



European Consulting Engineers' contribution to  
Sustainable Development and a Greener Economy  
**In low and middle-income countries**

# A lifetime commitment to development

As one of the European industries with the strongest presence and longest track record in low and middle-income countries, we have been working for decades with European development institutions in bringing prosperity to these regions. It's time to take a big step forward in promoting a more sustainable and greener growth.

This document showcases European Consulting Engineers' capabilities to contribute to the 2030 Sustainable Development Agenda and the external dimension of the European Green Deal, by preparing climate-friendly public and private investment projects and introducing new solutions, management processes, and innovative practices that accelerate the achievement of SDGs.

# Consulting Engineers as “Sustainable Investments Catalysts”

WHAT  
WE  
CAN  
BRING

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**Identifying new public and/or private investment projects** that contribute to a green economy and better achievement of the SDGs.



**Attracting private sector investment** by preparing investment projects and tenders with the highest environmental, social (gender) and economic standards, and by promoting the necessary sector and institutional reforms.



**Introducing technical solutions and management practices** that improve the Project's design, quality, timing, sustainability, innovation, impact, scale and/ or resilience of projects (climate change, pandemics or biodiversity ...), accelerating in turn the achievement of the SDGs.



**Assisting in project implementation and building local capacities** through knowledge sharing tools and training activities, and therefore promoting European and International best practice.

What we need

# TO CREATE MORE IMPACT

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...and not leave  
anyone behind



**Well defined bankability criteria** within EU Development Financing Institutions in order to accelerate green investments.



**More funds allocated to “Project Preparation” and “Capacity Building”** resulting in more tenders managed by EU Development Financing Institutions.



**Streamlined European environmental, social, health and safety standards** to promote an “EU branding”.



**Better communication and visibility of EU development funding and contract opportunities** to improve accessibility to developing and emerging markets, particularly for SMEs.

# 5 SDGs are directly related to our business activity



WE ASSIST  
GOVERNMENTS,  
INSTITUTIONS  
AND COMPANIES  
APPLY AND  
IMPROVE SDG  
INDICATORS



## Clean water and sanitation

Access to WASH, land remediation, spills, sustainable water withdrawals, water efficiency, water quality, water recycling and reuse, water related ecosystems and biodiversity, water risk management.



## Affordable clean energy

Electricity access, electricity availability and reliability, energy efficiency, resilient infrastructure investments, renewable energy, energy consumption.



## Industry, innovation and infrastructure

Infrastructure Investments, R&D and intellectual property, technological legacies, capacity building, economic value.



## Sustainable cities and communities

Access to affordable housing and public spaces, cultural heritage, disaster emergency planning and response, infrastructure investments, noise, sustainable buildings, sustainable transportation, ICT networks.



## Climate Action

Energy efficiency and use of renewable energy, GHG emissions, resilience to climate events, energy consumption, circular economy criteria.



# Improving sanitation services and introducing new financing mechanisms in Egypt

## Sustainable Rural Sanitation Services Program (SRSSP)

The SRSSP program enhances rural sanitation services and strengthens institutions and policies to increase access in Egypt's Delta Governorates of Beheira, Dakahlia and Sharkeya.

### Services provided by GOPA Consulting Group:

- Improving sanitation access for up to 1 Mio people from rural villages.
- Improving operational systems and practices of the local Water and Sanitation Companies (WSCs) to enhance sustainability of service delivery.
- Strengthening national framework of the sanitation sector.
- Innovative disbursement by strengthening the country's systems and directly linking the disbursement of funds with the results.

### RESULTS

*Within three years more than 50% of the Program Funds have been disbursed. Based on the success of Phase 1, a second phase with similar volume has been launched and Phase 3 is already under preparation making it the biggest sanitation project in Egypt.*





# Transforming emergency support into sustainable water supply

## UNICEF WASH Programme in Ethiopia

Building the capacity of the water utility to sustainably operate and maintain the water supply system for refugee camps and the host community.

