

Introduction

- *Seaport:* Port Autonome de Cotonou
- *Country:* Benin
- *Project title:* Port environmental monitoring platform for invasive species (PPSE)
- *WPSP theme:* Environmental care



Description of the project

The spread of invasive species, an accelerating phenomenon following increasing trade (by sea, rail, road and air), is a major environmental threat with potentially disastrous consequences for the economy, biodiversity, food security, animal and human health. For example, invasive species are responsible for the global spread of diseases (e.g. Zika, dengue, plague, cholera) and have already caused considerable damage to some food and industrial crops in Africa (e.g. fall armyworm and wiped out maize production).

One of the issues explicitly raised by Benin's Biodiversity Strategy 2011-2020, concerned the lack of basic data, and in particular on invasive species present in the country. Following this concern a partnership was developed in 2018 between several research institutes (IRD, CREC, EPAC, IITA), a financial partner (Enabel, Belgian development agency) and the Port Autonome de Cotonou.



The Port environmental monitoring platform gathers scientific pieces of information obtained from field surveys and lab analyses to drive an invasive organism surveillance strategy as well as to make concrete recommendations to port authorities and stakeholders, adapted to economic requirements, in order to prevent new biological introductions via maritime traffic. In addition to these activities, the platform makes it a point of honour to provide training and awareness raising to port stakeholders and policy makers.



For example, field studies have shown that 10% of imported rice bags in the Port Autonome de Cotonou are destroyed or contaminated by invasive rodents, leading to large economic losses. In addition, laboratory studies have allowed for the identification of genetic mutations in rodents that may cause resistance to anticoagulants (active products in raticides), and insecticide-resistance in mosquitoes. This type of results are very useful in guiding future pest management campaigns. In addition, epidemiologic surveys have shown that some zoonotic pathogens circulating in the rodents present in the Port Autonome de Cotonou may have been imported from overseas through maritime trade (e.g. leptospires, hantaviruses), thus putting light on newly identified health risks associated with invasive rodents imported via sea transport.

To our knowledge, this initiative is unique in Africa and places the Port Autonome de Cotonou at the forefront of the quality approach to environmental policy.

Enabel has already planned to financially support the Port environmental monitoring platform the coming years. Simultaneously, a study is conducted on the business model to investigate to what extent the operations of the platform can partially and progressively be taken over by the Port Autonome de Cotonou or other port stakeholders.



Sustainable development goals



Relevant information

- *Press release on the launch of the Port Environmental Laboratory: [La Plateforme Portuaire de Surveillance Environnementale \(PPSE\) est inaugurée | Site Web IRD](#)*
- *Online interactive showcase: <https://view.genial.ly/6059bb3f64e78f0d9cb32a7f>*
- *Video on the origins of the partnership and the objectives of the Port environmental monitoring platform: [2021 - 8e AG AllEnvi - Science de la durabilité - Exemple projet 1 - YouTube](#)*
- *Podcast: [Surveillance environnementale, un laboratoire inédit au port de Cotonou - Afrique économie \(rfi.fr\)](#)*
- *Podcast: [Le port de Cotonou se modernise - Les ports du monde \(rfi.fr\)](#)*
- *Scientific research article: [Molecular prevalence, genetic characterization and patterns of Toxoplasma gondii infection in domestic small mammals from Cotonou, Benin | Parasite \(parasite-journal.org\)](#)*
- *Scientific research article: [Genetic Characterization of Seoul Virus in the Seaport of Cotonou, Benin - PMC \(nih.gov\)](#)*
- *Press release: [La première Plateforme Portuaire publique-privée technique et opérationnelle de Surveillance Environnementale \(PPSE\) | Site Web IRD](#)*
- *Press release workshop 'Raising awareness' March 2022: [L'IRD sensibilise les acteurs de la Plateforme Portuaire de Surveillance Environnementale | Site Web IRD](#)*
- *Article 'The governance of risks linked to biological invasions The example of Benin'*

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