

DIFFUSING KNOWLEDGE ON SUSTAINABLE PORT DEVELOPMENT

by

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ABSTRACT

This paper adopts theory on pilot projects to devise a strategy for the diffusion of new knowledge and practices from case study research on an African port. Progress in disseminating knowledge and in creating awareness of new practices is reviewed. The efficacy of the strategy is also assessed.

1. INTRODUCTION

Pilot projects are policy instruments for introducing or testing innovative approaches, concepts or technologies, and can be viewed as stepping stones in the development of new practices (Vreugdenhil et al., 2012). Pilot projects can also stimulate the wider acceptance and implementation of new practices. In a study on pilot projects in water management, Vreugdenhil (2010) identified that the diffusion of new knowledge and practices from pilot projects can occur in four ways:

- i) Inclusion of the pilot project in routine project practice (routinization)
- ii) Replication of the pilot project at other locations, in different social-ecological contexts, but at similar scale (replication)
- iii) Scaling-up of the pilot project to larger spatial or temporal scales (expansion)
- iv) Institutionalization of the pilot project approach at higher organisational, sectoral or cross-sectoral levels (institutionalization).

Since the main aim of the project “Integrated and Sustainable Port Development in Ghana in an African Context” (NWO 2018) is to develop knowledge and test design practices for integrated and sustainable ports in an African case study, namely the Port of Tema in Ghana, it is feasible to view the case study endeavour as a research pilot project. This allows us to apply the theory on pilot project diffusion to stimulate the wider dissemination and uptake of the new knowledge and practices developed within the research project.

2. DESIGNING AN INFLUENCE STRATEGY

Because of the long term nature and the high level of investment involved with port development, it is unlikely that port development projects will be routinized. Accordingly, we have adopted two of the four mechanisms for diffusing new knowledge and practices as the basis for our influence strategy (Figure 1). We envisage that the port development pilot project to have a potential ripple effect within Ghana itself, resulting in the replication of (elements of) our case study approach within other potential Ghanaian port development projects (Phase 1 to 2 in Figure 1). We do not anticipate an expansion of the pilot project itself as our inclusive, ecosystem-based approach is broad and has already identified and addressed key strategic issues and key stakeholders from the outset (Taneja et al. 2018; Slinger et al., 2018). We actively seek to disseminate knowledge and procedures from the pilot project to institutionalize the approach within African port development (Phase 2 to 3 in Figure 1), by informing and involving national and pan-African decision makers on harbour

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development in our project where possible (indicated by the upper arrows). We expect this form of pilot project diffusion to be crucial to the ultimate impact of the research project, and will support this by specific networking and dissemination activities. In this way other African case studies will be able to add knowledge, concepts and practices in a bottom-up way and through active Pan-African port and shipping networks. Note that whereas Phase 1 and 2 lie entirely within the scope of the project, the full impact in Phase 3 extends beyond the project lifetime.

