RISK AWARD

Best project proposals 2021
Eco- and nature-based solutions for disaster risk reduction

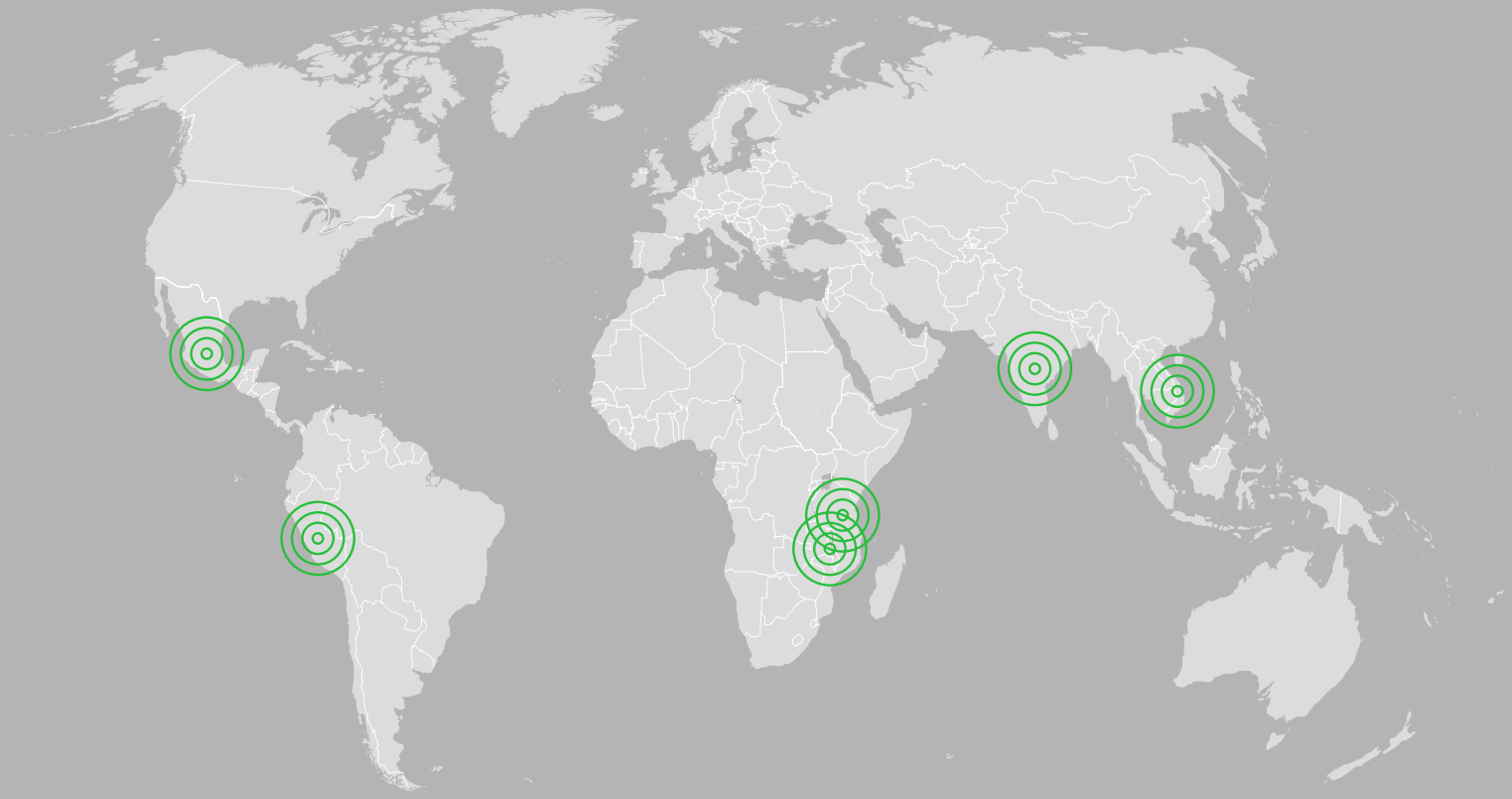
Munich Re Foundation
From Knowledge to Action

UNDRR
UN Office for Disaster Risk Reduction

Contents

Title image: A woman, member of the Hai Duong commune, is planting mangroves to protect the coastline of her community.

The map shows the six countries from which the best project proposals 2021 reached us. These are: India (x2), Malawi, Mexico, Peru Tanzania, Vietnam.



Eco- and nature-based solutions for disaster risk reduction

Conserving nature. Protecting climate. Saving lives.

A reef provides a habitat for hundreds of animals and plants. At the same time, it protects the coast behind it. Around 90 % of the energy from storm and tidal waves can be absorbed by reefs. Here it is very clear how this ecosystem contributes to disaster risk reduction. Forests, with their widely rooted trees, literally hold the soil in place. They protect against erosion, avalanches, and landslides. Their canopy provides shade and can mitigate heat waves. Like reefs, they also provide shelter for a variety of creatures. At the same time, both ecosystems provide natural CO2 sinks. They can therefore serve disaster prevention, biodiversity conservation and climate protection at the same time.

