



Your Partner in Clean Water Management

#6

Clean water
and sanitation



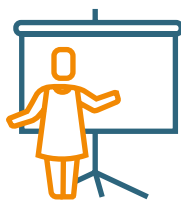

NIRAS



Owned by a foundation and a percentage of its employees, NIRAS Group is an international multi-disciplinary consultancy firm with Nordic roots and values creating sustainable development solutions for a better, more equal, and stable world since 1956. A well-consolidated company with earnings before interest, taxes, and amortization (EBITA) of approximately €15.6 million, NIRAS operates in Europe, Africa, Asia-Pacific, Latin America, the Middle East and the Arctic Region. About half of the annual turnover is accrued from projects carried out internationally.



51
Offices
in 31 countries



2400
Professionals
325 International
Development Consulting
33,000+ experts
in our CVPT network



7000+
Projects
Delivered in
100+ countries

**NIRAS International
Development Consulting
SERVICE SECTORS**

- Forests
- Agriculture
- Climate
- Land
- Fund Management
- Education & Skills
- Private Sector & Trade
- Peace & Stability
- Gender & Human Rights
- Governance
- Water
- Sustainable Energy
- Urban Development
- ME & L

NIRAS has a fixed presence in 31 countries between our network of 51 offices including subsidiaries, branches, representative offices and joint ventures. Building on international experience and management of projects from more than 100 countries, NIRAS provides technical expertise and results-oriented project management in our core competence areas. Our mission is to deliver tailored, innovative, value-creating, and results-driven solutions to enable our clients and partners, achieve their goals. We achieve 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.

NIRAS Group is divided into business units; NIRAS International Development Consulting specialises in providing technical assistance on behalf of official development aid (ODA) clients. Among others, we focus on urban and rural development, good governance, sustainable energy, climate change and resilience, natural resource management and infrastructure in developing and emerging countries. We collaborate with international 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 are structured as a matrix organisation, allowing for continuous learning and adoption of good practices between different country and market contexts, clients, and technical solutions. Cooperation between all of our business units is a stronghold of NIRAS. All offices are closely linked through online project management tools and information management systems, ensuring that clients and partners always enjoy the same high quality services. Flexibility in the project manning is among the top priorities to ensure that for each individual assignment we draw the best-suited team from all sectors.



NIRAS: Applying Innovative Solutions to Water Management

Water is essential to human life. Access to safe and affordable drinking water is a crucial right, vital for economic development, social well-being and reduction of poverty. Due to the increasing occurrence of water stress and scarcity, increasing variations and uncertainties in weather patterns, deterioration in water quality, and the mismanagement of water, there is an urgent demand for innovative technologies and solutions geared toward the future.

At NIRAS, we take an integrated and holistic approach to water management, access, and final domestic or income-generating use. Our expertise covers all aspects of planning, design and implementation of water-related projects in a variety of fields and our team of specialists comprises engineers, biologists, environmentalists, geologists, socio-economists and financial and institutional professionals.

We apply tested, yet innovative, methodologies and rely on experience we have acquired on a large number of water-related assignments across the globe in:

- rural water supply
- urban water supply
- wastewater management
- integrated water resources management
- training/capacity building
- climate change and disaster risk management.

Today, NIRAS has more than 250 in-house water professionals who collaborate with over 500 external water-sector specialists, implementing projects across the globe.

Water consumers today expect the supply of water to be efficient, safe and of high quality and hence water utility companies must be highly skilled and have both the technical expertise and the network capacity required to deliver this service.

Optimising sanitation, conveyance of sewage and satisfactory treatment of wastewater needs to be done in an integrated approach to wastewater management, addressing the issue from a broad perspective and encompassing factors such as storm water, wastewater drainage, treatment processes, effluent handling, and the absorptive capacity of receiving waters.

Integrated water resource management takes full recognition of the multi-disciplinary tasks involved, and our consulting and advisory services cover the entire range of disciplines, including transboundary water resources management. Adaptation to extreme weather events and unpredictability also require technical expertise and state-of-the-art technologies, specific to the environment in which they are to be applied. Projects must be administered wisely and of economic benefit to society.



Rural Water Supply and Sanitation:

Providing safe water for all

Ensuring a safe and sustainable water supply in rural areas is of fundamental importance for rural development all over the world. Access to basic water and sanitation services is a crucial right, vital for development and the reduction of poverty. Due to the increasing occurrence of water stress and scarcity, increasing variations and uncertainties in weather patterns, deterioration in water quality and the mismanagement of water, there is an urgent demand for innovative technologies, approaches and solutions.