### Services provided by Sachsen Wasser

- Financial, technical, commercial, institutional, HR and management training.
- Fostering and coordinating networks and partnerships with and between stakeholders (UNICEF, UNHCR, local and government authorities, KfW, NGOs, different tribe representatives).
- Implementing financial, commercial and technical policies and processes to operate and maintain the water supply system.
- Assisting the Management Board with Governance.
- Ad-hoc operations and maintenance support.

**Location:** Ethiopia, region of Gambela (border at South Sudan)

**Countries of similar interventions:** Kosovo, Tadjikistan, Kenya

### RESULTS

- *Improved (continues) water supply.*
- *Long lasting solutions for both refugees and hosting communities.*
- *Equity in terms of distribution of services for access to (water) resources.*





# Improving access to clean water in coastal cities of Mozambique

## Mitigating the effects of flooding in Beira

Beira the second city of Mozambique has traditionally had drainage problems that result from being at a very low level in relation to the sea level, preventing drainage in periods of high tide and suffering salty water invasion. This situation is being aggravated by the extreme weather events produced by climate change.

### Services provided by the TPF/FASE Consortium

- Design and Supervision of the construction of a solution that included the recovery and enlargement of the existing channels, new channels and retention basin as part of a first step to solve this problem.
- Technical assistance in the start-up and training of the exploration team in the use of the automatic system of floodgates that control the drainage system.

### RESULTS

- *Improved operation in current and high rainfall situations.*
- *Improvement of exploration and maintenance management.*
- *Increased resilience and sustainability in the face of ongoing climate change.*





# Ensuring Water Quality by using Monitoring & Evaluation Systems

## Assisting Water Authorities in complying with the EU Water Framework Directive

### Main objectives

- Design and operate a detailed monitoring network in all surface water bodies (rivers, lakes, transitional and coastal waters) of the water basins examined.
- Assess ecological and chemical status of surface water bodies.
- Disseminate knowledge and provide capacity building services to river basin authorities, ministry officials and Biological Quality Element (BQE) experts through targeted seminars and fieldwork sessions.
- Develop a GIS based database system for data storage and processing.

### Countries of intervention

Turkey (Büyük Menderes basin), Cyprus (all water basins) and Greece (Epirus, Thessaly and Western Central Greece Water Regions).

### ENVECO S.A.'s contribution

- Monitoring Programme Design and Implementation.
- Organise and deliver specialised training sessions.
- Assess surface water quality.





# Attracting Private Sector Investment to Solar Energy Projects

## Preparing sustainable solar energy investments for the *Scaling Solar Program*

### Scaling Solar Program

A one stop shop for affordable solar power, making privately funded grid connected solar projects operational and competitive within two years. It offers advice, simple and rapid tendering, financing and insurance, risk management and credit by the World Bank (IFC).

### Services provided by TYPESA

Technical, social and environmental studies. Production of bankable documents and tenders to attract private investors to low income, fragile and conflict affected states.

### Countries of intervention

Madagascar, Sri Lanka, Bangladesh, Uzbekistan and Kosovo.

### RESULTS

*Increased solar energy generation capacity (900 MW), enhanced distribution networks, storage options, private investment attracted (700 M\$).*



Image of [www.typsa.com](http://www.typsa.com)



# Providing Sustainable Energy to refugees in Zaatari Camp, Jordan

## Enabling access to energy in low income, fragile and conflict affected areas

Building a 13 MW Solar Photovoltaic (PV) power plant in Zaatari Refugee Camp, 10 km east of Mafraq City, in Jordan.

### Services provided by GOPA Consulting Group

- Review of concept design, solar and meteorological data, environmental and grid impact studies.
- Bid evaluation.
- Contract negotiations.
- Construction supervision, commissioning and acceptance tests.
- Supervision of O&M and EHS management.
- Training measures for MEMR staff.

