

The Blue Natural Capital Financing Facility (BNCFF) supports the development of sound, investable Blue Natural Capital (BNC) projects with clear ecosystem service benefits, multiple income streams and appropriate risk-return profiles.

This Blue Prints Series outlines the business models and illustrates the investment structure of a selected number of Nature-based Solution (NbS) projects. See [here](#) for other Blue Prints.

WASTE MANAGEMENT AND MANGROVE PROTECTION: A CIRCULAR ECONOMY APPROACH

Example: BVRio (Guanabara Bay, Rio de Janeiro, Brazil)



Problem and practice so far

Iconic Guanabara Bay is where Rio de Janeiro opens onto the Atlantic Ocean. It is home to 53 beaches over an area of over 4,000 ha, including thousands of hectares of mangroves and forests supporting over 15,000 fishermen. However, it is also one of the most polluted bays in the world resulting in the degradation of coastal habitats, in particular mangrove habitats, causing the death of wildlife such as turtles through the ingestion of plastics, and threatening coastal fresh water supply and the communities dependent on it. It also has detrimental impact on the diversity and volume of fish stocks. Much of the pollution is solid waste released into the bay and kept there to rot in the open.

Thousands of independent waste pickers, known as *catadores*, work in the margins, catchment and tributaries of the Guanabara Bay. It is estimated that there are 800,000 independent catadores in Brazil. Since 2001, the government of Brazil has set up a structure under which most catadores are organised in cooperatives to support their economic development. Today there are 1,100 waste collector cooperatives in the country. The cooperatives operate independently of each other and each negotiates its own services agreements with municipal agencies and companies. Service terms are often disadvantageous for cooperatives, a problem exacerbated by heavy competition among cooperatives and the structural lack of resources (capital, logistics, etc.), which makes them all too dependent on their clients. Waste pickers represent one of the most marginalised and exploited social groups among the urban poor.

Blue Natural Capital solution

This Blue Natural Capital solution seeks to protect and restore the natural ecosystems of the bay by removing waste for recycling and controlled discharge.

The project will train and engage local waste-picker cooperatives to recover plastic from the bay and to access funding through a newly established plastic credits market. This market issues tradable credits

for the recovery of plastic waste and other materials from coastal waters for recycling and controlled discharge. The credits are bought by companies interested in reducing their plastic footprint and meeting their environmental obligations under the law. The revenues from the credit sales are released to the cooperatives, which in turn provide for income payments to individual catadores and their families.

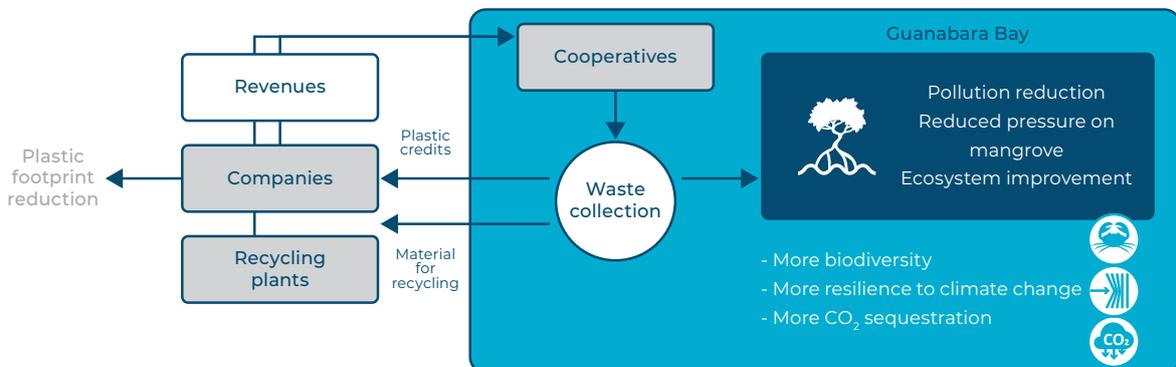
BNC business model

The project promoter BVRio, a non-profit organisation with wide experience using market mechanisms to promote sustainable development, has led a project pilot during the years 2013-2016, which issued the first waste recycling credits worldwide, then referred to as “reverse logistics credits”.

