



## Climate Change Adaptation and Disaster Risk Management

**#6**  
Clean water  
and sanitation

**#9**  
Industry, innovation  
and infrastructure

**#11**  
Sustainable cities  
and communities

**#13**  
Climate  
action

## BUILDING SUSTAINABLE SOCIETIES AROUND THE GLOBE

### NIRAS quick facts



2,400  
employees



51 offices in  
31 countries

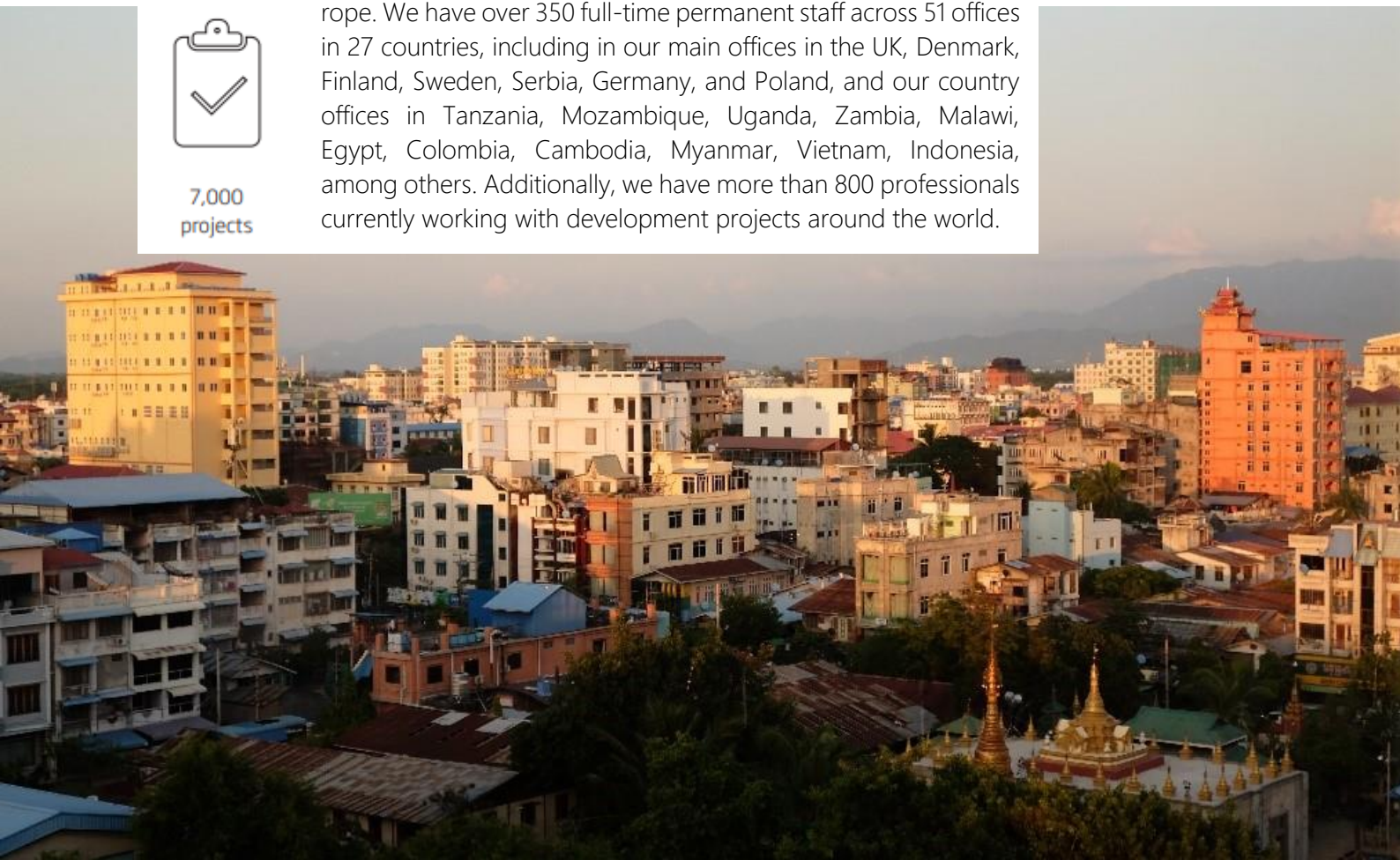


7,000  
projects

With over 2300 employees, NIRAS is a leading international consulting and engineering company with offices in Europe, Africa, and Asia. We are one of the leading European consulting companies within development cooperation, providing technical expertise and results-oriented project management services to clients worldwide. Our work is far-reaching, building skills and capacity in support of all 17 Sustainable Development Goals. We help our clients and partners improve livelihoods and develop future societies that are well-

governed and based on climate-smart and environmentally sustainable solutions. NIRAS has an extensive track record over the past 45 years in designing and implementing complex development assistance projects worldwide, promoting the most innovative and tailored solutions in pro-poor development. Today, NIRAS offers solutions to reduce poverty, increase resilience to climate change, implement low carbon development strategies, strengthen food security, facilitate inclusive economic growth, and promote equitable societies .

Implementing more than 300 assignments annually in more than 100 countries, the NIRAS unit for International Consulting ranks among the largest development consultancy businesses in Europe. We have over 350 full-time permanent staff across 51 offices in 27 countries, including in our main offices in the UK, Denmark, Finland, Sweden, Serbia, Germany, and Poland, and our country offices in Tanzania, Mozambique, Uganda, Zambia, Malawi, Egypt, Colombia, Cambodia, Myanmar, Vietnam, Indonesia, among others. Additionally, we have more than 800 professionals currently working with development projects around the world.



The majority of our work consists of implementing large, long-term and multidisciplinary development programmes, often in challenging environments. With our in-house expertise and extensive network of experts, we provide high quality project management and technical assistance services, covering the entire project cycle, from project design to implementation and evaluation.

In the last 15 years, NIRAS has carried out over 145 assignments in disaster risk management and climate change adaptation. Our experience has highlighted the increasing need for action in this field and we strive to make a significant **change towards more resilience through our projects**. LTS International, a UK-based consultancy and project management firm established in 1973 to support sustainable

development worldwide joined NIRAS in 2018. Since then, NIRAS has grown with 50 additional staff members specialised in the area of Climate Change with an emphasis on Climate Change Resilience and Adaptation, as well as Climate Finance.

We have focused on green-growth initiatives that address climate change by taking advantage of opportunities for adaptation and mitigation whilst promoting job creation and wealth generation in Zambia, Tanzania, and Uganda. We have been involved in assisting governments and organisations in Ethiopia, Nepal, Rwanda, and South Africa, in preparing projects and implementing them with the aim of greening their economies for long-term growth and job creation.



