



CREATING A BLUEPRINT FOR SUSTAINABLE PORTS

URBANISING DELTAS OF THE WORLD

Integrated & Sustainable Port Development in Ghana within an African context

Developing ports that maximize environmental, economic and public benefits through integrating engineering, ecological, economic and governance aspects.

SUSTAINABLE BUILD



Maintaining the marine ecology in and around a port this contributes to biodiversity, provides ecosystem services, and facilitates port development.

BENEFITTING THE COMMUNITY



Including local knowledge ensures that the port community derives sustainable benefits from port development.

EXPERT INPUT



Applied research and knowledge institutes, practitioners and potential users contribute to knowledge development.



THEORY OF CHANGE

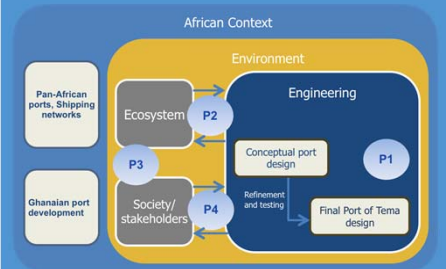
From Output and Outcomes to Impact



- Research and knowledge development in a pilot project to arrive at new practices;
- Replication of practices in Ghana and beyond, and
- Institutionalization through bottom-up adoption by Pan-African networks leading to sustainable ports in Africa

RESEARCH APPROACH

Project Structure



- Four sub-projects directed at Port of Tema, Ghana:
- P1 Sustainable port design and engineering
 - P2 Port and coastal ecosystems
 - P3 Valuation of ecosystem services
 - P4 Governance and socio-economic aspects of green port development

LEARNING FROM A PILOT CASE



PORT OF TEMA, GHANA

Apply principles of sustainable port development for Tema port expansion and develop a conceptual design framework



STAKEHOLDER-INCLUSIVE DESIGN



MULTI-STAKEHOLDER WORKSHOPS

Gain system understanding and gather input for stakeholder -inclusive value based design by

- Identifying key stakeholders and developing stories/visions with researchers and stakeholders on past, present, future of Tema, and
- Analysing, interpreting results for creating sustainable design options



MULTI-DISCIPLINARY SYSTEMS APPROACH



FACT FINDING MISSION & EXPERT SESSIONS

Learning about the system by identifying system interactions with a multi-disciplinary research team



KNOWLEDGE DEVELOPMENT

RESEARCH OUTCOMES

- Inclusive and participatory framework for design of integrated and sustainable ports in Africa based on balancing people, planet and profit.
- Best practice guidelines for implementing integrated and sustainable port development in Africa
- Quick design tools using remote sensing data and integrating ecological data
- Tried and tested methods for stakeholder-inclusive port design, eg., Ports of the Future serious game

KNOWLEDGE COMMUNITY



KNOWLEDGE SHARING & RESEARCH UPTAKE

ACTIVITIES

- Stakeholder engagement via workshops in Ghana: May 2016, February 2017
- Local embedding of new knowledge and capacity building by engaging researchers from University of Ghana
- Knowledge diffusion via MSc student exchange programs between Ghana and the Netherlands
- Connecting to, and communicating with current and future application areas, users & institutions
 - Conferences 2017 - SMTEC, MARE, African Ports Evolution, PIANC 2017, WCTRS 2018, PIANC 2018
 - Workshops at international platforms - Ghanaian design and engineering workshop on the Volta Delta, 2018, PIANC 2018

PARTNERS

Technical University Delft (TUDelft), Wageningen University (WUR), IMARES, University of Ghana, UNESCO-IHE, Netherlands-African-Business Council (NABC), Boskalis, Deltares, Ghana Netherlands Business and Culture Council (GNBCC), CWT, DAMEN, DeepBV, FMO, MTBS, IHCMerwede, VanOord, STC, Port of Amsterdam, Vrije Universiteit Amsterdam (VU), World Wide Fund for Nature (WWF NL).
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