

ABSTRACT

The University of Nairobi recently opened a new 89-m high 22-storey building in the heart of their main campus in Nairobi's central business district. The building, which provides teaching space for a student capacity of 3,500, asserts and affirm the position of the University of Nairobi as a leader of architectural thought, innovation and champion towards the provision of environmentally friendly-solutions. Key among the innovations and environmentally friendly solutions is the set up and running of a sewage treatment plant with an average flow of 110 m³/d that has employed membrane bio reactor technology, which combines conventional biological treatment processes with membrane filtration to provide an advanced level of organic and suspended solids removal. The MBR plant was designed to produce effluent of high-quality standards to be reused for flushing toilets and other purposes. This study was carried out to assess the experience in operation, maintenance and performance of the MBR plant and the suitability of treated water for reuse and recycling. Samples of raw sewage water and treated water were taken from the plant and tested in laboratory to analyse the efficiency of wastewater treatment by MBR technology. The changes in wastewater composition were evaluated by measuring changes in the total amount of organic matter in terms of BOD, COD, suspended solids (SS), content of raw water and treated water samples. The Plant exhibited good performance in removal of organics, solids, nutrients, micro-organisms, etc. and operates satisfactorily in producing effluent of high quality standards to be reused for irrigation, flushing and other purposes.