## Our values

### CLIENTS

- We engage in networks and brand our people, projects and expertise
- We build partnerships with our clients beyond their projects
- We apply a careful bid–no-bid process and secure profitability
- We organize a tender process enabling high quality
- We celebrate wins and seek learning from all tenders

### PROJECTS

- We understand our client and the complexity and life-cycle of projects
- We provide fit-for-purpose project management and teams
- We fulfill expectations in a time and cost-effective process
- We raise concerns instantly and act to resolve problems
- We seek feedback in order to learn and improve

### PEOPLE

- We help and support our colleagues across the organization
- We work proactively with feedback to learn and flourish
- We provide career opportunities and nourish innovation.
- We facilitate job rotation to build networks and culture
- We secure a pipeline of talent from universities and our network

### EXPERTISE

- We aspire for excellence across all our areas of expertise
- We develop expertise and access knowledge through partnerships
- We eagerly share our knowledge and insights
- We orchestrate networks of specialists
- We facilitate smart access to CVs, references and knowledge

# Spotlight on Climate Change Adaptation and Disaster Risk Management

The concepts of Climate Change Adaptation (CCA) and Disaster Risk Management (DRM) are closely linked with one another and have similar overarching goals. The intended outcomes of both CCA and DRM are to reduce present and future risks to the safety, wellbeing, and sustainable development of people, societies, economies, and the natural environment. The term “resilience” resonates strongly with both topics. CCA and DRM successes are ultimately achieved at the household and community levels; facilitated by local, national, and international strategies, resources, and actions. Both topics are to a large extent cross-sectoral and require coordination between stakeholder groups, including citizens, civil society organisations, government institutions, private sector organisations, and international institutions.

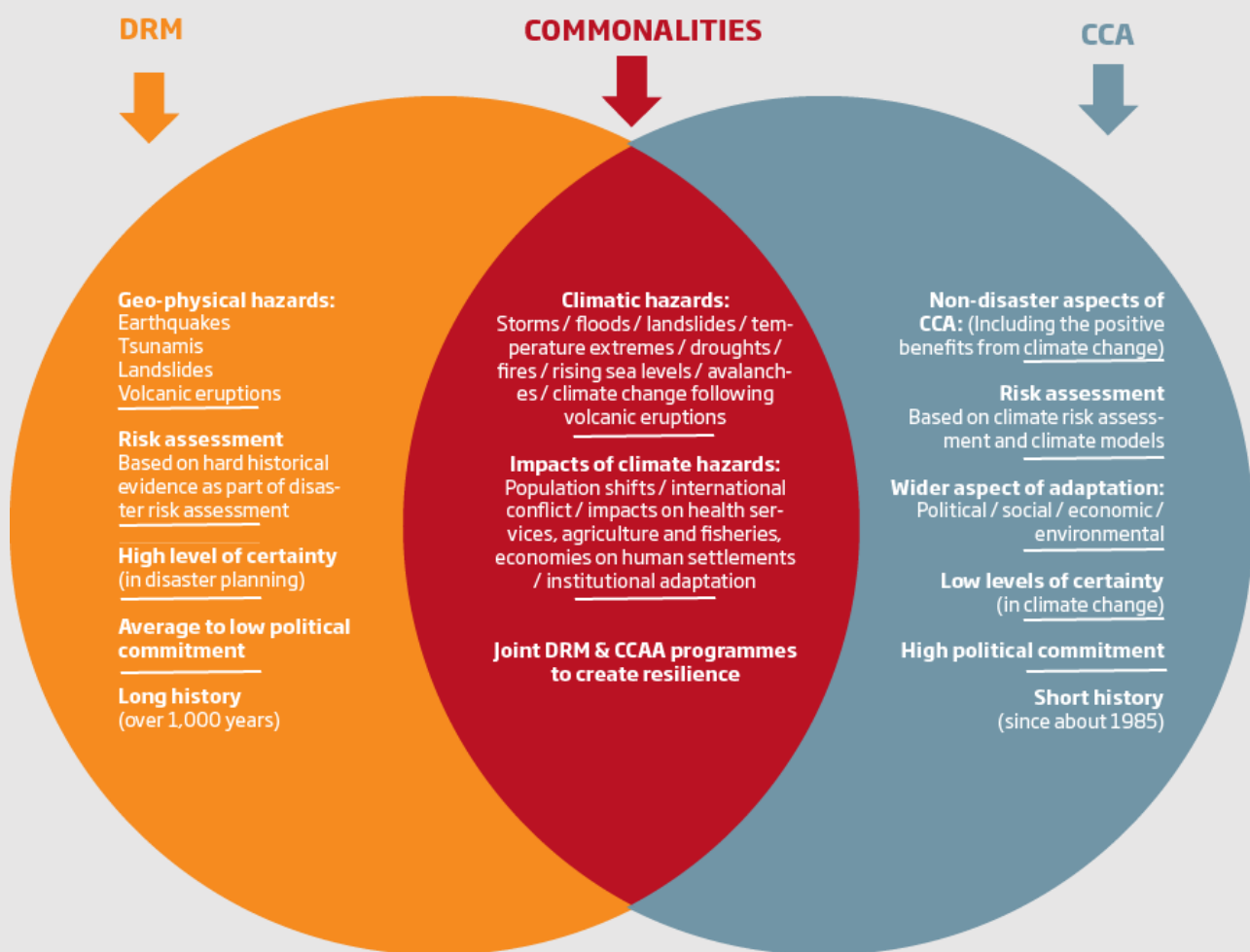


Figure 1: Commonalities and differences of the DRM and CCA topics. Source: placard-network.eu

Despite these commonalities between CCA and DRM, there are differences in historical development; technical focus; risk profiles; scope and timescales of action; institutional frameworks and strategies; and engaged stakeholder groups. The following is a brief discussion of these main differences.

Climate change adaptation may be defined as:

*"The process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects"*

- IPCC, 2018

CCA addresses risks and opportunities associated with climatic and meteorological conditions; or specifically, how people, economies, and societies adapt to current and expected changes in these conditions. CCA represents one of two main components for climate change action; the other component is climate change mitigation. CCA as a distinct topic has developed more recently than DRM, and arguably includes an additional layer of uncertainty associated with climate change complexities. CCA measures tend also to incorporate a longer-term perspective in comparison to DRM, greater integration with climate-exposed sectors (e.g. agriculture, water resources), as well as inclusion of both positive and negative effects associated with climate change.

CCA stakeholder groups typically include national government ministries for environment and cross-sector committees, NGOs, the UN, and other development agencies, private sector companies, regional agencies, research institutes, and civil society organisations. Country-level initiatives on CCA are guided by national climate change policies, strategies, and action plans (e.g. National Adaptation Plans), often in alignment with regional and international frameworks. The current international framework is the Paris Agreement on Climate Change (2015) to which governments commit to Intended Nationally Determined Contributions.

DRM chiefly addresses risks associated with natural hazards, both meteorological and geomorphological in origin. In recent decades, there has been a national and international trend in DRM to reduce disaster risk not only through preparedness for emergency response and structural mitigation measures, but to pursue a more comprehensive and coordinated approach. This includes a greater focus on systemic as well as specific measures to reduce vulnerabilities and increase capacities to cope with natural hazards.

Contemporary DRM stakeholder groups typically include government disaster management organisations and cross-sector committees, emergency services, Red Cross / Crescent Societies, NGOs, the UN, and other development agencies, private sector companies, regional agencies, research institutes, and civil society organisations. Country-level initiatives on DRM are guided by national DRM laws, strategies, and action plans, often in alignment with regional and international frameworks. The current international framework is the Sendai Framework for Disaster Risk Reduction (SFDRR, 2015-2030), as successor to the Hyogo Framework for Action (HFA, 2005-2015).