### RESULTS

*The project contributes to a sustainable power supply for refugees and to increase resilience of the regional distribution network following the influx of refugees to Northern Jordan.*





# Providing access to affordable and clean energy in Rural Zambia

## Piloting mini grid projects to serve 1 M people in rural areas

NTU International provided Technical Assistance services to support Zambia's Rural Electrification Authority (REA) in the preparation and operation of renewable energy powered mini-grid demonstration projects, the development of financial and technical models to ensure the long-term sustainability of the projects and provision of Renewable Energy schemes that can be easily replicated throughout the country.

The project also delivered training and other capacity building activities to strengthen REA's capacity in the preparation of mini-grid investment feasibility studies, as well as in the use of project management tools and models.

The project will contribute to achieving the Global Sustainable Development Goal of ensuring access to affordable and clean energy (SDG 7) and 1 million people in rural Zambia will have access to power.





# Supporting the transition toward a cleaner energy mix and grid stability in Senegal

## Increasing the renewable energy production capacity

Building an 11 Solar Photovoltaic (PV) power plants and hybrid systems in remote areas of the country.

### Technologies

Photovoltaic (PV), utility scale Battery Energy Storage Systems (BESS), off grid power generation with hybrid systems (PV/BESS/Diesel HFO).

### ILF services provided

Full technical & financial feasibility studies, grid stability studies, Owner's Engineer (tender design, site supervision during construction and commissioning), technical advisory services, Environment and Social Studies, support during O&M phase.

### RESULTS

- *Total installed capacity : > 150MW.*
- *Replicability in most countries in Africa.*



PV power plant Diass. Picture: ILF



Hybrid system Saloum Islands. Picture: ILF



# Renewable Energy and Energy Efficiency Programme in Mekong

Preparing early stage financing projects to catalyse private sector investment

The Ministry for Foreign Affairs of Finland (MFA) and the Nordic Development Fund sponsored the Energy and Environment Partnership Programme with the Mekong Region (EEP Mekong), comprising Cambodia, Myanmar, Thailand and Vietnam.

NIRAS has been supporting the implementation of the Programme since 2009 and improving livelihoods and climate resilience of rural communities.

- 8** Calls for proposals.
- 55** Waste to energy, biogas, biomass, solar, and hybrid projects funded.
- €29M** In total (private & project) funding.
- 3.6** Funding leverage ratio.
- 7 MW** Annual renewable energy capacity created in the form of biogas and electricity.
- 141.8K** Tonnes of CO<sub>2</sub> eq emissions avoided annually.
- +250K** Benefitted from projects funded or partially funded by EEP Mekong, particularly through increased access to energy and skills training.



# Enhancing innovation networks and facilitating cross-border collaboration in Southern Africa

## Contributing to the growth of new businesses through strengthened innovation ecosystems

The Ministry for Foreign Affairs of Finland (MFA) funded the Southern African Innovation Support (SAIS) Programme that contributes to the growth of new businesses through strengthened innovation ecosystems and sharing of good practice among innovation role players in the SADC region (Botswana, Mozambique, Namibia, South Africa, Tanzania and Zambia).

NIRAS has been supporting the implementation of the Programme since 2011 and in the current phase it focuses on promoting early stage entrepreneurship related to innovation systems.

- 21** Transregional projects funded to date
- €1.4M** In funding dispersed to date
- 700** Start-ups participated in 20 BOOST UP events in 5 markets
- 60** Business mentors trained in South Africa, Zambia and Botswana





# Improving Railway Safety and Private Sector Participation in Vietnam

## Strengthening the railway sector with focus on resilience and climate change adaptation

### The railway sector reform in Vietnam

With ageing infrastructures, the railway sector is performing well below potential. An important reform is taking place since 2005 with the definition of a legal framework for investments and rules on railway safety.