This pioneering program led to the creation of the 3R Initiative, developed in cooperation with Verra and corporate partners Danone, Nestle, Tetra Pak as well as NGOs and academia. The 3R Initiative is designing a plastic market tool, backed by rigorous methodological work, for buyers and sellers of the environmental services related to the collection (recovery), sorting and appropriate destination of recyclable waste materials that pollute the environment, such as Guanabara Bay in Rio.

Through the use of credits, interested parties (the buyers – e.g. companies, individuals, projects) will compensate their waste footprint by effectively subcontracting the services delivered by the sellers (e.g. projects, waste pickers associations, etc.). According to the business model proposed, the project will be economically self-sufficient in two years.

To attain economic self-sufficiency, the initiative relies on two revenue streams to finance its activities. The first stream will come from the sale of collected physical waste, which will include all types of waste recovered from the bay (glass, metal etc.). BVRio has already reached out to recycling plants in the region for this purpose. A US\$ 250 revenue per waste tonne is foreseen.



The second revenue stream will come from the sale of plastic credits (where one credit will be equal to an agreed amount of plastic recovered). Credits will be sold to corporations as a voluntary means to reduce their plastics footprint (e.g., Reflexa, Nestle and others). These revenues will generate additional income for the waste pickers. The project foresees a floor price of US\$ 50 per plastic credit (which corresponds to a tonne of waste recycled). A price of US\$ 100 is deemed realistic by BVRio.

During the pilot phase, more than 100 waste picker cooperatives collected and sold over 1,500 tonnes

per year of waste and associated “reverse logistics” credits, increasing their revenues by more than 30%. A similar revenue increase is expected from the Guanabara Bay Circular Action Project, with the project aiming to collect up to 35,000 tonnes of waste per year.

BVRio will deduct a coordination fee from the sale of credits, which will be used to cover BVRio’s costs and to pay for monitoring activities by the research team of the Rio Federal University.

Blue impacts and safeguards

This solution expects waste collection in the order of 30,000 tonnes of plastic and other waste per year, with considerable positive impacts for the natural coastal environment, in particular mangrove forests. The project comes with a strong research and monitoring component to verify results and impact on the bay’s ecosystem. The project will also have positive effects on the participant catadores general income, by negotiating with solid waste buyers and interested companies to ensure fair prices are paid. Furthermore, the project may indirectly favour fishermen and women communities, if the

improvement in the ecosystem and water quality on the bay results in increasing fish stocks and better water quality.

To mitigate environmental risks associated to waste collection activities that may damage the natural habitats, capacity building will be provided to waste collectors on the use of appropriate tools and practices. BVRio will also use its experience in facilitating cooperation among the more than 30 cooperatives involved to reduce the governance risks.

Blue stakeholder roles and needs

The project involves a set of public and private stakeholders:

- **Catadores cooperatives** waste picking organised groups that make a living of collecting recyclable materials in the streets, rubbish dumps and landfills of Brazil. Catadores are important actors in the waste management chain, however due to the high operative costs, waste sales are often conducted through intermediaries or disadvantageous contracts resulting in poor cashflows, low prices and insufficient income.
- **Manufacturing and importing companies** seeking to reduce its plastic footprint and complying with environmental obligations. Insofar, three companies have expressed interest in the plastic credits concept promoted by the 3R Initiative: Nestle, Danone and Tetra Pak. More interest and participation from Brazilian companies is expected.
- **Local Recycling plants** seeking to increase their capacity, which have already formally expressed their interest. Other recycling plans approached by the promoter or already associated with the cooperatives may also participate in the project.



- **Rio de Janeiro Federal University (UFRJ) Fisheries Biology and Technology Lab** will assess, monitor and evaluate the scale and

impact of clean-up activities as well as indicate specific areas of the bay where the conservation activities are most urgent.

Blue investment structure

BVRio developed the “Circular Action Hub” as an innovative platform that works as a market place and online negotiation platform for local environmental projects that wish to present their solutions and/ or offer their environmental services in exchange of funding from donors or companies willing to reduce their plastic or other waste footprints.