NIRAS specialises in rural development and empowering rural communities to manage their natural resources in a sustainable way. Water is a critical natural resource, particularly in many arid and semi-arid areas. Community-based management of natural resources is key to ensuring sustainability and equal access. It also ensures that water resource management solutions are adapted to the needs and specific characteristics of each project area and ownership and that water resources will continue to be managed appropriately.

OUR SERVICES:

- Implementation of rural water supply and sanitation projects, focusing on appropriate design and approaches as well as user participation and ownership
- Feasibility studies on technical, social, financial and environmental aspects
- Design, implementation and commissioning of water supply systems, from water intake to user
- Community fund mechanisms as tools for community-based needs assessment, social infrastructure planning and procurement
- Strengthening of the management capacity of locally based water committees and associations
- Improvement of locally based operational and management systems
- Behavioural changes in hygiene and sanitation
- Environmental impact assessments
- Decentralisation of planning, implementation and management of water supply systems.

When solving water-related assignments, we make sure that other fields such as institutional development, sociology, health provision, financial and economic assessment and the environment are taken into consideration and needs and expectations met.





Sustainable WASH for all (SUSWA) in Nepal

📍 **Nepal**

DONOR:
MFA Finland
EU (from 2022)

🕒 **DURATION**
2021-2025

€ **VALUE:** €31.1M (total) including €9M (MFA); €10.1M (EU from 2022); €10M (Nepal govt & municipalities); €2M (users)

The SUSWA project is a continuation of the financial and technical support that Finland has been providing to the development of the WASH sector in Nepal since 1989. Working in the geographically challenging and hard-to-reach municipalities of Karnali, SUSWA aims to reconsider earlier approaches in order to address the root causes of low functionality, while strengthening governance for gender equality, social inclusion and sustainable sanitation and hygiene.

In the working area of SUSWA, the majority of water schemes are low to non-functional. Water users' committees lack the resources and capacity (e.g., skilled maintenance workers, funds and spare parts) to respond to scheme breakdowns. Additionally, external factors such as weather-related disasters play a big part in water service disruptions. Rethinking the role of duty bearers and strengthening the role of the local government is thus key for climate resilient, safe and functional water supply. SUSWA intends to establish efficient and transparent WASH governance at municipal level that is capable of ensuring safe, sustainable, inclusive WASH services and conditions for all, through internalising the concept of lifetime services (and costs) of schemes. The project municipalities are the main implementers of SUSWA and participate in the project cost. Addressing func-

tionality as the core issue requires organisational restructuring and the formation of professional operation and maintenance (O&M) structures supported by reliable and timely data and supply-chains. The extended Water Safety Plan (WSP+++) supplements the conventional WSP by also addressing climate change adaptation and disaster risk reduction, O&M and water tariff collection, as well as social inclusion. SUSWA proposes to transform WSP+++ from a theoretical concept to an agile, usable tool for both communities and municipalities, by integrating it into existing municipal monitoring systems.

Apart from strengthening municipality policies, budgets and plans to secure inclusion of women and disadvantaged caste groups in planning and decision-making processes, SUSWA will empower persons of disabilities and work with organisations for persons with disabilities to ensure that the WASH needs and rights of all are considered for disability-inclusive WASH facilities. Moreover, by reviewing current harmful practices related to menstruation, analysing and addressing underlying social norms, and collaborating with schools, health posts and other organisations, SUSWA will work towards a future of dignified menstruation management for all women and girls in Karnali.



Community-led Accelerated Water, Sanitation and Hygiene Project (COWASH IV)

Ethiopia

DONOR:

MFA Finland

DURATION
2021-2024

VALUE: €41M (total) including
€18.4M (MFA); €20.5M
(Ethiopia govt); €2.1M (users)