### Services provided by SYSTRA

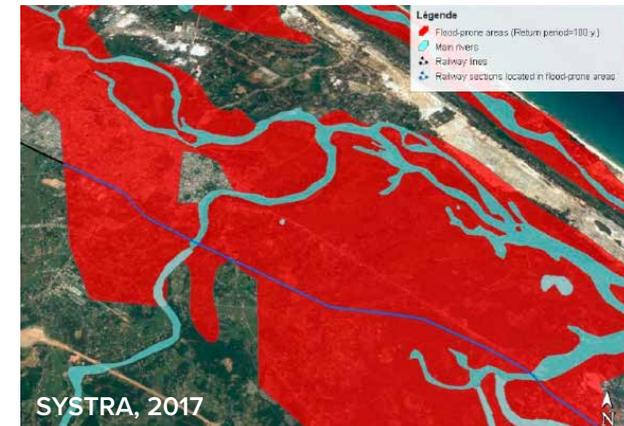
Technical assistance in increasing Private Sector Participation, analysis of resilience of railway and linkages with climate change, definition of a road map for railway project pipeline.

### Focus on resilience and climate change aspects

Current standards and guidelines, disaster risk management, international best practices, lessons learned on incorporating climate change measures.

## RESULTS

*Railway capacity, demand, charges, fees and prices, Methodology for railway projects investments, Recommendations for the climate change in the railway sector, Railway projects pipeline.*





# Clean Economy transition in Kosovo

## Support to the decommissioning process of Kosovo Thermal Power Plant

### Services provided by Sweco GmbH:

- Capacity Building for the Stakeholders in Kosovo for Clean Up of Technological Legacy at a Coal Gasification Plant.
- Planning and Tender Preparation for the Dismantling, Demolition and Rehabilitation Works at the Industrial Ruin at Kosovo A Thermal Power Plant to prepare Grounds for a new Industrial Economic Area.
- Planning of a Hazardous Waste Storage Facility as the Logistic Centre for the Hazardous Waste Economy in Kosovo.

### RESULTS

*Topographical Survey, Inventory List of all Buildings and Structures, Inventory List of Contaminants, Work Plan, Tender Dossier for all Works.*



# Chisinau Green City Action Plan

## Environmental & Social mainstreaming in the city of Chisinau, Moldova

Strengthening the City’s planning capacity to systematically address key environmental issues, by using a strategic approach towards a green city action plan for a city, while integrating environmental and social considerations and stakeholder participation in the selection of projects and investments.

ARCADIS participated in the development of the Green City Action Plan in line with the Methodology developed by EBRD together with the Organisation for Economic Co-operation and Development (“OECD”) and International Council for Local Environmental Initiatives (“ICLEI”).

ARCADIS and its partners developed an environmental baseline based on existing data, identified priority areas and assessed potential actions. In addition, the team reviewed planned initiatives and investments, assessed their current stage and feasibility and recommended next steps.

The Green City Action plan for Chisinau is being used as a basis for investment prioritization for sustainable development of the city.

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# Refurbishment of Public Buildings in Ukraine

## Development of rehabilitation concepts for schools, kindergartens, hospitals, home for displaced people

### Services provided by Sweco GmbH

- Assessment of 7 different public buildings like schools, kindergartens, hospitals, home for displaced people, development of rehabilitation concepts under consideration of sustainable future usage.
- Investigate alternative solutions for energy efficiency improvements, technical coordination with public utilities.
- Preparation of bills of quantities (BoQ) for the measured to be taken, participation in tendering process.
- Preparation of construction schedules, construction site supervision for quality assurance (QA), clarification of technical questions during construction.
- Verification and approval management for invoicing of the contractors.

### RESULTS

*7 buildings/objects are modernized and temporarily utilized to host internal refugees, the objects are prepared for sustainable usage by public institutions in future.*

### Exemplary illustration

Source: <http://eeim.org.ua/wp-content/uploads/2014/09/Pilot-Project-Energy-efficient-refurbishment-of-school-No11-in-Chernihiv.pdf>





# Improving Air Quality and Raising Public Awareness in Turkish Cities

## Supporting the CITYAIR Programme in line with CAFE Directive

CITYAIR improves air quality in Turkish cities by involving citizens through public awareness campaigns.

The Programme enhances air emissions management and the technical capacity for clean air action planning and modelling of air pollution in selected cities and provinces.