Disaster risk management can be defined as:

*"The application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses"*

- UNDRR, 2017

## OUR MAIN SERVICES

NIRAS provides a broad range of disaster risk management (DRM) and climate change adaptation (CCA) services to clients and partners as mentioned below. These services have been delivered at different scopes and scales, and in countries across four continents.

The company has accumulated significant experience in these DRM and CCA services areas; implementing over 110 long- and short-term assignments between

2010 and 2020, for over 60 different clients and funding agencies. NIRAS has moreover conducted these assignments at local, national, and international levels and in partnership with diverse public, private, and non-government agencies. We are therefore able to incorporate a range of lessons learned into current and future assignments.



### OUR SERVICE AREAS FOR DRM AND CCA INCLUDE:



- **Institutional consultancy and advisory services:** policy analysis and formulation, strategy development, coordination mechanisms, operational processes;



- **Programme and fund management services:** project(s) assessment, selection, design, planning, implementation frameworks, supervision;

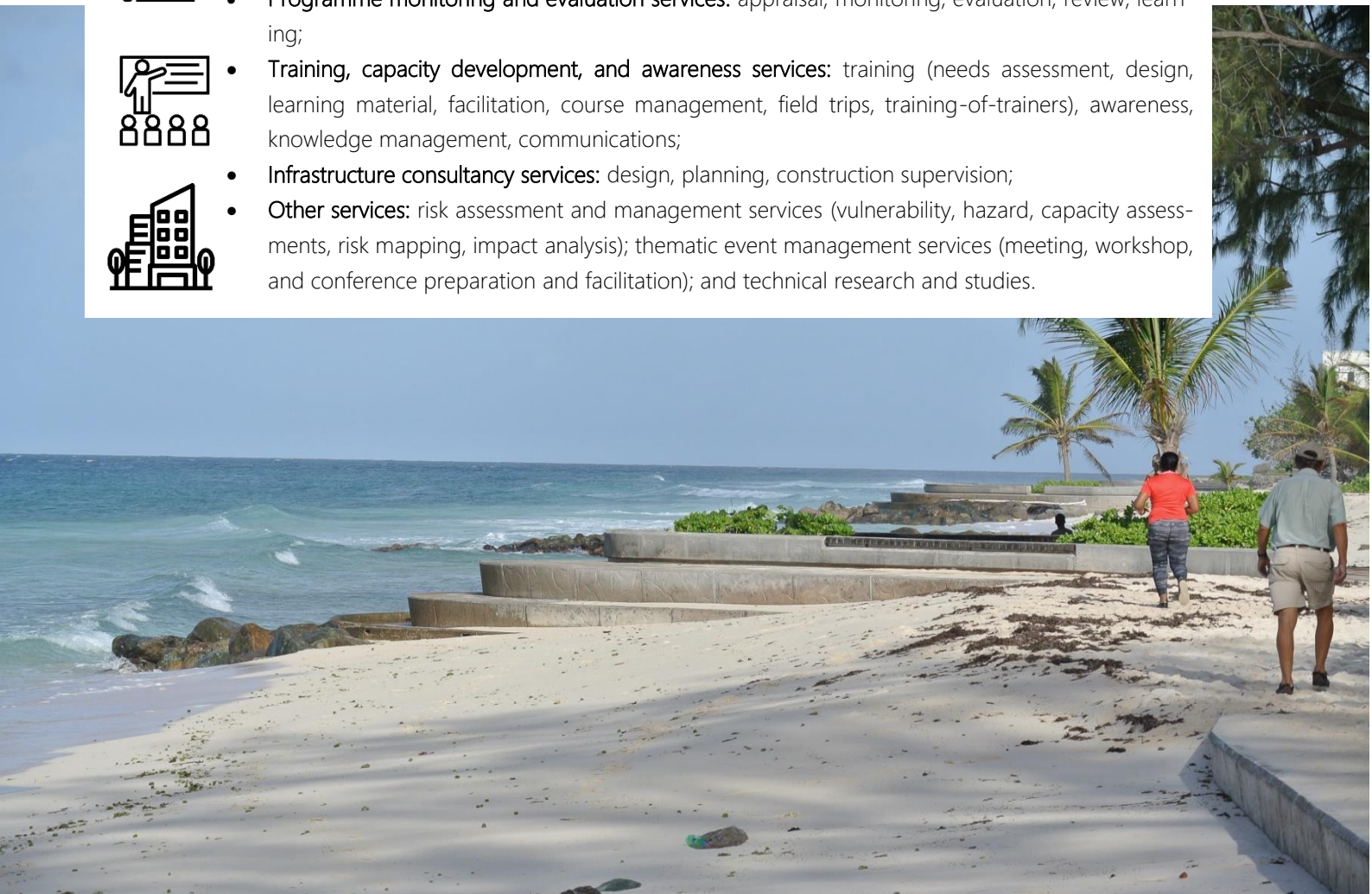
- **Programme monitoring and evaluation services:** appraisal, monitoring, evaluation, review, learning;



- **Training, capacity development, and awareness services:** training (needs assessment, design, learning material, facilitation, course management, field trips, training-of-trainers), awareness, knowledge management, communications;

- **Infrastructure consultancy services:** design, planning, construction supervision;

- **Other services:** risk assessment and management services (vulnerability, hazard, capacity assessments, risk mapping, impact analysis); thematic event management services (meeting, workshop, and conference preparation and facilitation); and technical research and studies.



## OUR SECTORS

### DISASTER RISK PLANNING AND MANAGEMENT

Disaster risk planning and management involves coordinated action to develop and implement strategies to reduce disaster risk - through prevention, mitigation, and/or preparedness activities.

#### Highlighted projects

**Donor:** World Bank

**Client:** Ministry of Finance, Malawi

**Location:** Malawi

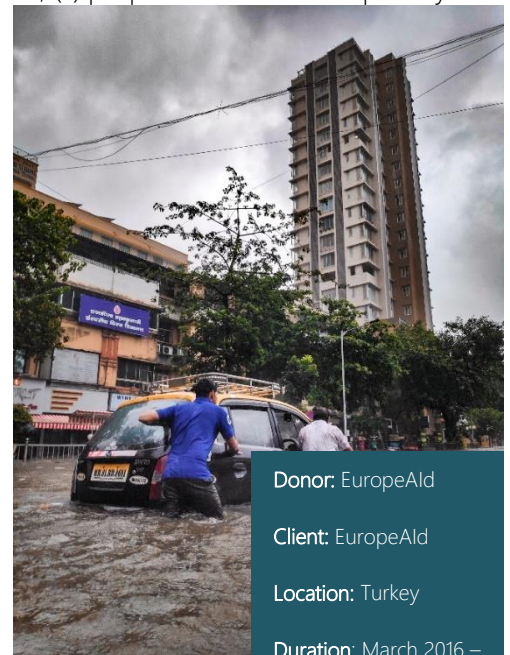
**Duration:** November 2017 - August 2018