The Community-led Accelerated WASH (COWASH) Project is a bilateral initiative between the Governments of Finland and Ethiopia conducted under the overarching umbrella of the One WASH National Programme. Its key objective is to improve public health and well-being, social development, and climate resilience in the rural communities of selected woredas. Launched in 2011, and currently in its fourth phase, COWASH has focused on the achievement of targets through the establishment of an enabling environment and the implementation of community-managed project (CMP) interventions. Under the leadership and direction of NIRAS, COWASH IV is building on the work of the earlier phases and targeting increased and sustained coverage of safe water supply, sanitation and hygiene in 104 rural

woredas of Amhara, Tigray, Southern Nations and Nationalities Peoples, Oromia, Benishangul-Gumuz, Sidama and South-west regions, representing more than 10% of all rural districts of Ethiopia. NIRAS is taking the project to the next level and, while building on the momentum achieved in the previous phases, COWASH IV is also leading the way in mainstreaming new and essential project features including integrated water supply and sanitation, climate resilient water safety planning, gender equity and disability inclusion and social behaviour change, together with the development of market-based sanitation and micro and small enterprises. Furthermore, COWASH IV is directly addressing the issue of institutional WASH by the adoption of the “full package” approach covering water, sanitation and menstrual hygiene management. COWASH IV is supporting Ethiopia’s goal to increase the number of woredas having “open defecation free” status. Living up to its pioneering role, inclusivity is an area where COWASH has led the way, empowering persons with disabilities to be part of the development process as equal partners to ensure disability inclusive water schemes and sanitation. MFA Finland directly supports COWASH IV but also contributes (€4M) to the Consolidated WASH Account Phase II, which funds the One WASH National Programme.



Rural Water & Sanitation Supply Project References

	Country	Years
Sustainable WASH for All (SUSWA)	Nepal	2021-2024
Community-Led Accelerated WASH in Ethiopia	Ethiopia	2021-2024
Programme for the Water Sector - Water for Eastern Equatoria State	South Sudan	2013-2020
Water Sector Programme Support	Zambia	2012-2014
Rural Water Supply Component of the Water and Sanitation Sector Programme	Mali	2010-2016
Community Watershed Management Programme	Sudan	2010-2014
Water Supply, Sanitation and Hygiene Programme in Benishangul-Gumuz	Ethiopia	2009-2015
National RWSS Component of the Water Sector Development Programme	Tanzania	2009-2010
Water and Sanitation in Rural and Semi-Urban Environments, Diffa and Zinder	Niger	2007-2011
Decentralised WSS Sector Programme, Mopti and Sikasso regions	Mali	2007-2009

Urban Water Supply: distributing water fairly and efficiently

Water consumers today expect the treatment and distribution of their water to be efficient, safe and of high quality. Consequently, water utility companies must be highly skilled and have both the technical expertise and the network capacity required to deliver this service.

NIRAS strives to ensure that the final product reflects public demand, meets regulatory criteria and fulfils clients' requirements for durable and sustainable water supply infrastructures. We have proven experience in providing advice on the most technically appropriate technologies and research-based, state of the art solutions. We provide consultancy on well sites, preliminary investigations and drilling, construction and rehabilitation of water works and distribution systems.

Services also include advanced water network modelling combined with supervisory control and data acquisition, creating a real time operational management system for urban water companies. This operational management system provides water utilities with an excellent overview as well as full control via the internet from anywhere in the world. Other benefits include proactive on-line operation, improved customer care, pressure management, reducing leakage, access to critical information and key performance indicators (KPIs) and contingency management, i.e. incident and risk reduction.

Clients for water supply management services include private enterprises and industries, water utilities, municipalities and international development aid agencies.



OUR SERVICES:

- Feasibility studies for water supply infrastructure on technical, social, financial and environmental aspects
- Application of water balance and groundwater occurrence models
- Chemical assessment of water quality from various sources for drinking water purposes
- Design, tendering and supervision of construction and commissioning of water supply systems
- Renovation and optimisation of large waterworks
- Network modelling and renovation planning for distribution systems
- Water network computer modelling of water pipeline networks providing real time information on operational conditions
- Demand management strategy formulation
- Planning, design and implementation of strategies for reducing non-revenue water
- Development of investment strategies for future expansion requirements
- Environmental legislation and regulatory frameworks.



NIP Ukraine Water Programme

DONOR: NEFCO  **DURATION:** 2019-ongoing  **CONTRACT VALUE:** €1.5M

NEFCO and the EU's Neighbourhood Investment Platform (NIP) have developed an investment programme for modernisation of water infrastructure in Ukraine. The programme blends funds from the NEFCO Investment Fund with interest subsidy and investment grants from NIP in order to finance small and medium-sized projects in approximately ten cities. The main objectives of the project include: (1) Substantially improve energy efficiency in municipal water and wastewater systems resulting in cost savings and corresponding reduction of CO2 emissions; (2) Decrease environmental pollution by improving municipal wastewater treatment plants; and (3) Improve quality of water services to citizens.