### Activities performed by AESA

- Improve the capacity of the air emissions inventory system, including the use of tools for Air Quality (AQ) management together with Air Quality Model (AQM), GIS and other software tools. AQM is a powerful computational tool that translates atmospheric science principles to policy scenarios. AQM will help the attainment of the Turkish Ambient Air Quality Standards.
- Update the Clean Air Action Plans for 31 cities located in the South Inner Anatolian, Aegean, Mediterranean and the Middle Black Sea regions of Turkey.





# Revitalising Public Urban Rail in Cali

## Integrating Colombia’s “Valley Transit Train” with other transport modes

The “Tren de Cercanías del Valle” (TCV) project in Colombia aims at revitalizing the existing regional railway system in order to convert it into the public transport backbone of the region to be integrated with other public transport existing modes; development of a Transit Oriented Development approach in line with the Corredor Verde project; tackling the development of private cars and motorcycles; providing accessibility to existing and new communities.

### Services provided by SYSTRA

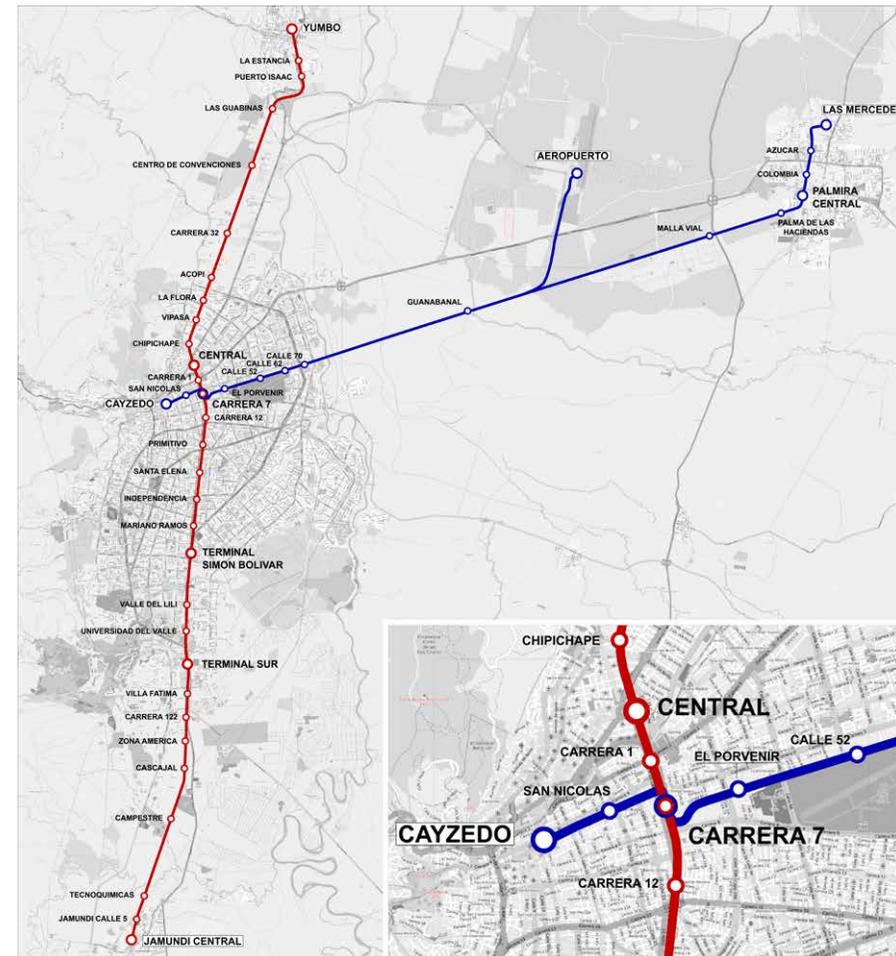
Prefeasibility study including strategic diagnosis, traffic forecast, transport mode and network definition, preliminary operation plan, systems and infrastructures studies, socio economic, financial and environmental studies.