**Contract value:** 616,707 USD

In the assignment *"Integrated Flood Risk Management in 13 Districts affected by 2015 Floods in Malawi"*, NIRAS delivered technical assistance to the Ministry of Finance, Malawi, (World Bank) for the implementation of the 'Malawi Flood Emergency Recovery Project'. The project was an initiative in response to the damages and losses that Malawi experienced as a result of heavy rains and subsequent floods that occurred during the 2014-2015 agricultural season. NIRAS' assistance focused on integrated flood mitigation interventions including restoration of Early Warning Systems for districts affected by the floods. Implemented between 2017 and 2018, NIRAS conducted (i) assessment of the flooding problems within the 13 specified districts; (ii) preparation of a set of priority flood

risk management interventions (investment projects) for funding, based on thorough analysis of available information, as well as comprehensive stakeholder consultation; (iii) undertaking environmental and social impact assessment; (iv) preparation of detailed designs and tender documents for the agreed interventions; and (iv) build capacity of the stakeholders that will be responsible for the implementation and ongoing operation and maintenance of the interventions.

Turkey is exposed to numerous natural and man-made hazards which have the potential to precipitate significant negative human, environmental, material, and economic impacts. As a result, the Turkish government planned to strengthen its systems for DRM. In the project *"Technical Assistance to the Republic of Turkey Prime Ministry Disaster and Emergency Management Presidency (AFAD) in strengthening the institutional capacity and improving the disaster and emergency management system"* (2016-2018, EU), NIRAS assisted the Turkish government to strengthen institutional capacities for DRM, to develop an integrated disaster and emergency management system, and to increase coordination and awareness for DRM between government, private sector, and civil society.



**Donor:** EuropeAid

**Client:** EuropeAid

**Location:** Turkey

**Duration:** March 2016 - March 2018

**Contract value:** 2,740,000 EUR

**Donor:** Danida

**Client:** Danida Fellowship Centre, Denmark

**Location:** Denmark

**Duration:** October 2011 - May 2013

**Contract value:** 760,000DKK

NIRAS has also conducted various capacity development initiatives in the area of disaster risk planning and management. One of them was the two-week training courses on *"Disaster Risk Reduction: Policies, budgeting, planning and action"*, conducted for participants from Danida partner countries in 2011-2013. Training themes included: Benefits of good DRR: social, economic, developmental; DRR at present: too much talk, too little effect?; Practical examples of DRR mainstreaming; Principles and practices for DRR planning and budgeting; DRR and poverty; and DRR governance. NIRAS developed similar training courses in 2017 and 2018 under the Danida programme.

## RESILIENT URBAN DEVELOPMENT AND RISK MANAGEMENT

In an increasingly urbanised world in which populations, complex systems, and economic assets are concentrated in city environments, there is growing awareness of the need to increase urban resilience. NIRAS has vast experience in working on resilience programs and can draw on projects from Nordic capital cities such as Copenhagen, megacities such as Nairobi and Dar es Salaam and rapidly expanding secondary cities such as Kisumu (Kenya), Beira (Mozambique) or Sikasso (Mali). Much of our resilience work is focused on creating resilient institutions that are capable of handling and understanding the current and future situations they might encounter. We provide capacity building support with the aim of strengthening their ability to deal with and mitigate shocks e.g. how to translate climate data into effective and resilient policies.

### Highlighted projects

In the coastal city of Beira, the second largest urban centre in Mozambique exposed to cyclones, heavy precipitation, and storm surges, NIRAS has implemented a series of projects to reduce disaster risk. In a number of projects, NIRAS assisted city and national authorities to develop urban disaster risk management systems and capacities. In 2012, NIRAS' proposal *"Making the City of Beira Resilient to Floods and Cyclones"* was selected for the RISK Award

by the Munich Re Foundation, UNISDR, and GRF Foundation. In close cooperation with the National Institute for Disaster Management and the Beira City Council, the project included training and capacity-building, implementation of community-based disaster risk management systems, a city-wide simulation exercise, and a manual on implementing Early Warning Systems in urban areas of Mozambique.



**Donor:** Munich Re Foundation/UN-ISDR/GRF Davos

**Client:** INGC National Disaster Management Institute

**Location:** Mozambique

**Duration:** August – December 2012

**Contract value:** 100,000 EUR

The *SymbioCity Kenya Programme* (Sida, 2016-2019) allowed NIRAS to closely work with urban issues on a county level, and with public - private dialogue as a focal theme. The programme focused on seven intermediate towns and worked closely with the counties as well as the Council of Governors to plan and implement sustainable urban investments. The projects were different in all counties, depending on the outcome of the integrated planning process (using the SymbioCity sustainable planning approach) and included elements of climate-resilient design, private sector involvement or innovative finance solutions.

**Donor:** Sida

**Client:** Swedish Association of Local Authorities and Regions (SALAR)

**Location:** Kenya

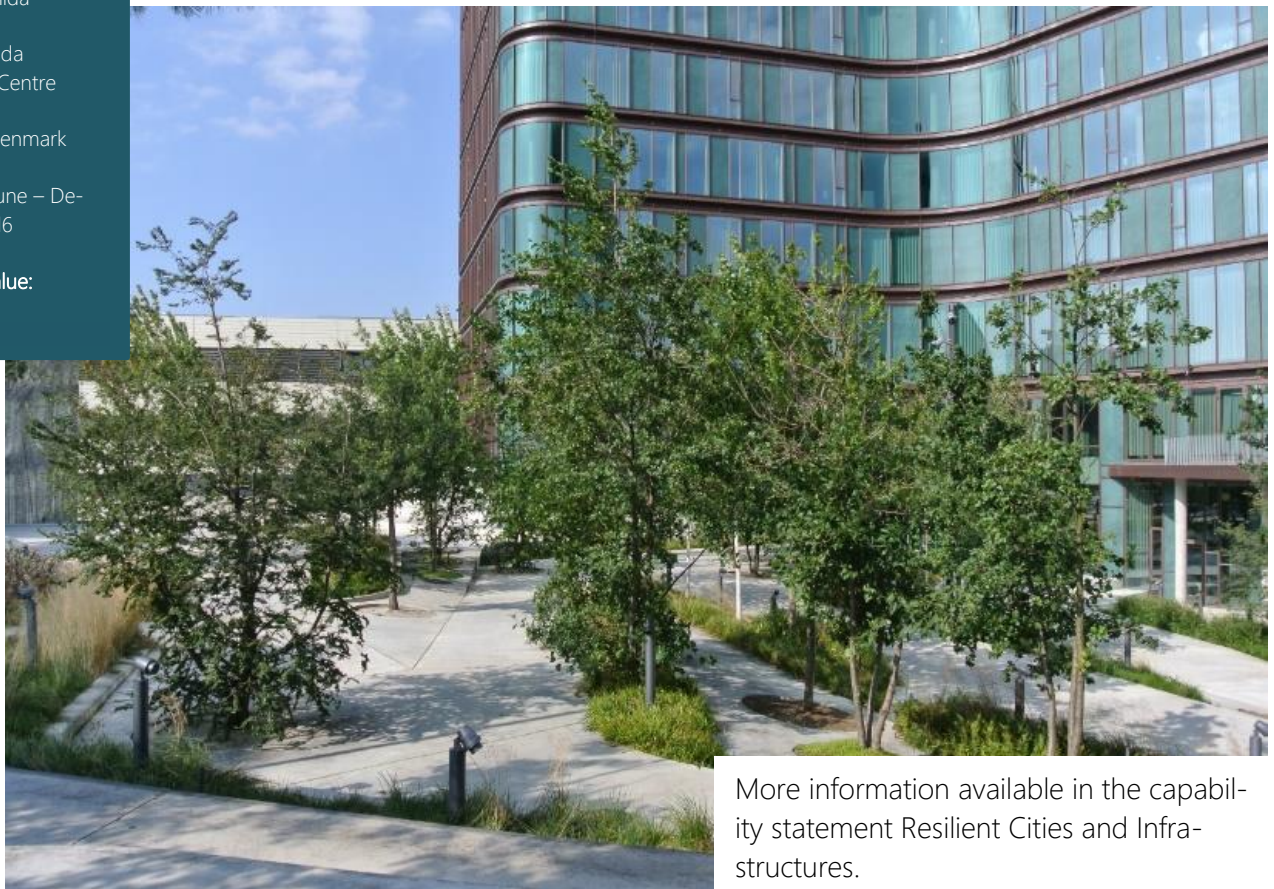
**Duration:** June 2016 to December 2019