NIRAS is assisting ten water utilities to improve their financial performance, quality of services and environmental performance. We are helping them ensure the sustainable supply of potable water to all customers through water safety plans and improve the quality of their services by identifying savings in utility operations and developing a priority investment programme to improve efficiency, including a non-revenue water management plan.

Alongside the investment programme, a Capacity Building and Water Safety Planning Programme has been implemented.

Despite Russian's invasion, the project continued in 2022 and the strategic investment planning report for long-term investment programme is expected to be highly relevant in Ukraine's post-war future both for NEFCO and other potential donors.



Feasibility studies and innovation for Thika and Githunguri water and sanitation projects

DONOR: Danida  **DURATION:** 2017-2018  **CONTRACT VALUE:** €865K

The Athi Water Services Board is planning new, rehabilitation or expansion of water and sanitation projects to serve the rapidly developing urban areas of Thika and Githunguri. These projects began with feasibility studies focusing on innovation, renewable energy and 'whole-life costing' aspects which NIRAS delivered, including:

- technical feasibility such as identification of feasible innovation and renewable energy actions, topographical and geotechnical surveys, hydraulic modelling etc;
- financial and economic feasibility such as water demand projections, investments cost estimate, financial modelling and tariff study, as well as cost-benefit analysis;
- environmental feasibility such as impacts assessments and an environmental and social management plan;
- institutional and organizational feasibility such as capacity-needs assessment and organisational recommendations.

In support of this project, NIRAS facilitated stakeholder participation and undertook a study tour to Denmark.



Thika and Githunguri are two rapidly urbanising towns in Kenya blessed with natural water resources.

Urban Water Support Project References	Country	Years
Development of Studies for Drinking water in Garowe	Somalia	2021-2023
NIP Ukraine Water Programme	Ukraine	2020-2022
Feasibility studies, conceptual design and preparation of design-build tender documentation for Thika and Githunguri Water and Sanitation Improvement Project	Kenya	2017-2018
System Rehabilitation for NRW Reduction in South Part of the Colombo City	Sri Lanka	2017-2018
Improvement of Urban Water Supply and Sanitation, Kafubu Water and Sewerage Company	Zambia	2013- 2018
Feasibility Study for Urban Water Supply Network Rehabilitation in Unguja, Zanzibar	Tanzania	2011-2012
Consulting Services for Feasibility Study for Gondar Town Water Supply and Sanitation System	Ethiopia	2011-2012
Feasibility Study of Groundwater Resources for Urban Water Supply, Selangor	Malaysia	2008-2010
Diagnostics of Semi Urban Water Supply Schemes, feasibility Studies for rehabilitation	Cameroon	2010
Improvements to Water System Performance for Water Authority, Abu Dhabi	UAE	2009-2012
Integrated Project for Improvement of the Water Sector in Hisaria	Bulgaria	2008-2009

