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An Approach towards Smart Future: Ict Infrastructure Integrated into Urban Water Networks

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Abstract : Abstract—According to a World Bank report, millions of people across the globe still do not have access to improved water services. With uninterrupted growth of cities and urban inhabitants, there is a mounting need to safeguard the sustainable expansion of cities. Efficient functioning of the urban components and high living standards of the residents are needed to be ensured. The water and sanitation network of an urban development is one of its most essential parts of its critical infrastructure. The growth in urban population is leading towards increased water demand, and thus, the local water resources are severely strained. 'Smart water' is referred to water and waste water infrastructure that is able to manage the limited resources and the energy used to transport it. It enables the sustainable consumption of water resources through co-ordinate water management system, by integrating Information Communication Technology (ICT) solutions, intended at maximizing the socioeconomic benefits without compromising the environmental values. This paper presents a case study from a medium sized city in North-western Pakistan. Currently, water is getting contaminated due to the proximity between water and sewer pipelines in the study area, leading to public health issues. Due to unsafe grey water infiltration, the scarce ground water is also getting polluted. This research takes into account the design of smart urban water network by integrating ICT (Information and Communication Technology) with urban water network. The proximity between the existing water supply network and sewage network is analyzed and a design of new water supply system is proposed. Real time mapping of the existing urban utility networks will be projected with the help of GIS applications. The issue of grey water infiltration is addressed by providing sustainable solutions with the help of locally available materials, keeping in mind the economic condition of the area. To deal with the current growth of urban population, it is vital to develop new water resources. Hence, distinctive and cost effective procedures to harness rain water would be suggested as a part of the research study experiment.

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