### Main figures

2 tramway lines: Yumbo Jamundí (37,7 km and 31 stations) and Cali Palmira (33,8 km and 16 stations); 240.000 passengers per day in 2055.

### RESULTS

- Commitment from the local authorities to move on with the project.
- Feasibility study in 2020.
- Project commissioning from 2025 SYSTRA, 2019.





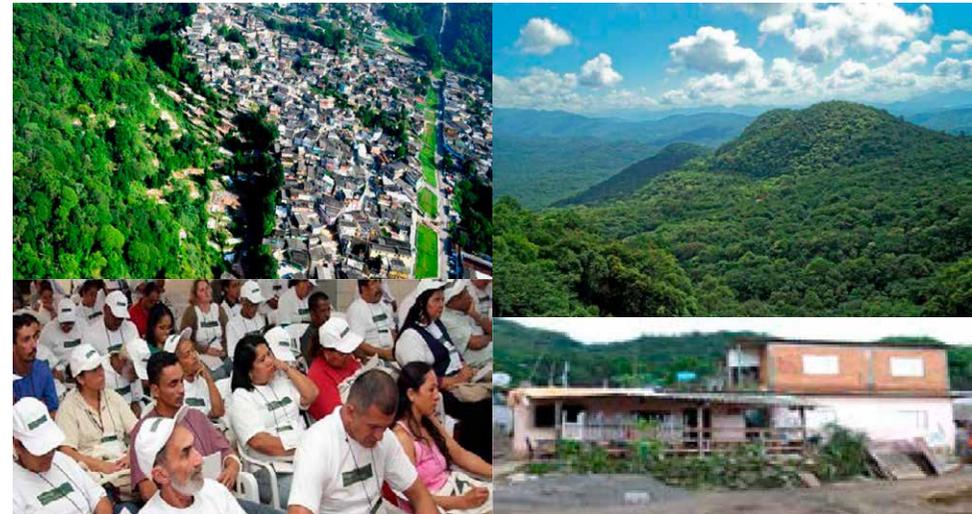
# Serra Do Mar Urban Recovery Programme in Sao Paulo

## Integrating social, environmental, economic and governance aspects in city planning

The Companhia de Desenvolvimento Habitacional e Urbano do Estado de Sao Paulo is implementing the Serra do Mar Program in Southern Brazil. PROINTEC is supporting the Management Unit in training, coordination, social, environmental and financial management, procurement, technical support and monitoring of planned actions.

The Program promotes the conservation, sustainable use and socio-environmental recovery of the Sierra de Mar natural habitat in the State of São Paulo, generating social and ecological benefits and promoting the effective protection of biodiversity and springs supplied by the metropolitan region of São Paulo and the Baixada Santista.

- Urbanized neighborhoods with drinking water and sanitation.
- 17 thousand hectares (ha) of recovered biodiversity.
- Improvement of Cubatão River water quality indicators in order to benefit 1 M people.
- Total households benefited: 7,556 (6 population centers).
- Social workshops: 41.
- Resettled homes: 4,853.
- Urban art, solidarity economy and local development.
- Environmental education and community-based tourism.