Wastewater Management: optimising economy and environmental impact

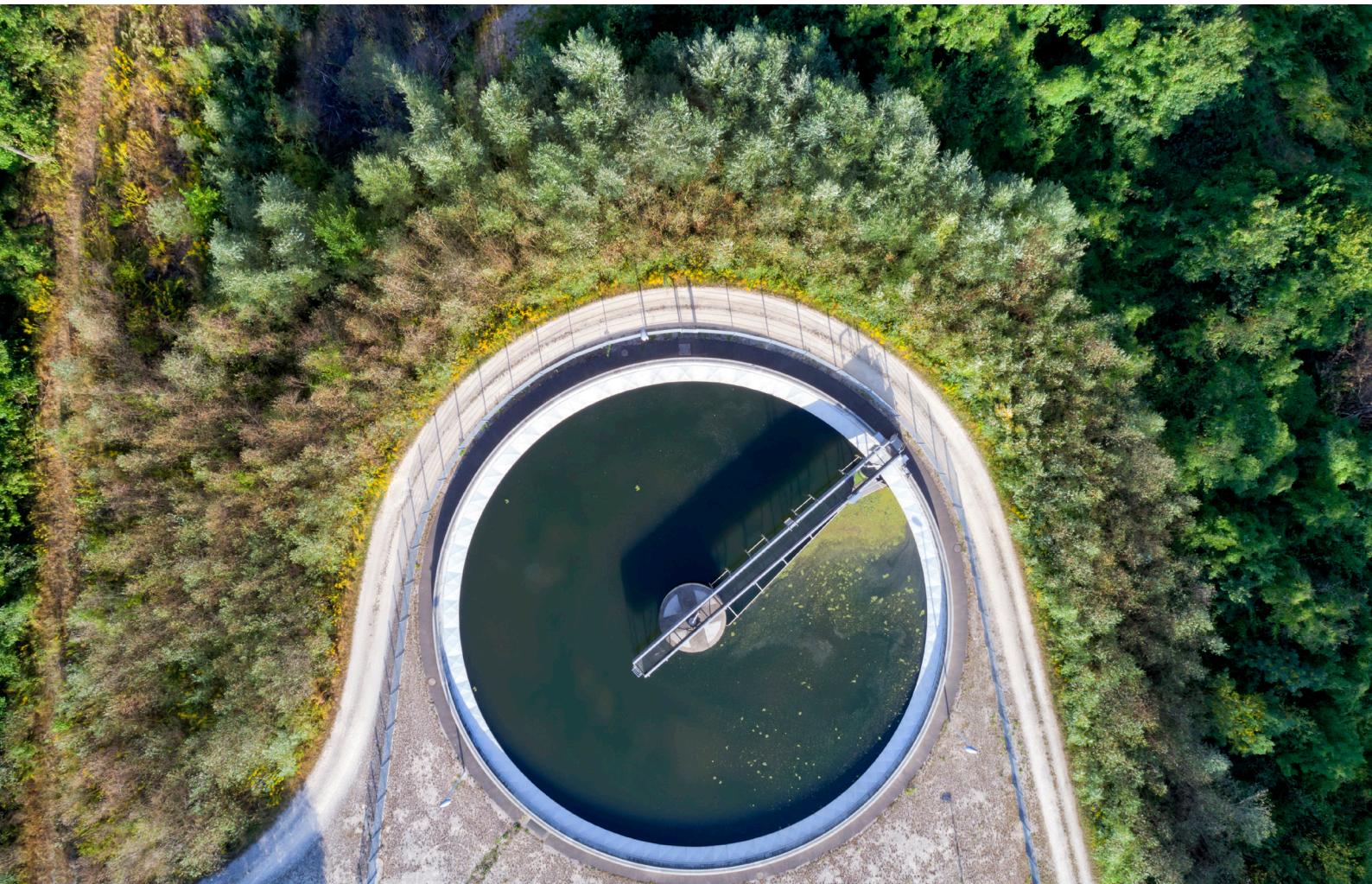
In recent years, environmental and wastewater legislation has been strengthened and harmonised in the European Union and in many other parts of the world. The stricter regulative framework has given rise to demands for safe and optimised conveyance of sewage and satisfactory treatment of wastewater from both private systems and schemes run by public utilities.

NIRAS believes in an integrated approach to wastewater management, addressing the issue from a broad perspective and encompassing factors such as storm water, wastewater drainage, treatment processes, effluent handling and the absorptive capacity of receiving waters.

NIRAS' wastewater specialists have a broad educational and practical background. Our staff work in multidisciplinary teams consisting of engineers, biologists, economists, legal and institutional specialists as well as training, communication and capacity-building specialists. Our clients comprise private enterprises and industries, water utility companies, municipalities, and international development assistance agencies.

OUR SERVICES:

- Diagnostic, master plan and feasibility studies
- Planning, design and supervision of sewage systems and treatment plants
- Modelling and chemical assessment of water quality
- Modernisation and optimisation of treatment processes
- Reuse of wastewater and storm water
- Advance control and automation of sewer system and treatment plants
- Analysis of sewer systems, sludge handling and disposal
- Environmental impact assessments
- Capacity building, institutional development and financial management
- Environmental legislation and regulatory frameworks
- Renewable energy & carbon footprint analysis
- Automation and SCADA implementation
- Biogas production from wastewater treatment plants
- Integrated management system, HOMIS



Design, Tender and Supervision during Construction of Eastern Wastewater Treatment Plant of Faisalabad City

DONOR:

Danida Sustainable Infrastructure Finance



DURATION
2022-2026



CONTRACT VALUE
€3.29 M



Faisalabad city in Pakistan discharges untreated household wastewater and heavily polluted wastewater from textile industries into the local sewerage and drainage system and channels. This eventually flows to nearby rivers but is deteriorating groundwater quality.

To tackle this, a large and modern wastewater treatment plant is planned for construction. With WASA-Faisalabad as the client, NIRAS is the lead joint venture (JV) partner and Posch & Partners a JV member in association with NDC and Eminence One Consulting as local Pakistani partners. The project includes a review of the preliminary design and preparation of tender documents and construction supervision for the 44 MGD (200,000 m³/day) treatment plant.

