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Ministry Paper /2015

National Irrigation Commission

1.0 Purpose

The matter for tabling is an update on initiatives being undertaken by the National Irrigation Commission (NIC) for the development of irrigation services in Jamaica.

2.0 Background

Irrigated agriculture contributes significantly to the growth of the agricultural sector as well as enabling rural development. The mission of the National Irrigation Commission Ltd, an agency within the Ministry of Agriculture and Fisheries, is to enable improvement in agricultural productivity, production and prosperity through the provision of reliable, efficient and affordable irrigation and related services to farmers and other customers while ensuring the viability of the Commission.

3.0 Current Situation

The NIC supplies irrigation water to its customers using groundwater (40%) and surface water sources (60%). The NIC operates 76 sources, 70 wells for abstraction of ground water and 6 surface water intakes. The NIC maintains an island-wide coverage through ten (10) irrigation districts located in the parishes of Catherine, St. Thomas, Trelawny, St. Elizabeth, Clarendon and Manchester. The gross area impacted by NIC services is approximately 36,000 hectares. However, there are areas within this that are unserviceable due to infrastructural deficiencies. The NIC is significantly indebted to the Jamaica Public Service Company Limited (JPS Co) to the sum of \$223 M at the end of February 2015.

The NIC has therefore embarked on a path towards a strategic transformation which should result in improved efficiency in administration and operations with corresponding improvements in energy management, quality, efficiency and volumes of water delivered. The NIC had, however, met up on

some hurdles to improvements in service delivery such as the ‘vandalization’ of property and equipment of the NIC and the theft of valves, meters and water. “Canal Splash” which are parties incorporating the water and the distribution canals and the contamination of water by solid waste and other waste as open canals pass through communities and industrial belts, are impacting the quality of water supplied by NIC.

4.0 Achievements

4.1 Strategic Transformation Initiatives

The NIC is well advanced on a path of strategic transformation. The following are some of the activities carried out in 2014/15 to transform the NIC:

- I. The NIC has developed and approved an updated mission and vision statements along with its core values to form the basis for strategic transformation.
- II. Strategic Objectives have been developed and approved and are being cascaded to all posts in the organization to ensure these objectives are effectively understood and accepted by all employees. Some objectives are presented in Table 1 below.

Strategic Objective	Target for 2014/15	Actual achievement
Volume of Irrigation water delivered/million m ³	56	62
Overall Unit Cost of water delivered/J\$m ⁻³	18	18
Number of farmers impacted	2,571 (April to Feb)	2,553 (April to Feb)

- III. Other transformation achievements include:
 - a. Cultural Change management training for the staff
 - b. Training in the implementation of Performance Management Appraisal System. (PMAS)

4.2 Energy Management

- I. NIC implemented energy management and efficiency strategies that have resulted in savings of approximately \$14,000,000 between April 2014 – February 2015. These include:
 - a. Installation of Capacitor Banks at 10 pumps stations. These capacity banks counteract phase shift issues in electrical motors in the pumps that cause loss of efficiency in the motors. The capacitor banks therefore make the power supply to these stations far more efficient and cost effective. The savings from this initiative is about \$900,000.
 - b. Variable Frequency Drive (VFD) at 6 pump stations. If the area being irrigated does not require the pump motor to run at full speed, the VFD can be used to ramp down the frequency and voltage to meet the requirements of the farmers. As the demand for water changes, the motor speed requirements change. The VFD simply turn up or down the motor speed to meet the speed requirement.
 - c. Implementation of energy saving plans at NIC Offices. The savings from these initiatives is about \$400,000.
 - d. Investigate retrofitting pump stations with solar panels for power generation. No savings have been realised under this initiative as yet. The endorsement of the National Contracts Commission is awaited in order to proceed with procurement of equipment.
 - e. Change from Rate 20 to Rate 40 to ensure the NIC is using the most economical rates during pumping. Significant savings in the order of \$9 million have been realized with this change.
 - f. Improving the scheduling of delivery of irrigation water. This will ensure that the pumping systems are operated to match the actual demand in the irrigation districts. These changes have resulted in significant savings for the NIC. The year to date savings is \$3,000,000.
- II. The NIC has initiated a technical study of wind energy availability in the Spur Tree area of Manchester. The report was completed and peer reviewed in 2014/15. The NIC is preparing to conduct a feasibility study based on the data garnered from the technical study.
- III. Significant costs have been incurred by the NIC in supplying the irrigation water to farmers especially in the drought period of the 2014/15 financial year. This has resulted in further

indebtedness to the JPSCo. The NIC has therefore initiated the engagement of the JPSCo to develop a plan to address indebtedness.