# Investment Strategies to improve Coastal Safety in West Africa

## Calculating the cost of Coastal Environmental Degradation

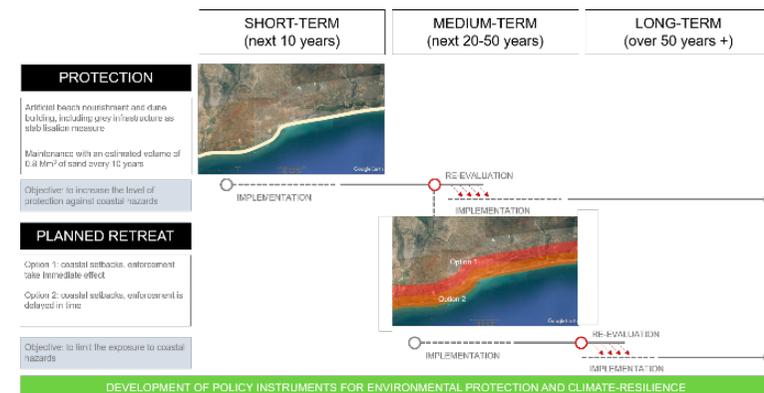
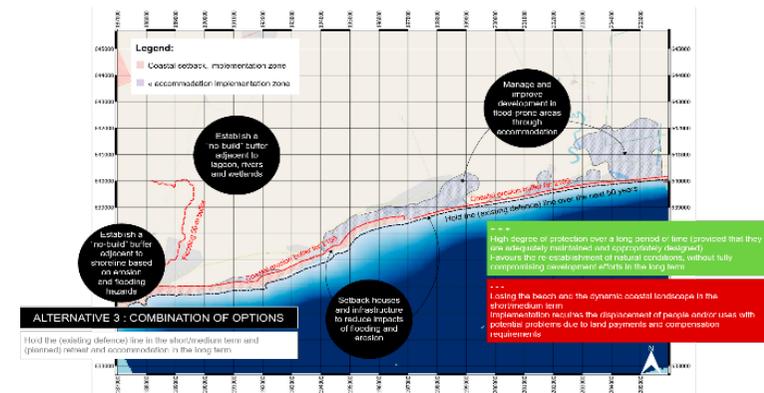
The World Bank and the Nordic Development Fund are financing the West Africa Coastal Area Adaptation Project (WACA). Its components include a scenario-based multi-hazard risk assessment that comprises modelling, the quantification of the cost of coastal environmental degradation, and the comparison of possible Disaster Risk Reduction and Climate Change Adaptation measures in a Cost Benefit Analysis.

### Services provided by TRACTEBEL Group

Vulnerability and Risk Assessment, a methodology to quantify the cost of coastal environmental degradation integrated into GIS mapping and visualisation and project preparation: Development of disaster risk reduction (DRR) and climate change adaptation (CCA) measures for each pilot site recognising a variety of priorities in cross cutting dimensions.

### RESULTS

*The development and the application of this new framework in select hotspots and development of strategic investment plans for four pilot locations in Ghana, Togo, Benin and Ivory coast. Results were presented and discussed during workshops and promoted through reports, brochures and a policy brief.*



SYSTRA, 2017



# Climate adaptation and urban planning in Madagascar

## Incorporating resilience into National policies

Madagascar is particularly prone to cyclones, flooding and torrential rainfall, and with urban development progressing at a rapid pace and increasing areas of land being given over to agriculture, it is considered as the world's 7th most vulnerable country to climate change (according to the Global Climate Risk Index for 2019). Due to their high population growth rates, of close to 5% per year, the country's cities are particularly exposed. Governmental authorities have decided to take action. Adaptation is now a key component of sustainable regional planning and local authorities are required to build these capacities in this area in order to implement measures geared to each specific urban context.

### Services provided by Artelia

The AFD (French Development Agency) commissioned Artelia with an assignment consisting in providing assistance to the Malagasy Ministry of Regional Planning to work towards these goals.

- Producing a guide to assist the technical, administrative and political officers concerned.
- Applying the methodology in four pilot towns in Madagascar Antsiranana Fianarantsoa Toliara and Antsirabe.
- Making the necessary updates to urban planning laws and regulations.
- Training the key institutional and operational players.