**Contract value:** 101 504 EUR



Our Scandinavian base has also allowed NIRAS to work with ‘urban liveability’ for decades. We are continuously engaging with Local Government Authorities in some of the most liveable cities in the world. NIRAS develops state of the art solutions that improve urban life and support thriving and creative urban economies. The *Danida Fellowship Course on Sustainable Cities* (2016) build on this experience to provide insight for 25 planners and environmental officers from 9 different countries on environmental sustainability, and demonstrate the importance of taking an integrated approach to urban development, with environmental considerations and climate resilience mainstreamed into all levels of planning and implementation.

**Donor:** Danida  
**Client:** Danida Fellowship Centre  
**Location:** Denmark  
**Duration:** June – December 2016  
**Contract value:** 60.000 EUR



More information available in the capability statement Resilient Cities and Infrastructures.

## VULNERABILITY, HAZARD, RISK ASSESSMENT

The identification, analysis, and prioritization of risks forms the cornerstone of Disaster and Climate Risk Management. Through detailed understanding of risk components of hazards, exposure, vulnerabilities, and capacities in a given context, a risk assessment provides the basis for subsequent risk reduction activities.

### Highlighted projects

**Donor:** Agence Française de Développement

**Client:** The Ministry of Economy and Finance, Cambodia

**Location:** Cambodia

**Duration:** July 2019 – March 2020

**Contract value:** 218,390 EUR

In Cambodia, the four secondary cities of Battambang, Kampot, Kratie and Chhlong are exposed to hydrometeorological hazards which affect vulnerable communities resulting in a higher disaster risk. In 2019-2020 on behalf of AFD, in the assignment "***Climate Vulnerability and Adaptation Assessment of Cambodian Secondary Cities Project***", NIRAS conducted vulnerability and risk assessments in each of the four cities as part of a feasibility study. Based on the assessments and partner consultations, the teams proposed adaptation and risk reduction options in sectors such as heritage rehabilitation, economic development, flood protection, and public space development.

NIRAS has conducted capacity development for risk assessment. One of these initiatives was the two-week learning programme "Disaster Risk Reduction", conducted for participants from Danida partner countries in 2017 and 2018. The objective of the training was to introduce and discuss the concepts of disaster risk reduction and its management to managers and planners. The programme explored in depth the components of risks, underlying risks and their drivers, and how risk knowledge informs risk reduction activities.



**Donor:** Danida

**Client:** Danida Fellowship Centre

**Location:** Denmark

**Duration:** December 2017 – June 2018

**Contract value:** 390,000 DKK

In The Gambia, NIRAS has been involved in designing a coastal protection scheme and recently (11/2019-03/2020) developed a specific ***Climate Vulnerability and Risk Assessment*** of the Kololi Coastal Protection Scheme.

## FINANCING CLIMATE ADAPTATION/CLIMATE ADAPTATION FINANCE

According to the UN Framework Convention on Climate Change (UNFCCC), “climate finance” refers to local, national or transnational financing – drawn from public, private and alternative sources of financing – that seeks to support mitigation and adaptation actions that will address climate change. Climate finance is needed for mitigation, because large-scale investments are required to significantly reduce emissions; and is equally important for adaptation, as significant financial resources are needed to adapt to the adverse effects and reduce the impacts of a changing climate. Unfortunately, at the moment, only 5% of current climate finance targets adaptation. Two of the major climate funds are the Global Environmental Facility (GEF, created in 1994) and the Green Climate Fund (GCF, created in 2010) operated by the UNFCCC’s Conference of Parties (COP). Both funds serve the implementation of the Paris Agreement (2015).

### Highlighted projects

**Client/Donor:** Danida

**Location:** World-wide

**Duration:** June 2014 – October 2016

**Contract value:** 443,977 GBP

NIRAS is currently conducting several evaluation assignments aimed at assessing the effectiveness of donors’ development initiatives for mainstreaming climate change funding within the donors’ partner countries. From 2014 to 2016, following the Paris Agreement, NIRAS evaluated the effectiveness of Denmark’s contribution to “Fast Start Finance”.. The *Evaluation of Denmark’s Climate Change funding for developing countries* used three Danish country programmes as case studies, namely Kenya, Somalia and Mali.

NIRAS also recently (2019-2020) undertook an *Evaluation of the AfDB’s Support to Green Growth and Climate Change*. This evaluation (i) helped the African Development Bank in overcoming the strategic, conceptual and implementation issues related to green growth and climate change interventions in its Regional Member Countries; (ii) influenced future strategic directions and implementation mechanisms; and (iii) provided senior management and board members with an independent analysis and recommendations for their decision-making on green growth and climate change in the Bank.

**Client:** AfDB

**Location:** World-wide

**Duration:** July 2019 – April 2020

**Contract value:** 333,165 USD

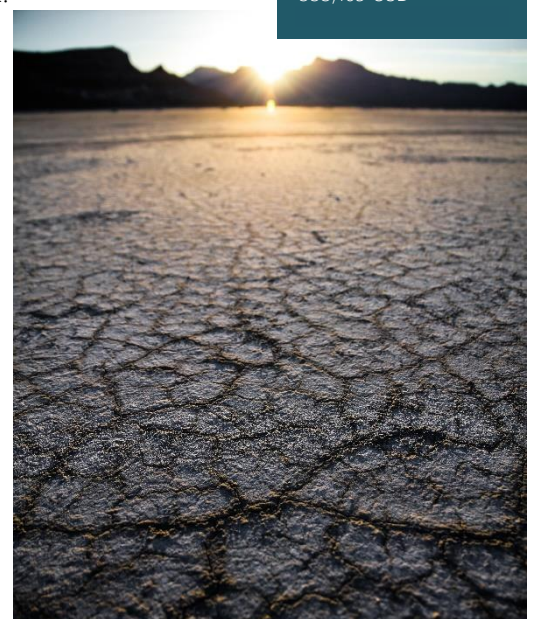
**Client/Donor:** Climate and Development Knowledge Network (CDKN)

**Location:** Kenya

**Duration:** December 2015 – December 2016

**Contract value:** 249,955 GBP

In addition to the evaluation of climate finance effectiveness, NIRAS has also supported beneficiary countries to apply for funding from the Green Climate Fund (GCF) following their Nationally Determined Contributions (NDCs). This was the case for example in the project called *Enhancing Direct Access to Adaptation Funding in Kenya* (2015-2016). During this assignment, NIRAS provided technical support to the Government of Kenya to develop an investment-grade adaptation pipeline, project concept notes and proposals for submission to the GCF.



