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Innovations through ICT and Green Energy in the Logistics Industry in South Asia

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Ports around the world that have been a stagnant industry are currently going through a sudden boom in technological improvements. Investigating how the port industry in South Asia innovates in planning and operations by integrating Information Communication Technology (ICT) is the key purpose of this research. How those developments are brought in while maintaining sustainability and adhering to the concept of a 'Green Terminal' is demonstrated. The terminal "X" which is located at the Colombo port is the focal point in this research. In order to test the hypothesis, a systematic review was conducted. With the clear vision of what information to gather, all relevant and recent articles based on this context were reviewed by the authors. Positive and negative impacts of ICT integration in Ports in South Asia were criticality evaluated. When transformed to a smart port. The possibility of adopting electronic transport equipment with business application and electronic transaction components using high speed internet emerges**.** These will address the environmental issues such as noise and air pollution, vibrations and greenhouse gas emissions produced by fossil fuel engines. An analysis of the challenges and possible strategies in implementing ICT background in a terminal such as 5G network for speeding up operations, RFID technology, E-RTG (Electric Rubber Tyred Gantry Crane) for environment sustainability completed this investigation. Methods of developments in "X" and in other ports in South Asia as a whole are provided in the recommendations. Based on information gathered through databases, the research deduces that if these steps are implemented, terminal "X" would experience rapid growth. This can be achieved using long-term planning, sustainable innovation and Internet of Things (IoT). The research finally provides recommendations on countering obstacles in the industry through strategies and infrastructure solutions. 'Green Terminals' can reduce the negative impact on environment using green energy for power loading and discharging activities. Based on this the 'Green Terminal concept' should be used for further developments in ports of South Asia.

Keywords: *Green Terminal, E-RTG (Electric Rubber Tyred Gantry Crane), 4G/5G Network, RFID (Radio Frequency Identification) Technology, Smart Port, IOT (Internet of Things).*