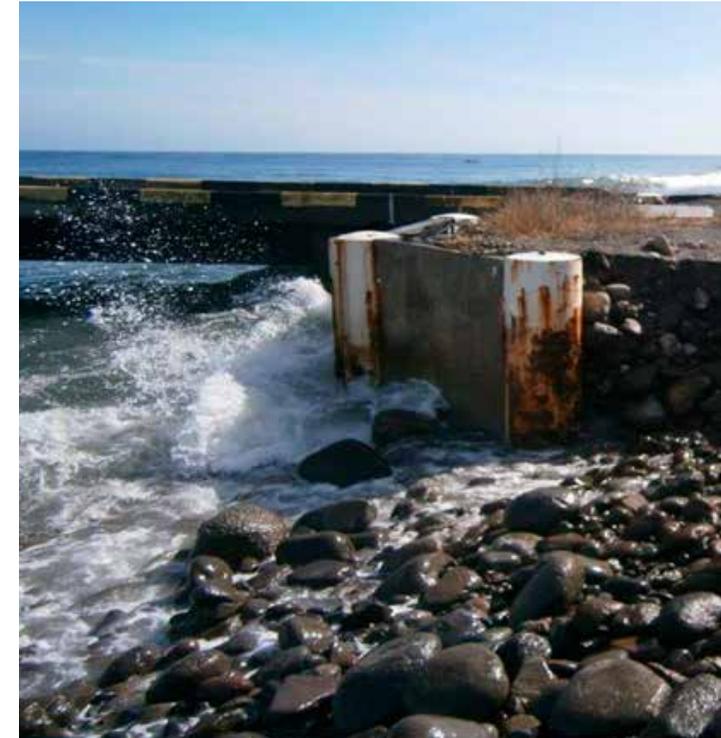
# Building Resilience in Papua New Guinea's Ports

## Incorporating climate change considerations in the Port Authority's operations

NTU International is supporting PNG Ports Corporation Limited (PNGPCL) and the Climate Change and Development Authority in the development of an enabling framework through which climate change interventions can be incorporated into the routine business activities of those charged with developing and maintaining coastal assets. In addition, NTU International is supporting PNGPCL in establishing an enabling framework to strengthen the design, construction, operation, and maintenance of selected ports/wharves/jetties and associated infrastructure.

This will improve the resilience of the vulnerable social and economic support systems and address climate change impacts, by climate-proofing the existing critical infrastructure which affects approximately 13,000 inhabitants of the 21 vulnerable islands.

The project will establish the modalities to integrate climate change risk management into the day-to-day operations of PNGPCL and other agencies responsible for operating and maintaining coastal assets. The outcome of this project will become a model to replicate and build-on for other key maritime infrastructure authorities or agencies in Papua New Guinea (PNG) and will contribute to the efforts of combating climate change and its impacts.





# Enhancing Resilience of Hydro Power Assets in Brazil

## Assisting in the testing phase of using sector resilience guidelines in a 3,750 MW power plant

The International Hydropower Association (IHA) produced guidelines to evaluate the resilience of hydropower assets to climate change. TRACTEBEL assessed the applicability of those guidelines before they are released for use by the hydropower community.

- Applying the guidelines to analyse the potential climate change impacts on the Jirau HPP, located in Madeira River, tributary to the Amazon River, state of Rondônia, in northern Brazil.
- Provide general comments and feedbacks on the applicability of the methodology proposed in the IHA guidelines.





# Strengthening Irrigation Systems in Uzbekistan

## Modernising, rehabilitating and increasing the resilience of irrigation in Bukhara and Navoi Provinces

Irrigated agriculture accounts for 90% of agricultural production and over 40% of employment in Uzbekistan and remains a key economic sector. The Amu Bukhara Irrigation System (ABIS) was built in the 1960s and 1970s to supply water to over 315,000 ha of irrigated land, cities, settlements, and industries in Bukhara and Navoi Provinces. The system has been in operation far beyond its economic life. Its declining pump capacity and risk of catastrophic failure limit agricultural production and endanger rural livelihoods. The population within the command area is about 1.8 million – 68% live in rural areas and fully rely on irrigated agriculture, including around 6,500 farmers who are dependent on agriculture activities with the support of 145 water consumers' associations (WCAs) in the ABIS.

The 500 million \$US Rehabilitation Project will address irrigated agriculture and water resources management issues. TRACTEBEL supported the implementation of four outputs:

- Modernisation and rehabilitation of obsolete and energy-inefficient pump stations;
- Increased conveyance efficiency in ABIS main canal;
- Increased climate change adaptation capacity;
- Efficient project and irrigation system management.



# Let's do more together!

For a **green, digital** and **inclusive** future