Besides these very obvious nature-based solutions, however, there are many other approaches. Some of them are not immediately obvious to the reader. Nevertheless, niche approaches can also hold promising scaling potential. We were on the lookout for this variety of innovative ideas with our 2021 RISK Award call. We received 47 applications from 24 countries around the world. We would like to express our sincere thanks to all the submitting institutions.

In this publication you can read more about seven outstanding project proposals. These seven proposals received the highest rating scores of our international jury. The project owners and the ideas behind the approaches are as varied as our nature. We wish you a pleasant read.

Christian Barthelt
Senior Projectmanager
Munich Re Foundation

Centre for Social Research and Development (CSRD),
UP Transfer GmbH at the University of Potsdam

Thua Thien Hue, Vietnam

Winner 2021 RISK Award

Strong Roots, Strong Women: Empowering women for community and coastal ecosystem resilience in central Vietnam

‘Strong Roots, Strong Women’ uses Eco-DRR to empower women for community and coastal ecosystem resilience in central Vietnam. Key activities include the establishment of a community-run mangrove nursery as well as capacity-building and awareness-raising through lively theatre plays performed by members of the local Women’s Union.

Top: Women selling seafood at a local market in Hue city. Mangroves provide important nursery and breeding habitats for many aquatic species.

Bottom: Planting of mangroves by members of Hai Duong commune in 2018.

Thua Thien Hue is a coastal province in central Vietnam facing chronic stress from flooding. This was highlighted in October 2020, when at least 178,000 homes were flooded in central Vietnam. Women, who commonly face disadvantages in the social, cultural and political domain as well as in terms of legal status and opportunities, are especially vulnerable to climate-related hazards and environmental change.

At the same time, as important managers of local natural resources and livelihoods, they have the knowledge and capacity to build community resilience. 'Strong Roots, Strong Women' aims to empower women for community and coastal ecosystem resilience jointly with key stakeholders. To this end, we aim for establishing a community-run mangrove nursery at Southeast Asia's largest lagoon, which is linked to an innovative micro-credit fund supporting women. Mangroves can help not only to reduce flood risks and coastal erosion, but also to generate multiple social, ecological and economic co-benefits that support those directly depending on local natural resources.

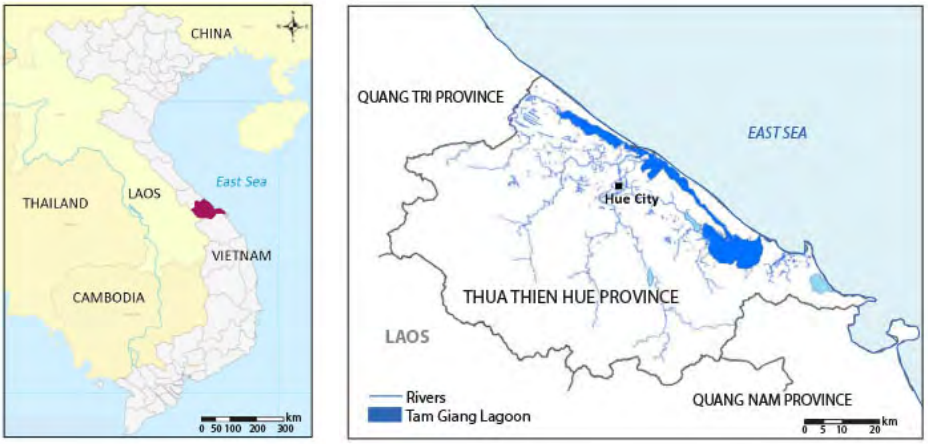
The mangrove nursery will provide direct income from Eco-DRR to vulnerable groups and links to provincial policies that recently declared parts of the lagoon a nature-protected area. For capacity-building and awareness-raising, we will facilitate a series of theatre performances in coastal communities. The theatre plays will be performed by members of the local women's union and will cover topics such as flood preparedness, gender, emergency response, and the role of ecosystems in disaster risk reduction.

This activity also includes the implementation of a theatre festival in the provincial capital Hue and the 1st Eco-DRR Theatre Award ceremony. Both activities will be accompanied by an in-depth outcome evaluation, as well as comprehensive dissemination activities.

"Mangrove planting is an ecosystem-based flood resilience approach working well at the grassroots level. It also proved to be a promising means to empower women in disaster risk reduction."

My Pham, Director
Centre for Social Research and Development (CSRD)

Right: Map of Thua Thien Hue province in central Vietnam



Submitting organisation

CSRD
csrd.vn

UP Transfer GmbH
at the University of Potsdam
up-transfer.de

The Wildlife and Environmental Society of Malawi (WESM),
member of the International Union for Conservation of Nature (IUCN)

Lilongwe, Malawi

Flood Risk Reduction Through Restoration of Ecosystems and Ecological Protection

The project will reduce the impact of floods in some informal settlements of Malawi. It will use nature and ecosystem-based risk reduction measures, such as improving the resilience of riverbanks through restoration of degraded riverbanks. The project team aims to plant different vegetation to reduce the flood risk and provide ecological and economic benefits to the target communities. The community involvement at all levels will be an integral part of the project.