© Photo: Patrick Hendry

## CLIMATE SMART AGRICULTURE, GREEN VALUE CHAINS

Climate Smart Agriculture (CSA) has three main pillars: to sustainably increase agricultural productivity and improve the incomes and livelihoods of farmers; to build resilience and adaptation to climate change; and, to reduce greenhouse gas emissions and increase carbon sequestration. By combining livelihood and climate change adaptation and mitigation in a symbiotic and context-specific way, CSA represents a “multiple-win” approach to sustainable, climate resilient farming. NIRAS has been involved in numerous CSA projects, involving both scoping and programming, practical implementation, fund management, learning programmes and capacity building, as well as strategy development and monitoring and evaluation.

### Highlighted projects

*Scoping and programming* was supported in the 2015-2020 DFID financed Vuna, a **Climate Smart Agriculture Programme**, where NIRAS (then LTS) provided a range of inputs into the initial three-year phase of the programme.

**Client/Donor:** DFID

**Location:** Africa (regional)

**Duration:** 2015 - 2020

**Contract value:** 26.1 million EUR

Throughout the scoping phase, NIRAS’s analysis helped establish the case for CSA, assess the challenges and obstacles to wider adoption of CSA approaches, design initial ideas on a strategy for the programme, and outline achievable outcomes and impact. Part of this work involved the development of a diagnostic tool to identify intervention points for climate-smart approaches. NIRAS also provided specific support on the programme’s gender and social inclusion strategy. During the implementation phase, NIRAS supported the development and delivery of the Donor Committee for Enterprise Development’s results measurement system, delivery of the communication and knowledge management strategy, as well as additional technical inputs into gender mainstreaming across CSA pilot activities with farmers in Malawi, Mozambique, Tanzania, and Zambia. Specifically in Malawi, we led the development of a national CSA framework and produced a national CSA inventory. Technical assistance was provided to the Land Resources Conservation Department (LRCD) under the Malawi Ministry of Agriculture, Irrigation and Water which endorsed these deliverables as central to the Government’s agricultural approach. This component was important in promoting sustainable agricultural transition in Malawi.

Joint project implementation was in focus when NIRAS joined forces with the National Union of Coffee Agribusinesses and Farmer Enterprises (NUCAFE) in Uganda and implemented the Nordic Climate Facility-financed CSA **project Improving climate resilience for small-scale coffee farming systems in Uganda through adaptation and mitigation in the coffee value chain** in 2017-2020. The project aimed at introducing and strengthening CSA practices in the coffee value chain, and involved adaptation measures such as improved water management, solar and hand driven irrigation pumps, shade trees, cover crops, mulching and composting (many of which also double as mitigation measures), and improved energy efficiency at the main coffee processing facility in Kampala, using energy audits to identify improvements and installing rooftop solar PV. The process also involved strengthening the Farmer Ownership Model developed by NUCAFE, aimed at empowering the farmers to be responsible for value addition of their coffee rather than selling unprocessed coffee bean directly after harvest. This will increase the farmers’ independence of intermediate coffee buyers and will also enable them to sell their processed coffee at a higher price than their previously unprocessed coffee. It also increases quality, as the farmer is keen on securing the quality of the coffee bean, all the way from the plant to the cup. You can read more about the project [here](#).

**Client/Donor:** Nordic Climate Fund (NCF)/Nordic Development Fund (NDF)

**Local partner:** National Union of Coffee Agribusiness and Farm Enterprises Ltd (NUCAFE)

**Location:** Uganda

**Duration:** January 2017- November 2020

**Contract value:** 500,000 EUR



**Client/Donor:** Private Agricultural Sector Support Trust - PASS

**Location:** Tanzania

**Duration:** October 2019 - December 2020

**Contract value:** 29,345 USD

In terms of *strategy development and capacity building*, NIRAS prepared an **Inclusive Green Growth Strategy** for Private Agricultural Sector Support Trust (PASS) (2019–2020), promoting access to finance for CSA and other green and low carbon investments in the agricultural sector. We have also been involved in similar assignments and learning programmes have been implemented with *Micro Enterprises Support Programme Trust* (2017–2018) in Kenya and the *Agricultural Business Initiative (aBi trust)* in Uganda (2017), all with the aim of building capacity to “green” the agricultural value chains and increase resilience to climate change.

NIRAS is involved in the monitoring and long-term impact evaluation the **DFID Climate Smart Agriculture Zambia (CSAZIE)** programme (2017–2022) implemented by the Conservation Farming Unit (CFU). Together with our partners IAPRI and Cloudburst Consulting, NIRAS is working with DFID Zambia and the CFU until 2021 to measure socio-economic impacts of the CFU’s work on encouraging adoption of Conservation Agriculture at the household level. We will develop household surveys for baseline, midline, and end line evaluation that will focus on adoption of the various Conservation Farming / Conservation Agriculture / Climate Smart Agriculture practices and their links to improved household outcomes (for example, food security and incomes), both inside and outside of the geographic areas targeted by the CFU. Additionally, by utilizing the data which CFU is collecting through their own monitoring systems, building on previous IAPRI studies and linking our findings to other relevant evaluations/research, we aim to ensure that we can generate the most useful insights. This is both in terms of accountability on the current investment, but also on learning for the future and wider audiences.



**Client/Donor:** DFID

**Partners:** IAPRI & Cloudburst Consulting

**Location:** Zambia

**Duration:** October 2017 – March 2022

**Contract value:** 1.14 million EUR

## NATURE-BASED SOLUTIONS AND ECOSYSTEM-BASED ADAPTATION

Healthy ecosystems and the services they provide are of immense importance to peoples food, water, health and energy security – and indeed to their general livelihood situation. The close link between climate resilience and ecosystem health has become more and more clear with the increased frequency of extreme weather events, such as strong storms, storm surges, heavy rainfall events and long droughts. Mangrove forests along the coast protect coastal zones against hurricanes and storm surges as well as tsunamis; forested mountain slopes retain and release water slowly during intense rainfalls, reducing erosion and down-stream flood risks and ensures a more stable and continuous flow of clean water in streams and rivers.

Biological diversity increases the resilience of the ecosystems to climate change and variability – when some species are negatively affected, e.g. by increasing temperatures or extended droughts, other species will survive, and help to maintain the ecosystem during periods of stress.

