EXECUTIVE SUMMARY

The sewage treatment and disposal is one of the environmental issues faced by Kollam Municipal Corporation. As per the population projection of KMC the total population in 2041 will be 408667. On the basis of topography and the level of development KMC is divided into three zones for laying sewer line. In 1982 Kerala Water Authority laid about 38km of sewer network, but it was not put into operation. This sewer network is in A1 Zone of the KMC. The STP subproject envisages utilizing the existing sewerage network by carrying out rehabilitation wherever required and to lay about 3km of new sewer network to transport the sewage to the proposed STP at Kureepuzha. The Kollam Municipal Corporation is not having any facility for the management of the sewage generated at present. The STP proposed is covering A1 Zone of KMC, the projected population in the A1 Zone in 2041 will be 93925. The treated effluent is proposed to discharge into Ashtamudi Lake after disinfection.

A brief account of the sewage treatment is as follows. The raw sewage received by pumping shall be collected in an inlet cum stilling chamber followed by pre treatment or physical treatment comprising of screening and grit removal units. The biological treatment will be either moving bed biological reactor or a sequential batch reactor. Both these modern technologies are requiring very limited area, which is very important considering the non availability of land in Kollam Municipal Corporation. The treatment technology is proposed to be finalized based on cost considerations. In the case of MBBR technology an equalization tank having a detention period of 3hr shall be provided from which sewage shall be pumped at constant flow into the reactor. Aeration will be provided fine bubble diffuses of stainless steel pipes which is having capacity to meet peak oxygen requirement. Bacteria grow on plastic media which is set in whirling motion with constant aeration resulting in continuous mixing. Bacterial reaction is carried out in two stages for maximizing the BOD removal efficiency.

During the PPTA stage of the subproject, the subproject activities were tentatively assessed and presented. The environmental assessment of the subproject is done as per ADB's Environmental Assessment Guidelines and the Environmental Assessment Review Frame Work to ensure the subproject is complying with the existing environmental regulations of the country and will not have any adverse impact on the environment.

The environmental setting of the site was considered in detail in order to assess the environmental specialties of the site. The potential environmental impacts of the proposed subproject were screened and based on which adequate mitigative measures were proposed. The environmental mitigative measures were tabulated and the agency responsible for implementing the same were also identified.

Biological treated sewage enters into clarifier where separation of solids and liquids takes place. The clarified waste water is having quality suitable for making discharge into surface water after chlorination. The sludge passes through a sludge thickener and thickened sludge pumped into centrifuge to obtain sludge having concentration of solids not less than 25% by weight.

The project comprises of provision for treating septage also along with the sewage. At present the septage removed from septic tanks are unscientifically disposed into water bodies and low lying areas.

Environmental Management Plan of the subproject was prepared for various components. The major environmental issues were identified and an Environmental Monitoring Plan is prepared for the subproject. The EMP presents recommended environmental monitoring activities and also identified the

agencies/institutions that are responsible for monitoring. An institutional requirement for the effective implementation of the subproject was identified for implementing the environment management plan.

A lot of improvements in the quality of environment is expected due to implementation of the subproject. The completion of the subproject will fully address sewage disposal issue of the old municipal area of the KMC. The contaminations of water bodies such as Kollam thodu and other canals passing through KMC can be alleviated to a large extend on the successful completion of the subproject. Overall cleanliness and sanitary environment of the KMC will improve which will have a reflect on socio economic growth of Kollam Municipal Corporation.

The main environmental issues noticed during the environmental examination are those occurring during the construction of the sewage treatment plant. The mitigation measures proposed in the management plan has been incorporated in the project design and the mitigation costs are included in the construction costs. Public consultations were undertaken during the site visit in the subproject area. Elaborate arrangements are being made to continue the public consultation during construction stage as well.