A severe flood-event caused a lot of losses in 2018. Houses were swept away, assets were lost.

The project goal is to reduce the impact of floods in informal settlements of Kaliyeka and Kawale in Lilongwe City, Malawi, through nature and ecosystem-based risk reduction measures. This will achieve four specific objectives:

— Improving the quality of storm water runoff from informal areas
— Controlling the quantity and rate of storm water runoff
— Encouraging natural groundwater recharge
— Strengthening local capacities for Eco-DRR

Project outcome:
Reduced impact of floods on 78,015 people, assets and ecosystems in the Kaliyeka, Kawale and Mchezi Ward areas.

Project outputs:

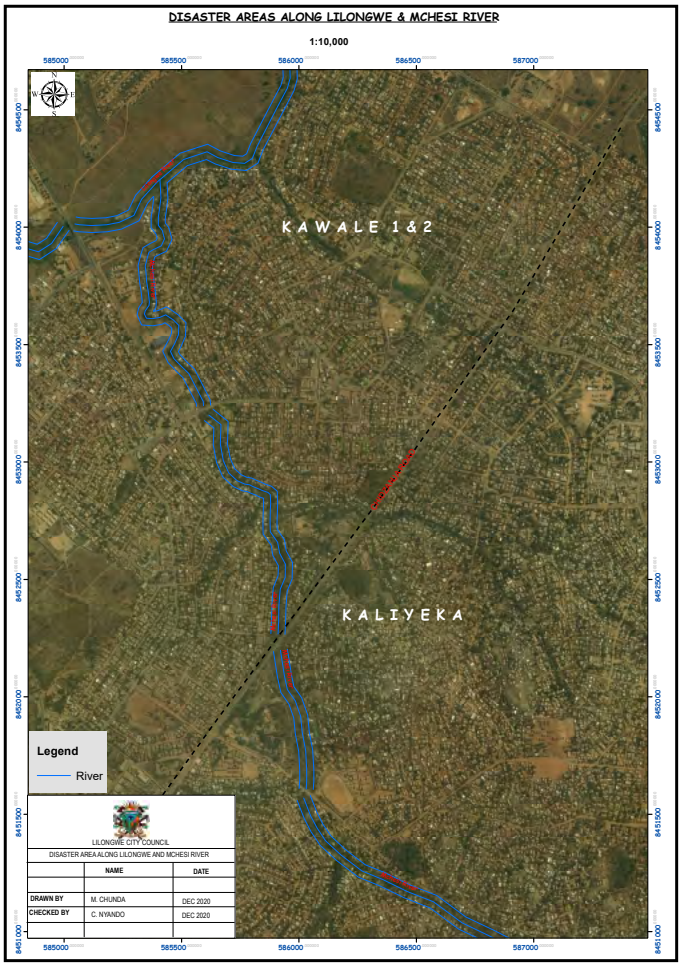
1. Protection of the Lilongwe and Mchesi rivers flood plains from adverse effects of floods

2. Strengthening of the Eco-DRR capacities of Lilongwe City Council, community DRR structures and primary schools

The project will be implemented in four flood-prone areas across the city of Lilongwe. These settlements lie along the Mchesi and Lilongwe rivers. The project is expected to benefit a total of 78,015 of the most vulnerable people living in the city of Lilongwe who have been affected by floods since 2012.

The lead project-implementing organisation is the Wildlife and Environmental Society of Malawi (WESM). The other partners involved in the project include the Lilongwe City Council, the Centre for Community Organisation and Development, Malawi University of Science and Technology, UN Habitat and the Department of Disaster Management Affairs. All these partners bring to the table valuable experience that will ensure the smooth implementation of the project. Each partner will be assigned different roles in the implementation of this project.

The project will be implemented for a period of 12 months.



Top: In 2019, another flood hit Lilongwe city and destroyed a lot of infrastructure.

Bottom: The map shows the four districts within Lilongwe in which the project is located. The two rivers, Mchesi and Lilongwe, provide livelihoods and fresh water; however, they also impose great risks.

Submitting organisation

WESM
wesm.mw

Kounkuey Design Initiative (KDI)

Nairobi, Kenya;
Dar es Salaam, Tanzania

Realising Urban Nature-Based Solutions (R-U-NBS): Nairobi and Dar es Salaam

Realising urban nature-based solutions in the Nairobi & Dar es Salaam project aims to bring together civil society, residents, academia and local government in Nairobi and Dar es Salaam, to yield important new evidence on how Nature-Based Solutions (NBS) can contribute to disaster risk reduction and provide replicable, scalable pathways to sustainable urban development in the rapidly growing cities of sub-Saharan Africa.

Top left: Infiltration system using soda crates installed at the eleventh public space in KDI's Kibera Public Space Network.

Top right: A bamboo shade structure and laundry pad form part of the floodable and flood-mitigating public space and the tenth Kibera Public Space Project.

