

EXECUTIVE SUMMARY

National Water Supply and Drainage Board is the principal government agency established to look after the water supply requirements of general public. As of today it has the pipe borne water supply coverage of 43% with the service connections of 2.6 million. And it is continuing to expand its water supply coverage with the aim of reaching 78% by 2025. However, 2019 financial year records of National Water Supply and Drainage Board indicated that it has lost LKR 3.2 Billion due to excess water loss beyond the acceptable standard in all over the island. This effects the long term financial viability of the organisation. The analysis indicated that Western region is the forefront in the water losses and even among the three RSCs in Western region, RSC-WC is leading. In RSC-WC, Kotte region is one of the important region that brings nearly 10% of the NWSDB's overall revenue. It has recorded NRW of 28.96% in 2020 resulting losing of 12.78 MCM water that could be saved with proper NRW management, without any revenue which has a financial value of LKR 613.44 Mn. This is an operational management issue which can be solved without major policy, strategy and cultural changes. Therefore, project have been selected to reduce the NRW in Kotte region from existing 28.96% to below 24%. This water saving will enable NWSDB to serve new customers in the area and thereby positively contribute to United Nations Sustainable Development Goal-06 which aims at "Provision of clean water and sanitation for all."

This report intended to study the excess Non-Revenue water loss in detail in the Manager (Kotte) area as a pilot project to develop appropriate solutions in cost effective manner to arrest the extra over water losses beyond the acceptable limit. This approach will enable NWSDB to increase the treated water availability to existing customers and new customers without developing new headworks incurring huge capital expenditure. Organisational analysis using the SWOT and PESTEL analysis tools were carried out to evaluate NWSDB's position with regards to NRW management. In order to ensure the consistency of the problem, five year past data related to Kotte region operation was considered for evaluation. It revealed that NRW of Kotte region was in between 26.7% to 29% during last five years 2016-2020, further it showed an increasing trend year by year calling for immediate intervention. The severity of the problem and its financial and other impacts were analysed. Subsequently the fish bone analysis carried out indicated that quality management, human resource management and technology management are the main areas causing the high NRW in Kotte region.

Literature review has been carried out to gain the knowledge and experience as to how similar problems have been solved elsewhere in the world. It has supported to develop more appropriate and practical solutions to the problem. For this purpose author has reviewed the ranked journal articles under the topic of the main problem which is Non Revenue Water reduction and other project subcomponent areas such as quality management, human resources management and technology management. Further the techniques required to implement the solutions are also discussed in this part of the report.

Appropriate definition of the project objective and sub component objectives will drive it for its success by providing clear direction and motivation to the employees and stakeholders. Accordingly this project had the main objective to reduce the annual average NRW of Kotte region of NWSDB from existing 28.96% to below 24% and sub- objectives for reducing the no of leaks in the system, meter servicing scheduling, development of ALD teams, physical verification of abnormal consumption variations, reducing the quantum of estimate bills and creating well isolated DMAs. The current situation of each sub components were analysed in detail and solutions were developed to achieve the objectives and eliminate the root causes. Further it provided with resource requirement to implement the solutions and the required budget for the same.

In almost all the businesses, financial benefits coupled to the specific action/s is the main factor that motivates the businesses to pursue such opportunities. Accordingly this project is no exception to it. The financial cost-benefit analysis was carried out where author has considered the direct tangible and indirect tangible benefits that may be obtained upon the successful achievement of project objective by realising the sub component objectives set therein. The cost of the each solution has been prepared using the NWSDB Rate Book-2021 and market rates for the rates that are unavailable in the Rate Book. The project is having a cost benefit ratio of 4.82 and net incremental benefit of LKR 563.97 Mn. Further the expected short and long term benefits from the project are also listed.

Finally solutions provided for the project and its subcomponents were connected with literature findings carried out in Literature Review. Further recommendations were provided to management regarding the critical solution under each subcomponent, justification for the same and the factors to be taken into account before, during and after the implementation of the particular solution.