

TRANS-SAND: A TRANSNATIONAL BY-PASSING SCHEME FUNDED BY A PUBLIC-PRIVATE DREDGING FUND

In order to tackle coastal erosion adjacent to seaports in West Africa, we propose to **restore the sand balance** through the implementation of a **sand bypassing scheme**. This solution, based on proven technology, will have direct benefits for the ports (less sedimentation) and coastal communities (less erosion). The solution is scalable to multiple West African seaports, experiencing erosion problems. The innovative aspect of this solution is to capture scale benefits by means of a **regional cooperation** between countries and ports by operating combined dredging capacity in a **public-private dredging consortium**. This operation will be principally funded through a **public-private pooled dredging fund** financed by port operators/authorities and other stakeholders. Reduced maintenance dredging costs for the ports will be used to finance sand nourishments to mitigate coastal erosion. If additional funding is required to complete a bypassing scheme, a compensation mechanism will be applied, following the "polluter pays principle" to the amount that the erosion mitigation cannot be funded by other beneficiaries. Key for the success of the solution is the setting up of a robust, independent and regularly evaluated governance regulated by an international institution.

We estimate the preliminary costs of the solution between 63-66.8 M€ compared to 81.1 M€ if nothing is done (due to erosion damage) and 125 M€ for a conventional dredging and sand nourishment approach for each port individually. Our solution becomes more attractive when more ports/countries participate and with growing sediment volumes that are expected in the future for climate change adaptation. As a pilot it seems logical to select 2-3 ports that are relatively close to each other, for example Lomé, Cotonou and Lagos.

The highlights of our solution are:

- **Innovation:** a transnational sand bypass and the proposed governance/financial setup is unprecedented as it aims at applying the "polluter pays principle" for coastal erosion in a mitigated and acceptable way thanks to dredging costs mutualization and optimized coastal erosion management.
- **Feasibility:** sand bypass is a robust, proven technology. Although setting up the transnational dredging consortium is more challenging, successful national benchmarks confirm its expediency: expected cost savings will create the necessary interest to attract local partners.
- **Impact:** sand bypass will have direct results through reduced erosion and port sedimentation. By taking the morphological system as a starting point instead of local ad-hoc 'fixes', we believe that our solution will also have a **long-term positive impact** on coastal dynamics with the restoration of the natural sediment budget.
- **Co-benefits:** cost savings will be achieved through a shared interest between ports and easier access to state-of-the-art dredging technology. Additional co-benefits are involvement of local communities in the implementation of the project, natural habitat restoration and sustainable knowledge transfer.
- **Implementation Readiness:** being based on robust and proven technology with a track record in other countries, the solution is implementation ready. It is scalable in time for upscaling to climate change and in space for including gradually more ports and/or increasing the size of the sand nourishments, which allows the governance structure to be gradually developed within 3-5 years.