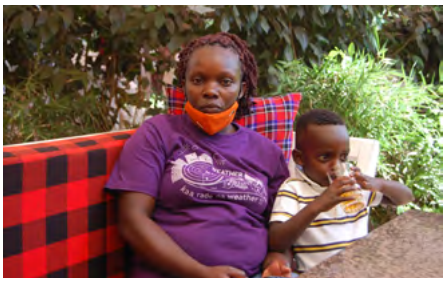
Bottom: Newly planted rain garden over an underground detention tank (left) and permeable paving (right) at St John's School. The tank void was constructed with a perforated pipe structure – an innovation that utilises easily available local materials and skills.

In 2019 and 2020, KDI led a "learning by doing" initiative supported by SwedBio to design, build and evaluate multiple NBS techniques for water management across five sites in informal urban settlements in Nairobi and Dar es Salaam. The work produced has been the first step in creating much-needed new and practical evidence that NBS can be implemented in informal settlements.

The project aims to demonstrate how NBS interventions on a neighbourhood scale connect, inform and assimilate into more widely scaled plans and solutions, including supporting municipal, national, and international goals for disaster risk management. We think that well-built, managed and evaluated NBS are among the most compelling pieces of evidence for a wider uptake, and we propose to continue to build, test, and evaluate new NBS solutions in the most vulnerable neighbourhoods of both cities.

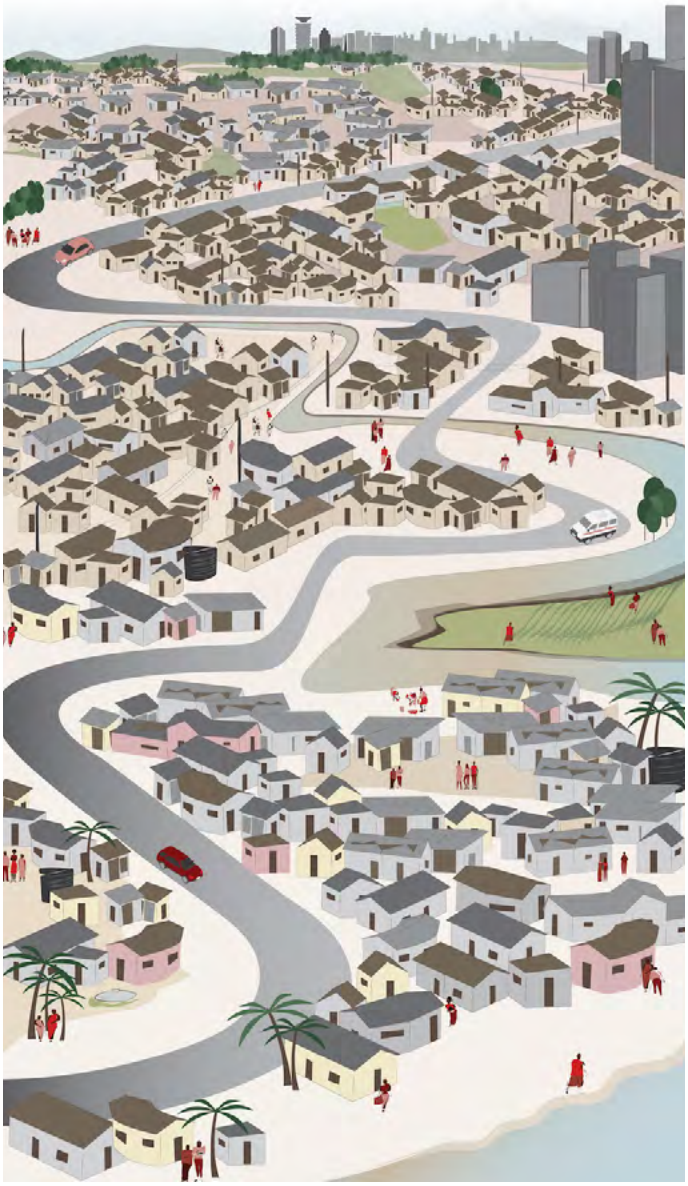
This project proposes the need to strengthen and expand the reach of this work into the neighbourhood, settlement and watershed scales through these components:

1. Within two untested informal settlements in Nairobi, and two settlements in Dar es Salaam
   a. Build upon and expand the evidence and momentum with "facts from the ground" through implementing NBS.
   b. Building an actionable NBS planning vision through the co-development of plans for "rivers and people".
2. Influence and advocate regionally for the uptake at the municipal and national levels in Kenya and Tanzania, but also to expand knowledge-sharing into wider East Africa.



"Now that the river bank is stabilized with planted bamboo and gabions we do not panic when it starts raining because we know the water will not flood our homes."

Esther, project beneficiary and member of a community volunteer group



Above: The intersection of rivers, urban nature, and diverse neighbourhoods in highland and coastal cities such as Nairobi and Dar-es-Salaam. Graphic developed by Sarah Rege as part of a KDI-project on nature-based solutions for water management in 2019 and 2020.