4.3 Provision of Irrigation Service

The NIC has increased the volume of water delivered to customers by over 20%, when compared to 2013/14. Water delivered to customers is now in the order of 17 billion gallons. The drought period of 2014/15 reduced the availability of water and resulted in escalated demand. This increased demand and the shortage of surface flow resulted in increased pumping and therefore increased electricity usage. The NIC was able to maintain irrigation supply to customers in irrigated areas during the drought period to lessen the impact on agricultural productivity.

A water quality monitoring plan has been developed and will be implemented in the first quarter of 2015/16.

The NIC has increased customer base by 220 farmers between April 2014 – February 2015.

4.4 AgroPark Initiative

The NIC has partnered with the Agricultural Competitiveness Programme to implement the agro-park initiative. The agro-parks are distributed within the 10 regions of the NIC operations. Of the nine agro-parks developed, the NIC had varying degrees of involvement in eight of them. The Agro-park initiatives will also assist the NIC with water quality monitoring by providing data in a number of agro-parks. The involvement of the NIC in the agro-parks is presented below:

4.4.1 Spring Plain/Ebony Park

The NIC managed the installation of irrigation infrastructure for Spring Plain/Ebony Park Agro-park. The pipeline infrastructure to irrigate approximately 1000 hectares of land has been installed. Two pump stations have been constructed. The system is expected to be commissioned by the end of July, 2015. The main outstanding activity is the acquisition and installation of transformers to power the system.

4.4.2 Plantain Garden River

Plantain Garden River (PGR) Agro-park has a functional irrigation system and has been operating effectively. The expansion plans for the Agro-park, however, requires that a pump with a higher capacity than the existing diesel pump must be acquired. The lack of JPSCo infrastructure in the Agro-park necessitates the use of a diesel pump.

The NIC has constructed a new pump station to house the larger capacity pump and has procured the new pump that will meet the demand of the expanded Agro-park. The installation of the new pump into the new housing is to be effected within the first quarter of 2015/16. An interim tariff has been developed for the PGR that will ensure that the irrigation system is sustainably managed.

4.4.3 Hill Run

The NIC has been involved in the design of a pressurized irrigation system to supply water to the fish farmers in Hill Run Agro-park. The designs have been completed and presented to the stakeholders in Hill Run. The stakeholders have accepted the philosophy and technical approach to the design. The preparation of the bill of quantities is completed and the process of approval for funding is underway. The NIC will be engaged to manage the implementation of the design once approval is given by the funding agency.

The project will result in a 100 acre increase in the area under fish production in the Hill Run area.

4.4.4 Nonsuch, St Mary

The MOAF intends to develop an Agro-park in the Nonsuch/Unity area of St. Mary. The NIC has been involved in determining the capacity of the water supply on the property. This information will dictate the size of the irrigation system and indicate whether additional storage is required in the design of the irrigation system for the Nonsuch Agro-park.

4.4.5 Yallahs

The NIC continued to effectively supply irrigation water to the farmers in Yallahs area and also continually carried out routine maintenance activities on the system. The supplied irrigation water has resulted in increased production of crops in Yallahs, especially onions.

4.4.6 New Forest/Duff House

The NIC continued to add farmers to the irrigation system and effectively supply irrigation water to the farmers in New Forest/Duff House. The level of production within these agro-parks has increased even with the impact of the drought in 2014/15. The demand for water in the area continues to increase as production increases. NIC, with the assistance of the Jamaica Social Investment Fund (JSIF) will add another pump to the irrigation network early in 2015/16.



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