For financing the project’s early stages, BVRio will use the Circular Action Hub and an alternative crediting mechanism (Circular Credits) which builds on the ‘reverse logistics’ crediting mechanism it operated in Brazil during the pilot project in 2013-2016 and input from industry partners. However, additional funding is needed to set up the project that is to be launched in 2021.

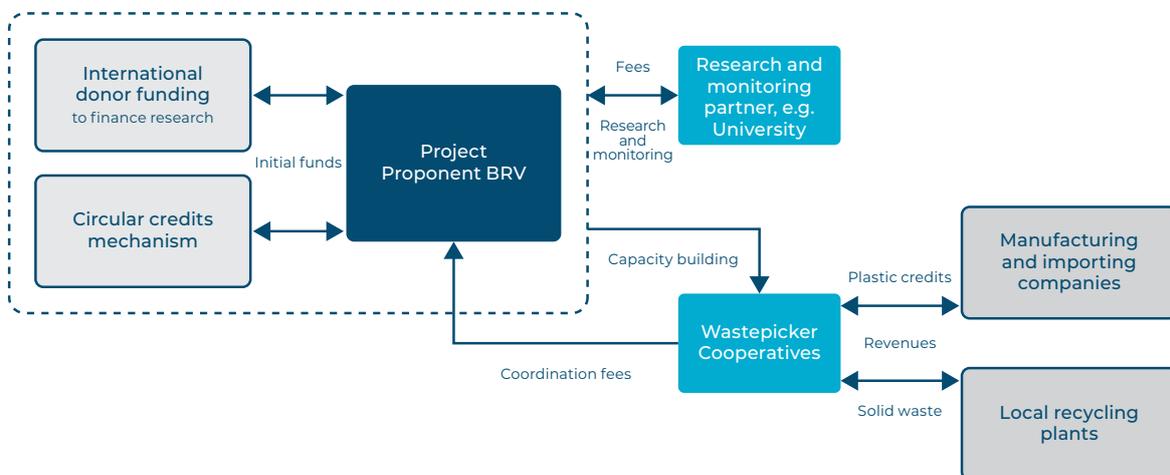
BVRio is also exploring ways to finance the research and monitoring activities to be carried out by the UFRJ. The UFRJ will assess pollution levels, determine the effects on mangroves, and map waste pollution levels within the bay and identify the places where clean-up activities should be prioritised. Additionally, in this first stage, BVRio will also invest in a capacity building training for the selected cooperatives to ensure the correct use of

tools and minimise the impact that clean-up actions may have on the ecosystem.

At a second stage, the waste collected will be sold per tonne to recycling plants on the basis of harmonised terms and prices negotiated with the help of BVRio. The project proponent has already reached out to plastic recycling plants in the region.

The environmental service of collecting waste and disposing of it appropriately will be translated in “plastic credits”, which in turn will be commercialised and sold to the interested companies. Corporates such as Nestle, Reflexa and Danone are all already using plastic credits to reduce their plastic waste footprints. Reflexa has agreed to be the first buyer of plastic credits.

The resulting revenues of both activities will be used to cover the operative costs to make the project sustainable in the long term. This includes the coordination fees of BVRio and the cooperatives’ net revenues. The cooperatives’ revenues in turn will be distributed among the waste collectors. The project proponent foresees reaching economic self-sufficiency within two years.



Blue scalability and replicability

Very good replication potential exists in several locations in the same region as well as on a global scale.

Practical tips

By generating an additional income stream from plastic credits, which are based on the weight of collected solid waste materials, the initiative makes the collection of low priced waste such as aluminium cans and plastic materials more attractive for the

cooperatives. Furthermore, the collaboration with a scientific entity such as the Rio de Janeiro Federal University can materially enhance the impact potential by identifying the bay areas where the collection activities are most relevant.



Since its launch in 2018, the BNCFF has become a global brand name in Ocean Impact Finance. After screening over a hundred proposals, it is presently supporting 8 blue Nature-based Solutions pioneer projects with grant funding.

<https://bluenaturalcapital.org/supported-projects/>

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