KDI is pleased to have been funded by SwedBio in 2021 and 2022 to take forward this exciting work. Please check out the website r-u-nbs.info for more information and updates as the project develops. We are working in partnership with the Center for Community Initiatives (CCI) based in Dar es Salaam, Tanzania.

Submitting organisation

Kounkuey Design Initiative (KDI)
kounkuey.org

World Resource Institute India (WRI) Kochi, India

Nature-based solutions for cooling Kochi city

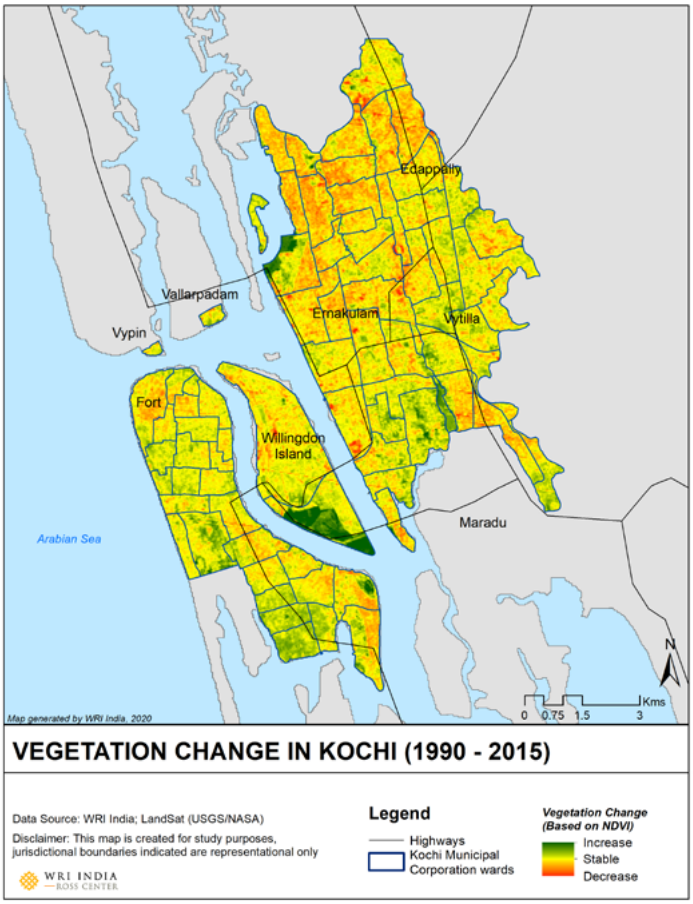
Cities4Forests is a worldwide initiative which aims to integrate forest management into urban planning. WRI is a supporting partner of this approach. The initiative promotes a participatory citizen-led engagement supporting cities to move towards a more inclusive and resilient environment. Through Cities4Forests, we encourage Nature-Based Solutions (NBS) as a long-term mitigation and adaptation strategy. The mitigation strategy aims to identify the potential for landscape restoration and tree-based interventions to address urban heat island risks and reduce local surface temperature through improved tree cover. It is estimated that in India a loss of 118 billion hours or 39 % of work hours in 2019 was due to heat. The Climate Risk and Response report estimated that the impact of global heating on outdoor work, and the resultant loss in productivity, could put 2.5 % to 4.5 % of India's GDP at risk annually.

Below: Cities4Forests helps cities around the world to connect with and invest in forests at three different scales, inspire political action and engagement, provide technical assistance, capacity building, and facilitate finance and investment.

Kochi is one of the fastest-growing cities in India, where rapid unplanned urbanisation has led to a decrease in green cover and increasing heat risks. There is a tremendous opportunity to promote NBS, an underused climate adaptation and mitigation strategy to build a resilient Kochi. We are engaging with Kochi Municipal Corporation, local community-based organisations, institutions and citizens in promoting NBS at the neighbourhood and city level. Our goal would be to influence the city to look at NBS as a long-term cooling and heat resilience strategy, and to build capacities in the state and community-based institutions to promote and support NBS planning and implementation.

The focus of our work in Kochi:

— Promote green infrastructure for long-term resilience
— Pilot community-led neighborhood-scale green interventions
— Engage with communities to assess their resilience capacities
— Strengthen community preparedness by building capacities for local interventions among multiple stakeholders
— Encourage data-led planning for long-term resilience
— Formulate a guidance document to support the city in developing its city disaster management plan



Top: The change in the vegetation map shows a significant decrease in vegetation in the mainland, and in parts of the Willingdon and Fort Kochi islands. This is an opportunity to assess these trends over time and create an evidence base for greater policy and institutional support to promote NBS for long-term city resilience.

Bottom: Participatory mapping exercise: city representatives and students engaged in identifying potential areas for restoration in Kochi.