Maintaining, restoring or re-establishing ecosystems and their services thus represent a key element in climate change adaptation and DRR, and measures to promote this for adaptation purposes are often termed Ecosystem-based Adaptation (EbA) or Nature Based Solutions. Measures may also involve protection and restoration of ecosystems as well as climate smart agricultural practices, e.g. agroforestry systems, where the agricultural systems mimics (elements of) a natural forests ecosystem and benefit from the resilience the system provide.

Our services related to ecosystems and climate change adaptation include training, capacity building, and project/programme implementation.

### Highlighted projects



**Client:** Ministry of Natural Resources and Environment (MONRE)

**Donor:** GIZ

**Location:** Vietnam

**Duration:** December 2014 – February 2016

**Contract value:** 121,000 EUR

In Vietnam (GIZ 2014-2016), we provided training in *Strategic mainstreaming of ecosystem-based adaptation* in order to contribute to Innovative and effective methods, strategies and policy guidelines for the implementation of ecosystem based adaptation in Land use planning and Development planning are available and are integrated in the national adaptation policy in a systematic way as well as implemented continuously in practice.

**Client:** Asian Development Bank

**Location:** Cambodia, Lao, PDR, Myanmar, China, Vietnam, Thailand

**Duration:** April 2016 – March 2018

**Contract value:** 1,195,235 USD

In the Greater Mekong Area NIRAS implemented the *Core Environment Program and Biodiversity Conservation Corridors Initiative in the greater Mekong Subregion (CEP)*, in 2016-2018 on behalf of ADB. The programme involved capacity building towards vulnerability assessment and identification of nature based solutions to the impacts of climate change linked to ecosystems and forest protection across the region.

**Donor:** USAID

**Clients:** Lake Victoria Basin Commission (LVBC), East African Community (EAC), EAC Partner States

**Location:** Lake Victoria Basin, East Africa

**Duration:** February 2013-March 2018

**Contract value:** 1,911,214 USD

In East Africa, in the USAID financed project *"planning for resilience in East Africa through policy, adaptation, research, and economic development (prepared)"* we provided targeted support in biodiversity conservation to the Lake Victoria Basin Commission (LVBC), East African community (EAC) and 5 EAC partner states (Burundi, Kenya, Rwanda, Tanzania and Uganda). Our support included (i) facilitating landscape-scale freshwater and terrestrial (forestry) biodiversity interventions; (ii)



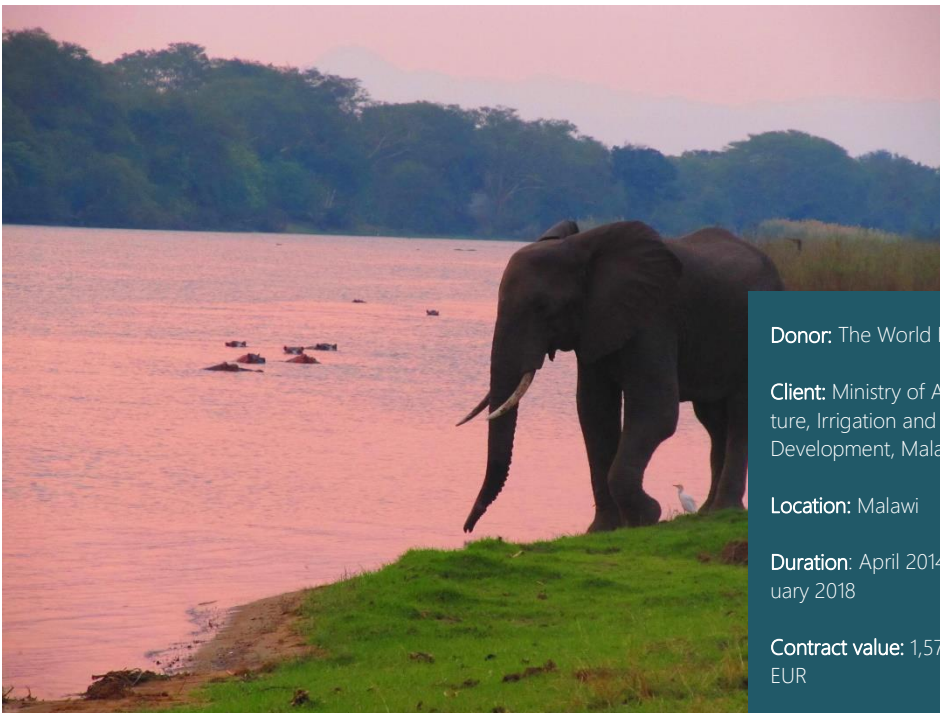
strengthening biodiversity conservation in LVB for ecosystem-based adaptation to climate change; (iii) enhancing the protection and restoration of freshwater biodiversity in LVB; (iv) strengthening inter-institutional coordination in the LVB for improved management of biodiversity conservation, climate change adaptation, and pollution control/wastewater management. You can read more about the project [here](#).

## IWRM AND CLIMATE ADAPTED WATER INFRASTRUCTURES

Integrated Water Resource Management (IWRM) aims to result in more holistic and coordinated management between the different aspects of water resources systems to support social, economic and ecosystem development. IWRM therefore has a key role in supporting adaptation to climate change.

### Highlighted projects

In the *Shire River Basin project in Malawi* implemented from 2012 to 2018, NIRAS assisted the Government of Malawi to develop an integrated multi-sectoral Shire River Basin Plan based on extensive analytical and stakeholder inputs. The services provided included the establishment and strengthening of the “Shire River Basin Institution”. NIRAS developed an integrated basin plan that outlined the critical land, forest, wildlife and water resources development and management elements in the Shire Basin. In recent years, erratic rainfall patterns due to climate change have caused a drop in the lake's water levels, affecting the intake of the Shire River. The Elephant Marsh, a biosphere



**Donor:** The World Bank

**Client:** Ministry of Agriculture, Irrigation and Water Development, Malawi

**Location:** Malawi

**Duration:** April 2014-January 2018

**Contract value:** 1,579,710 EUR

reserve downstream of the Shire River, is the first to suffer from the decrease in water flow. In order to best tackle the climate change impacts and competing water uses, NIRAS initially established a comprehensive knowledge base of the climate, hydrology, natural resources, and existing and proposed investment options in the Basin. Based on the information collected, our team developed an appropriate decision support systems framework that outlines the current status, future vision and established an analytical framework that examines various scenarios (e.g. infra-

structure, climate, population growth, land use changes). Appropriate analytical tools were elaborated such as a multi-year simulation model based on selected parameters (population growth, precipitations, land use changes, infrastructures) to prioritize interventions for IWRM in the Basin, such as reforestation measures, rehabilitation of irrigation schemes, and construction of multi-purpose dams. You can read more about the project [here](#).