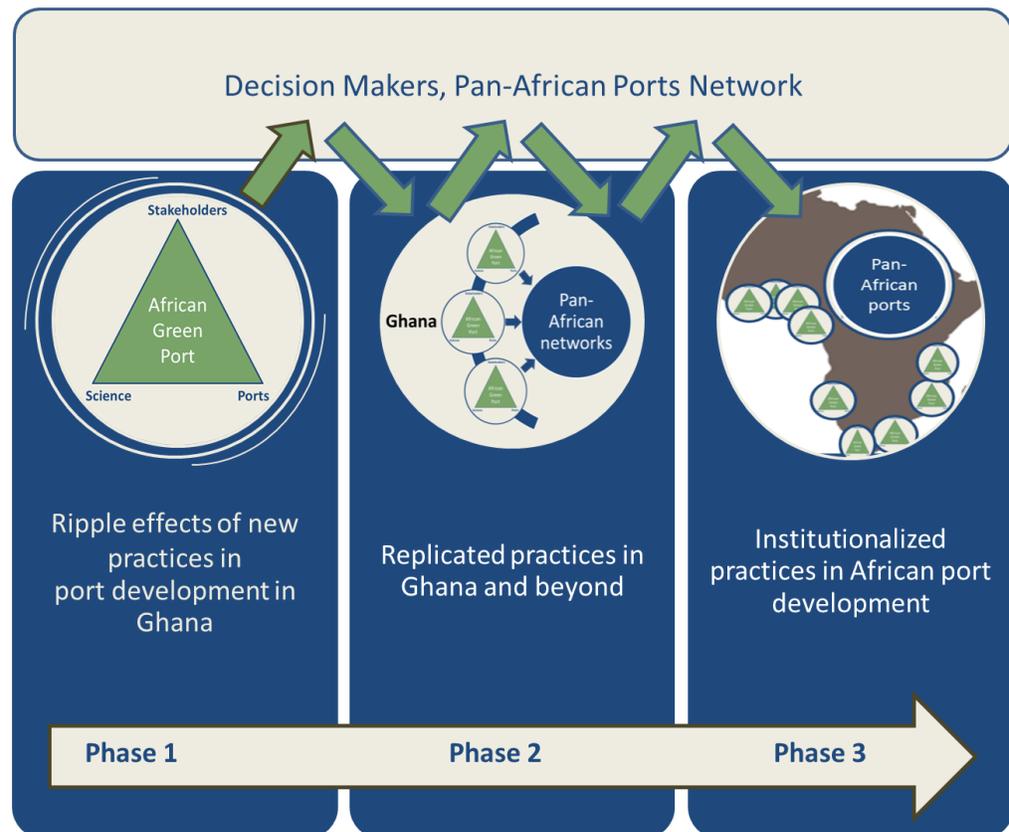


Figure 1: Following the initial development of new port development practices in a pilot project case in Ghana, the replication of practices within Ghana and beyond is envisaged as is the eventual institutionalization through bottom-up adoption and Pan-African networks (NWO, 2018).

The following active communication initiatives were undertaken to enhance knowledge diffusion and the subsequent uptake of research results in the form of new practices for sustainable port design.

- A project website was created <http://sustainableportsafrica.com/> with the name “Building a Blueprint for Sustainable Ports in Africa”, for facilitating systematic documentation and widespread and easy sharing of project findings.
- A flyer was printed to promote the project Sustainable Ports in Africa.
- A popular article with the title “De duurzaamste haven van Afrika (the most sustainable port in Africa)” was published online in March 2017 (http://waterviewer.tudelft.nl/world#/de-duurzaamste-haven-van-afrika-1489499617271_) in which various members of the research team (Tiedo Vellinga, Mark Koetse and Arno Kangeri) discussed aspects of stakeholder-inclusive design in Africa.

In addition, presentations were given at conferences attended by port engineers and developers in an effort to sensitize engineers and developers to new practices in port infrastructural design and port development (Vellinga et al., 2017; Slinger et al. 2017; Kangeri, 2017; Vellinga, 2017; Slinger 2017). The conferences included SMTC 2017, 26-28 April, 2017, Singapore, the MARE Conference 2017 in Amsterdam and the African Ports Evolution Conferences for West Africa, in Ghana, and for Southern and Eastern Africa, in Durban, South Africa.

A number of project reports, papers and two masters' theses were also produced within the first year to one and a half years of the project. The Masters theses focussed on aspects not addressed within the main research project, but that had been identified by stakeholders as relevant issues during the stakeholder engagement process. These included the feasibility of an inland water container transport service between Tema and Lake Volta (Toebes, 2017) and the effect of port development on the urban dynamics of Tema city (van den Houten, 2017).

Cross-linkages with on-going projects were also sought, namely:

- Collaboration with the Delft Deltas, Infrastructures & Mobility Initiative (DIMI <https://www.tudelft.nl/infrastructures/>). The Sustainable Ports in Africa project will contribute to the objectives of DIMI through a Ghana special project on the Volta River Delta and Tema Port in which a multi-faculty education & research collaboration and integrated design approach is applied by a student group.
- Collaboration with researchers from the Deltas, Vulnerability & Climate Change: Migration & Adaptation project (DECCMA <http://www.geodata.soton.ac.uk/deccma/>).

3. CONCLUDING

On reflection, each of the activities was designed to grow the network aware of the concept of sustainable ports, to share knowledge, disseminate research and initiate uptake activities. This influence strategy has been effective to date, and as a result, the research is already known within a much wider network. The network includes port engineers and developers active in other regions in Africa and incorporates other research endeavours such as DECCMA and DIMI. Indeed, the anticipated uptake and testing is already occurring with the CSIR in South Africa agreeing to comment critically on the applicability of the methods developed within the Tema case study in their port stakeholder-engagement processes.

It remains to influence policy makers towards more sustainable port development and to truly establish a Sustainable Ports in Africa network. This will form the major focus in our ongoing efforts to disseminate new knowledge and practices within the African context..

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