Submitting organisation

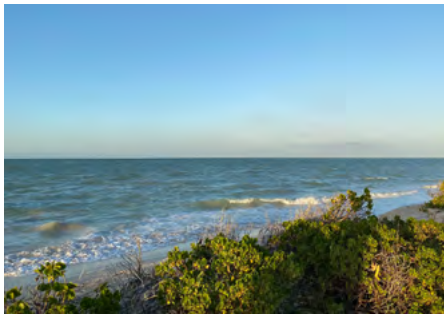
World Resource Institute India (WRI)
wri-india.org

World Wide Fund For Nature, Mexico (WWF)

Dzilam de Bravo; Reserva de la Biosfera (Ría Lagartos); Área de Protección de Flora y Fauna Yum Balam (Chiquilá) Yucatán, Mexico

Smart Coasts: Protected Areas, Climate Change and Coastal Management

The project team will use sand dunes to protect local communities from flood and erosion. It will engage with the communities motivating them to protect sand dunes.



Left: Restoration work by UNAM students.
Above: Conserved dune in Yucatan, Mexico.

Coastal sand dunes provide many benefits to human communities, including flood and erosion control. These benefits are particularly important in the context of a changing climate, where sea levels are already rising and extreme weather events such as hurricanes are increasingly intense. However, dunes have traditionally been undervalued and removed to give way to infrastructure, such as homes and hotels.

As part of its Smart Coasts Project, WWF has identified a set of ecosystem-based adaptation options to reduce the vulnerability of local populations to climate change. These options were selected based on 1) climate change projections, 2) ecosystem service models, and 3) a participatory process. The adaptation options included the restoration of degraded coastal sand dunes.

Working with the National Autonomous University of Mexico (UNAM), the project aims to restore 20 km^2 of degraded coastal dunes in specific locations of the Yucatan Peninsula in Mexico.

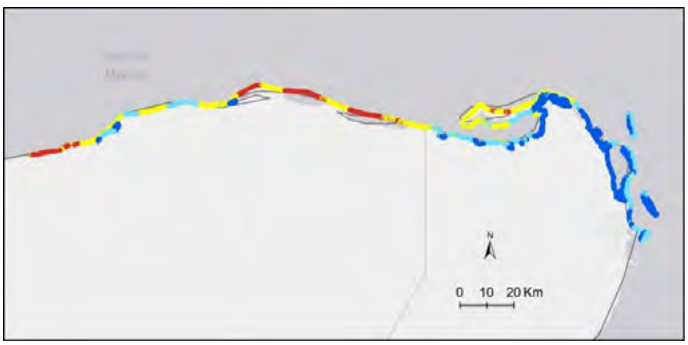
The restoration consists of: i) a floristic analysis; ii) a collection of seeds and cuttings, iii) sprouting and growth in a greenhouse, iv) plantings in priority sites; and v) monitoring.

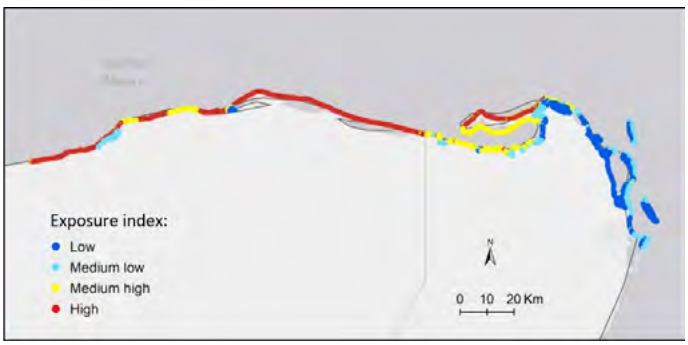
Acknowledging the importance of raising the awareness of local populations about the importance of conserving dunes, the project engages communities, particularly youths. To this end, the project also includes conducting beach cleanings, awareness-raising campaigns, and environmental education workshops.

"If we continue to deteriorate coastal dunes, we will no longer be able to enjoy our beaches and their biodiversity, and we will be at greater risk of flood and destruction from hurricanes."

Patricia Guadarrama
Team member of the Smart Coasts project

Below: Models of the current level of exposure to coastal hazards – erosion and flood – (left) in the northeastern portion of the Yucatan Peninsula, Mexico, and potential level of exposure under a scenario of lost coastal habitats (right).





Submitting organisation

WWF Mexico
wwf.org.mx

Sustainable Environment and Ecological Development Society (SEEDS)

Puri, Odisha, India

Creating Bioshields at Puri, India

The project approach integrates nature and ecosystem-centred and community-based approaches into the planning and management of coastal regions. This will be achieved through investing in ecological infrastructure to buffer against climatic hazards, supporting climate-resilient coastal livelihoods leveraging the strength of women's SHGs among fishing communities of Puri District in the State of Odisha.

Below: Women working on Bio Shielding in Tamil Nadu;

The state of Orissa is one of the most disaster-prone states in the Indian union. Orissa's coastal districts are often subject to tropical storm systems like cyclones as well as storm-induced flooding and surges. Shores are washed by ocean waves, and dunes – which are their natural protection – are being destroyed by development along the shores. As aging infrastructure and engineered coastal protection become more outdated, the potential for extremely costly natural disasters increases.