In the *Multinational Lakes Edward and Albert Integrated Fisheries and Water Resources Management Project (LEAF II) - Preparation of the Integrated Basin Management Plan* (2017 – 2019), NIRAS addressed similar themes within a transboundary lake and associated basin, between the Democratic Republic of the Congo and Uganda. This location provided new challenges on how to mitigate climate change and other anthropogenic impacts (such as water pollution from mineral extraction, and overfishing) on water availability; while supporting socio-economic development, poverty reduction, and the reversal of environmental degradation. The specific objectives of the assignment were to identify potential investment options for the sustainable utilization and management of the basin’s shared fisheries, water and allied natural resources. This was achieved taking into consideration the investment options’ economic, social, environmental and institutional implications as well as cumulative impacts, in alignment with regional and the respective national priorities and plans.

**Donor:** AfDB  
**Client:** The Executive Director Nile Basin Initiative Secretariat  
**Local partner:**

**Location:** Rwanda, Democratic Republic of the Congo, Uganda

**Duration:** June 2017 – October 2019

**Contract value:** 750,000 USD



Erratic rainfalls induced by climate change can put water infrastructure located in a watershed at risk (for example, under-use of dams, increase of water sediments, floods, and mud flow). Water infrastructure vulnerability to climate change and adaptation needs were considered in another *Transboundary Basins and Aquifers Study* performed by NIRAS for UNEP in East Africa and the Greater Horn Region (2009). Water infrastructure can be a key element to promote climate change adaptation. In the *Climate Rehabilitation of Economic, Physical and Social Infrastructure in Sri Lanka* (GTZ, 2006-2008), NIRAS developed Climate Resilient Water Supply and Sanitary Infrastructures to strengthen the resilience of the population affected by tsunamis in the southern districts of Matara and Hambantota.

In 2017-2018 on behalf of AFD, in the assignment *"Climate Vulnerability and Adaptation Assessment of Cambodian Secondary Cities Project"* NIRAS conducted vulnerability and risk assessments in each of the four cities including the risk assessment of water infrastructures as part of a feasibility study.

## COASTAL ZONE PROTECTION AND MANAGEMENT

NIRAS has a dedicated Department for Coastal Protection, and holds strong specialist knowledge within coastal protection, flood risk management and climate adaptation planning for coastal zones, both in terms of specific projects and within a framework of Integrated Coastal Zone Management. We develop our projects based on a holistic perspective and include disciplines such as engineering, surveying, social sciences, landscape architecture, environment, master planning and economics. This results in robust and integrated solutions that provide multiple benefits to nature, local communities and society in general.

Our solutions are based on a profound understanding of the natural environment and local socio-economic conditions. And we always use state-of-the-art numerical models (MIKE-software and CFD-models), GIS and 3D CAD software in our work.

### Highlighted projects

**Client:** UNDP Egypt

**Partners:** DHI, Wageningen University, Eco Con Serv

**Location:** Egypt

**Duration:** August 2020 – July 2023

**Contract value:** 2,848,716 EUR

Our ongoing work (2020-2023) includes technical assistance for the project ***"Development and Implementation of a climate resilient ICZM plan for the North Coast of Egypt"***, addressing the complex challenge from a combination of projected sea level rise and more frequent, intense, and extreme storm events affecting the Nile river delta and the overall coastal area. The technical assistance provides a detailed climate resilient plan for the entire north coast through an Integrated Coastal Zone Management (ICZM) approach, including the required underlying institutional and regulatory frameworks and information systems for implementation. To meet this objective, an associated ocean and coastal observation system will be established to monitor trends in oceanic and coastal conditions under a changing climate, as well as the impact of the different shore protection scenarios on the coastal erosion and shoreline stability. The project will further validate and disseminate the developed models and document lessons learnt and good practices.

In The Gambia, NIRAS has been involved in designing a coastal protection scheme and recently (2019-2020) developed a ***Climate Vulnerability and Risk Assessment*** of the Kololi Coastal Protection Scheme, assessing and providing recommendations for soft and hard measures to protect the beaches and related tourism infrastructure from rapid coastal erosion. You can read more about the project [here](#).

**Client/Donor:** UNDP

**Location:** The Gambia

**Duration:** December 2019 – September 2020

**Contract value:** 74.000 USD

**Donor/Client:** EuropeAid

**Local partner:** LYTT Architecture

**Location:** Denmark

**Duration:** 2020-2022

**Contract value:** 13.5 million EUR

In Denmark, NIRAS has implemented numerous coastal protection and development schemes. Most recently (2020-2022) NIRAS, in cooperation with LYTT Architecture, has been chosen to carry out the ***Koege Dike project***, one of the largest coastal protection projects in Denmark. The project will protect 19,000 citizens and related infrastructure along an 11 km coastline in Koege Bay, using dykes, walls, partitions, canal locks, and mobile solutions. The assignment includes analyses and preliminary investigation, project proposals, supply project, EU tenders, contracting and execution. You can read more about the project [here](#).

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### NIRAS offices around the world

Our decentralised structure ensures that we are always close to our projects. With 51 offices in 27 countries worldwide, we maintain strong local ties to clients, experts, and organisations in all of our key markets. Building on our motto “we listen, we learn, we deliver”, NIRAS is proud to be a long-term partner in the pursuit of growth and prosperity for the countries in which we work. Our representations are staffed by professionals committed to building partnerships with local service providers, and we train and recruit local talent beyond the lifespan of individual projects. NIRAS sees this as a contribution to building sustainable and equitable future societies wherever we work. Contact our representatives to see how we can support your needs.

For a complete list of NIRAS country offices, visit our website: [www.niras.com/locations](http://www.niras.com/locations)

# The next generation consultancy

Owned by a foundation and a percentage of its employees, NIRAS is an international multi-disciplinary consultancy firm with Nordic roots and values creating sustainable development solutions for a better, more equal, and stable world. We have about 2300 employees worldwide and implement projects in over 100 countries. We work across a broad spectrum of areas including construction, energy, water, climate change resilience, and infrastructure to rural development, the process industry, economic development, geodata, as well as urban planning. Our mission is to deliver tailored, innovative, value-creating, and results-driven solutions to enable our clients and partners achieve their goals. We do this by providing transformative support for positive change, addressing root causes, and magnifying impact through flexibility in implementation, capturing SDG-linked results, and celebrating successes.

## Ethics and Sustainability

Through the more than 7000 projects, NIRAS has implemented around the globe, we are doing our part to contribute to sustainable societies by meeting the UN's Sustainable Development Goals (SDGs).

All NIRAS results are linked to their contributions to one or several of the SDGs. In our own practice, we emphasise accountability and ethics. NIRAS is a signatory to the UN Global Compact and member of the International Federation of Consulting Engineers (FIDIC). Through these, we have committed to uphold a number of international principles.

## International Consulting

A key business unit, NIRAS International Consulting collaborates with development organisations, donors, governments, institutional investors, and the private sector to design, manage, and evaluate projects and services that create opportunities for people to improve their lives and live in safe, equal, well-governed, and climate-resilient societies. We do this in partnership with our country offices and our extensive network of experts to ensure a comprehensive, results-driven approach that is both contextually sensitive and produces innovative outcomes for maximum value. We pride ourselves on efficient and effective results-based management.



Join our team of development practitioners in our goal to alleviate global poverty. Register your CV on our database: <https://cv.niras.com>

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