shall submit Interim Reports each two weeks describing progress of work, updated work schedule, and any key constraints encountered by the Transaction Advisor in the performance of the activities.

Proposed Implementation Schedule

Task	Date
Inception Report	
Due Diligent Report, draft delivered to client	
Due Diligent Report, final version delivered to Client	
Pre-qualification evaluation	
Draft bidding documents delivered to the Client	
Bidding documents finalized	
Bidding commenced	
Bid submitted	
Preferred bidders selected	
Award	
PPP Agreement becomes effective	