The proposed project will result in conserving the environment for strengthening the water, food and income security of households while enhancing resilience through disaster risk reduction practice. An overall achievement of the project would be the deployment of affordable nature-based solutions to increase resilience and enhance the livelihoods of the most vulnerable people, communities and regions, and improve the resilience of ecosystems. Project success will provide viable community-driven solutions for coastal populations exposed to tropical cyclones around the world.

The goal:

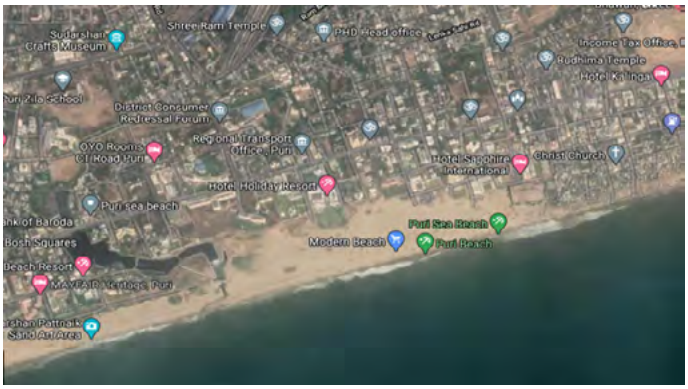
1. Shelterbelt plantations and bio-shielding to increase the protection of villages from cyclones.

2. Reducing the risk of agricultural land loss due to beach erosion through various nature-based solutions (e.g. bioshields)

3. Capacity-building of families' access opportunities to enhance their livelihood through improved agricultural practices in coastal lands

"Even if the plants reached a mature harvesting period, no matter how profitable they would seem to be at that time, they wouldn't be touched for the next 50 years. All this has been done for our benefit, and now that we know how useful it's going to be for us when there is a tsunami, I see no reason not to take care of them "

Durairaj (Tamil Nadu),
resident of a project community



Top: Fishermen Working in Tamil Nadu;
Bottom: Satellite image of Puri coastline showing lack of vegetation

Submitting organisation

SEEDS
seedsindia.org

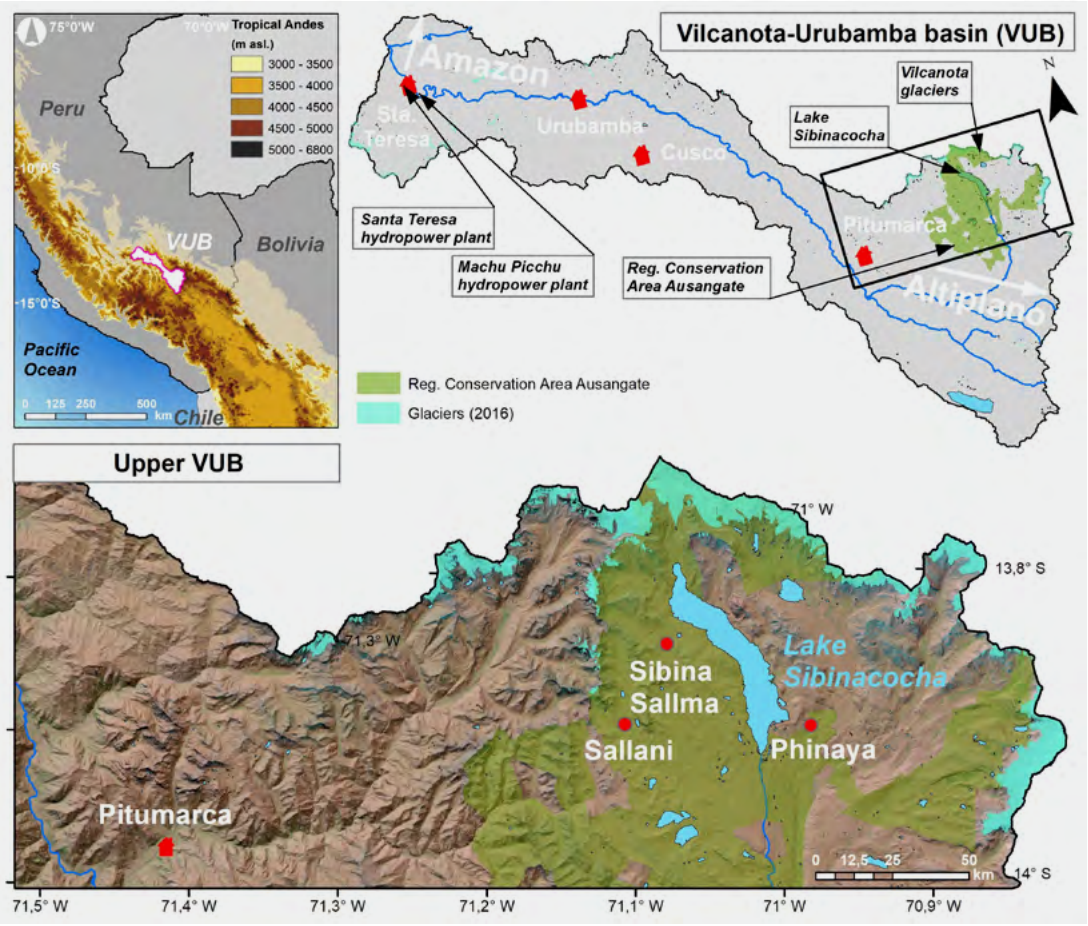
Imperial College London, Amazon Conservation Association (ACCA)

Phinaya, Peru

Nature and eco-based solutions for integrative drought resilience and adaptation in the deglaciating Andes

Rapidly vanishing glaciers and high vulnerabilities to increasing drought conditions in combination with growing water demand are a major concern for water security in the Peruvian Andes. The project aims at implementing co-developed nature and eco-based solutions to support local decision-making for drought resilience, risk management and adaptation in the Vilcanota-Urubamba basin, southern Peru.

