Assessing Deployment of Science, Technology & Innovation in Catalysing Sustainable Water Services Provision in Nairobi City County, Kenya: Case of Soweto Kayole Jisomee Mita

ABSTRACT

More than 40% of Kenya's population depend on unimproved water sources and water and sanitation challenges are prominent in the informal settlements characterised by poor infrastructure of piped water. Deploying STI interventions can help residents of Nairobi City County and NCWSC with more efficient, innovative, and profitable water services provision. The purpose of the study was to assess the successes and challenges of deployment of STI in catalysing sustainable water services provision, water services infrastructure development, utilization and management in Soweto Kayole and appropriate recommendations for possible adoption and uptake of the emerging innovations and technologies for improved and efficient management of water services provision. The overall objective of the research proposal was to assess the level of deployment of STI in catalysing sustainable water services provision in Nairobi City County, Kenya: Case of JM in Soweto Kayole. There were five specific objectives under this study: to assess the status of water services provision; to identify the on-going and potential STI applicable in the urban water services provision; to investigate STI infrastructure for water services development, utilization and management; to identify the current challenges hindering adoption and uptake of STI in improving sustainable management of water services and access; and to assess the strategies in place for mainstreaming best practices in STI interventions into national water sector development policies and frameworks. The researcher used a descriptive survey design and analysis, where questionnaires were used to collect data. It relied on a qualitative approach capturing detailed information about the perceptions and dominant narratives on the role and impact of deployment of STI for instance impacts of IoT, AI & ML in accelerating progress toward meeting SDG 6. 320 residents including 10 landlords from Soweto Kayole were interviewed in addition to 7 staff from NCWSC and 2 WB staff. Also interviewed were local water vendors, operators and community representatives aided by research assistants. The researcher obtained qualitative and quantitative data on water supply, distribution and installation of JM gadgets. Primary data was gathered with the aid of a closed and open-ended structured questionnaire. Secondary data collected from various empirical study reports, government documents, journals, books, manuals and other online sources. Descriptive statistics and correlational analysis was used to analyse the data and descriptive statistics used to interpret the findings. Inferential statistics used to establish the level of deployment of STI in catalysing sustainable water services provision while addressing issues on water services development, utilization and management in Nairobi City County.

Main finding is that factual evidence in which STI infrastructure plans and deployments aligned to organizational and institutional visions do not always sometimes conform to situations and realities on the ground especially by the final beneficiaries. This has been confirmed by the JM as it represents a reality in which projects diverge beyond their "institutional set-up and technical infrastructure", adjusting to "new circumstances". Water service provision and sanitation demand by the unserved and underserved slum dwellers require a combination of political commitment, engagement of the planning authorities, substantial increase in investments, innovative solutions and business models. The initiative has proved feasible for the informal settlement and it can be enhanced more by deployment of STI enabled digital tools for existing public structures and institutions; institutional strengthening, financial and STI pro poor innovations and community engagement and subsequently enhance transparency and accountability.

JM and similar innovations with functionalities such as of billing and customer care system would need to clear the following detected hurdles in order to stand on its own, regardless of the applicability of a wider social connections policy: It has to deliver the lowest price-performance ratio of the alternatives considered; It has to be fit for purpose; It should be delivered within reasonable time frames; and it should fit in with the overall strategy of the utility that is implementing the social connection policy, and it should have a relatively short time to go to market. Measured against these metrics, then, a business case for expansion of JM to other informal settlements in Nairobi City County can be laid out as already envisioned by NCWSC.