

Sustainable Port Development in the WIO Region

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By **John Odhiambo**

Jomo Kenyatta University of Agriculture and Technology

Background

There has been an increasing pace of large scale developments along coastlines ranging from railways, roads, Oil & Gas, mining activities and ports. This has been necessitated by the fast growing economies of coastal countries as well as those of the landlocked countries. Specifically, the countries of the Western Indian Ocean are expected to enter into a period of rapid economic growth, enabled by their current low baseline, rapid demographic growth and access to new energy sources [1]. (AEO 2015, APP 2015). Ports act as hubs of trade and intermodal systems where road, rail, pipelines and other transport modes meet for purposes of trade enhancement. They therefore form an integral part of current global economic development since seaborne trade actually accounts for about 90% of shipping worldwide. This growing trend together with increasing vessel sizes, and the need to modernize port facilities, are driving urgent investments in ports [2][3]. It is therefore imperative for port developers to keep up with port size and capacity demands. In doing so, there is unavoidable intersection with critical coastal and marine resources with huge potential to compromise the integrity of these resources because the resources are critical for the socio-economic development of the region since the economies are largely natural resource based e.g. tourism, fishing, farming, mining etc. Port development requires the construction of waterways, breakwaters and the port itself [4]. These changes can affect the hydro morphology of the ecosystem and as a consequence could affect ecosystem functioning by habitat loss through development and dredging [5]. Port development activities also impact negatively on our city port, river- and delta ecosystems because port projects are confronted by a growing scarcity of prime locations, increasing environmental constraints, limited space for sustainable expansion, and uncertain impacts of climate and technological change. Clearly, there is a need for innovative solutions for sustainable port development which are in harmony with the ecosystem and which are robust or adaptable under change. Nevertheless, in general, ports that do not aim for sustainability and that impact negatively on the environment could act as a hindrance to the fight against climate change and sustainable trade. Port development will continue to impact on the marine ecosystems unless port capacity and efficiency can be shown to benefit more from sustainable port development than from traditional approaches [5].

The WIO region consisting of Comoros, Kenya, Mauritius, Madagascar, Mozambique, Seychelles, Somalia, United Republic of Tanzania, Republic of South Africa and France still has an enormous potential for growth in the maritime sector through existing port’s expansion or through initiation of new port development projects. The region is therefore in a better place to choose the path of

[1] Annual Energy Outlook, 2018: www.eia.gov/aeo

[2]OECD (2012). <http://www.oecd.org/regreform/sectors/48837794.pdf>

[3] PIANC (2014a). Masterplans for the development of existing ports. Report no 158-2014

[4] Wan Chengpeng, ZhangDi YanXinping YangZaili “A novel model for the quantitative evaluation of green port development – A case study of major ports in China. Elsevier. 2017.

[5] Port of the future: Exploratory study. Dr. Cor A. Schipper, Dr. Martijn de Jong, Dr. Mark de Bel Deltares, 2015

[6]This scenario has been called different names: Markets First (UNEP 2008, 2012), Market Forces and Fortress World (UNEP/AMCEN 2013), Going Global (WWF/AIDB 2015), Conventional World (UNEP-Nairobi Convention 2015) and Fuelled Business as Usual (Obura et al. 2015, 2016). [7]The Nairobi Convention Website: <http://web.unep.org/nairobiconvention/who-we-are/introduction>

sustainability in port development or to continue with the business as usual scenarios in port development which normally, prioritizes short-term growth in profit and wealth creation, powered by fossil fuel extraction and use, with low regulation and inadequate investment to protect environmental and social assets [6]. While some increase in profit may occur in the short term, real wealth decreases due to habitat and species loss along with severe decline in marine gross product. The Business As Usual scenario will also undermine achievement of the UN 2030 Agenda for Sustainable Development. Consequently, the WIO has decided to choose a path of sustainability spearheaded by the Nairobi Convention Secretariat in their bid to develop a sustainable port development document in the region with emphasis to greening port development projects through production of a port development toolkit for green ports based on scenario modelling [7].

Port Development based on Sustainability

Sustainable port development aims to create scenarios for “Ports of the Future” which are green, sustainable and of minimal or no impact to the environment. This can be achieved by looking at port development as an integral and interactive initiative where knowledge on sustainable port development is developed to balance economic growth and welfare in combination with healthy ecosystems. Under this strategy, a look at the blue Economy Strategies in port’s influence area, Innovative Port Governance and Public - Private Partnerships and Integration of Port-City socio-economic and cultural impacts for sustainability are crucial. Synchronization and optimization for more efficient operational processes for improved air quality and environmental friendliness of ports by the establishment of new procedures controlled in real time using advanced IT technologies must be employed. Use of modelling and simulation tools are also integral in green port development scenarios (Scenario Modeling) for improving the operational, environmental and security processes, thus reducing associated risks, time and costs. The result will be a tool kit for Green port Development in the WIO and a Scenario based Green Port Models for the WIO region new port development, existing port upgrade and expansion of ports.

To obtain a port with no-impact on the ecosystem while positively affecting social welfare, the impacts on ecosystem services need to be reduced by decreasing the impact on water quality, wild life/biodiversity and flood protection. However, the impacts depend largely on the location [5]. Eco-engineering solutions should be used to increase flood protection, while air quality should be increased by the combined effect of reduction of inland transportation, electric transportation at the ports and use of renewable energies by other port facilities like the cranes and forklifts. Green ports will benefit from the reduction of (sea) transport costs, reduced inland transport costs and

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reduced operational expenses. However, since the investment costs may be higher than developing a traditional port, there is need for a proper look at the financial viability. The green port toolkit will aim at providing guidelines for port development with limited impacts on existing ecosystems and maximizing social welfare.

The Nairobi Convention secretariat will employ the services of scenario modelers to come up with models for green ports development in the WIO. This will form part of the Toolkit for Green Port development for the WIO Region which will be recommended for port developers and regional governments.

Policy recommendations

1. Conducting scenario analysis for port development in the WIO region
2. Production of a toolkit for green port development for the region

By conducting a scenario analysis and producing a tool kit for the development of green ports in the WIO, the region will greatly benefit due to reduced ecological and environmental impact that are seen today in the traditional ports which are developed and operated without regard to environmental considerations and efficient port operation.

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