Below: Overview of the intervention area: Upper Vilcanota-Urubamba basin, Southern Peru. A new headwater management plan is being developed within the Regional Conservation Area Ausangate (green overlay). Artwork: Fabian Drenkhan.



In the Peruvian Andes, year-round streamflow from glaciers supports downstream ecosystems and human livelihoods. However, rapid changes in glacio-hydrological and socio-economic conditions are a major concern for water security. A case in point is the Vilcanota-Urubamba river basin (VUB) in southern Peru, which holds the second-largest tropical glacier fragment worldwide. The VUB is characterised by glacier shrinkage, high human vulnerabilities, and growing water demand linked to increasing irrigation, population and hydropower capacity. The local government is implementing a new management plan to support headwater conservation in the upper VUB in view of severe hydrological risk potentials.

In line with these challenges and efforts to tackle them, the Imperial College London (ICL) and Amazon Conservation Association (ACCA) have designed a joint project framework to develop socially feasible nature and eco-based risk reduction measures in the upper VUB. The project aims at empowering local communities in close exchange with decision-makers by implementing a joint capacity and hydrological monitoring programme. This collaborative effort then supports the integration of scientific and local knowledge for the co-development of meaningful adaptation strategies that enhance drought resilience and foster effective long-term water management in accordance with specific needs of local communities, downstream water users and new national policies linked to payments for ecosystem services.

"We, who live in the peasant community of Phinaya who are close to what are the glaciers, we are witnesses that they are deglaciating more and more due to climate change, and it is very concerning because the water comes from the glaciers, and until where the main basin reaches human life is at risk."

Ismael Mendoza
President of the peasant community of Phinaya
(upper Vilcanota-Urubamba basin)

Top: Assessment for conservation planning of peat bog wetlands performed by local community members and the NGO ACCA in the upper Vilcanota-Urubamba basin. Photo: Marlene Mamani.

Bottom: Installation of groundwater observation tubes for monitoring peat bog wetlands in the upper Vilcanota-Urubamba basin. Photo: Jan R. Baiker.

Information

About the RISK Award

The risks posed by population development, environmental and climate change are increasing. Complex technical systems and infrastructure are additional risk factors. The Award partners recognise the need to address this development. The RISK Award has been set up to help improve risk reduction and disaster management by providing financial support to projects dedicated to this topic. We want to support innovative ideas, develop them further and help to scale them. Visibility, impact and enthusiasm should be embodied by the projects.

Climate change, disaster risk reduction and sustainable development must go hand in hand to secure the future. For this reason, our projects are in line with the 2015 Paris Agreement, the UN Sustainable Development Goals (SDGs), and the Sendai Framework for Action.

The RISK Award, endowed with €100,000, is assigned to operational projects in the field of risk reduction and disaster management. The prize is awarded every two years. The endowment for the RISK Award is provided by the Munich Re Foundation. We use UNDRR's networks and platforms to inform on the topic, select winners, and organize the awarding ceremonies, – on site and online. Together, we can provide the winners the visibility their outstanding project ideas deserve.

risk-award.org
LinkedIn

UN Office for Disaster Risk Reduction (UNDRR)

The UN Office for Disaster Risk Reduction (UNDRR, formerly known as UNISDR) was established in 1999. It is mandated by the United Nations General Assembly resolution (56/195) to serve as the focal point in the UN system for coordinating disaster risk reduction. It advances the implementation of the Sendai Framework for Disaster Risk Reduction and guides and coordinates the efforts of a wide range of partners to achieve a substantial global reduction in disaster losses, build resilient nations and communities as a fundamental condition for sustainable development. It is an organizational unit of the UN Secretariat and is led by the UN Special Representative of the Secretary-General for Disaster Risk Reduction (SRSG) Mami Mizutori.

undrr.org

UNDRR
UN Office for Disaster Risk Reduction

Munich Re Foundation

The Munich Re Foundation is an independent, non-profit organisation founded by Munich Re in 2000. People are ultimately at the core of what the foundation's work is all about. The foundation's task is to prepare people for the risks they are exposed to and to minimise these risks wherever possible. It clarifies issues and provides support, also in developing countries. In dialogue with partners worldwide, Munich Re Foundation stimulates ideas and creates perspectives.

munichre-foundation.org

Munich Re Foundation
From Knowledge to Action

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