Wastewater Management Project References

Country

Years

Technical Assistance to Design, Tender and Supervision during Construction of Eastern Wastewater Treatment Plant (44 MGD) of Faisalabad City	Pakistan	2022-2026
Mandalay Urban Services Improvement Project, Community-Based Solid Waste Management	Myanmar	2017-2021
Preparation of studies (FS, EIA, CBA), design documentation and tender dossiers for waste water collection and treatment investment projects in the municipalities of Veles and Shtip	Macedonia	2016-2018
Technical Assistance for Monitoring the Implementation and Verification of Ha Giang Waste Water Treatment, Collection and Drainage project	Vietnam	2015-2019
IPA – preparation of studies (FS, EIA, CBA), design documentation and tender dossiers for waste water collection and treatment investment projects in the municipalities of Strumusa, Bitola and Tetovo	Macedonia	2014-2016
Support to Wastewater Projects finance by Danida Business Finance	Vietnam	2010-2015
Supply and SCADA Implementation at Lynetten WWTP and Damhusåen WWTP	Denmark	2010-2012
Construction of the Kurching WasteWater and Biogas Treatment Plant	Malaysia	2010-2012
Conceptual Design for Optimisation of Mafraq WWTP and Al Zakher WWTP, Abu Dhabi	UAE	2009-2010
Construction of Anyang Biogas Plant	China	2007-2012
Supervision of Construction for Burgas, Targoviste and Popove Wastewater Collection and Treatment	Bulgaria	2007-2011
Rehabilitation of the Sewerage Network and Provision of Wastewater Treatment Facilities at Craiova	Romania	1999-2006
Feasibility Study, Design, Rehabilitation and Construction Management of Sewerage Network, Aalborg Municipality	Denmark	1998-2012
Extension and Modernisation of Esbjerg West WWTP, Esbjerg Utility Company	Denmark	1986- 2009

Integrated Water Resources Management: promoting optimal utilisation of water resources

Integrated water resources management (IWRM) addresses issues related to planning and development of water resources in the broadest possible context, including an array of economic, social and ecological characteristics of a specific river basin. In practical terms, this means that policies, strategies and programmes/projects involving other resource areas must be carefully analysed to assess the impact they may have on demands imposed upon a river basin's water resources.

NIRAS' approach to IWRM takes full recognition of the multi-disciplinary tasks involved, and our consulting and advisory services cover the entire range of disciplines, including transboundary water resources management.

Our expertise encompasses all areas relevant to the development and implementation of IWRM programmes and related activities in partnership with institutions and stakeholders in the country or countries involved. NIRAS has the expertise to address the key challenges in the water resources sector. We

are strategically geared towards providing specialists in both natural and social sciences and are able to compose teams including hydrologists, groundwater specialist, biologists, agronomists, foresters, environmental engineers, socio-economists and financial analysts. Moreover, many of our specialists have proven experience from the public sector and have worked in scientific or research institutions.

OUR SERVICES:

- Hydrological studies of water bodies and groundwater aquifers
- Analyses of water quality and pollution
- Socio-economic assessments and studies
- Climate change and impact on water resources, including adaptive water management
- Capacity building and institutional strengthening
- Legislation and administration of water resources
- Formulation of integrated water resource management and development plans, including investment programming



The project strengthened integrated, climate-resilient management and development of the Ayeyarwady River Basin and national water resources.

Ayeyarwady Integrated River Basin Management Project

In the Ayeyarwady Integrated River Basin Management Project NIRAS provided comprehensive assistance to Myanmar's Department of Meteorology & Hydrology (DMH) to modernise its operations and improve the quality of information on its products and services. The goal was to increase the capacity of DMH in the area of disaster reduction, water resources management, agriculture, transport, environmental protection and other sectors.

DONOR:
World Bank



DURATION
2017-2020



VALUE
€3.6M

The project had three main components:

- water resource management institutions, decision support systems & capacity building;
- hydromet observation and information systems modernisation; and
- navigation enhancement on Ayeyarwady River.

Technical assistance to the National Programme for Integrated Water Resources in Burkina Faso

DONOR:
Danida

DURATION
2021-2025

VALUE
€2.61M

Water is a scarce and precious commodity in Burkina Faso and sharing of available resources is not always harmonious. The main objective of this project is to contribute to the development of effective mechanisms for the prevention and management of conflicts related to water use and the promotion and support for the implementation of adaptation to climate change measures. The implementation of integrated water resource management (IWRM) in the country will support social welfare, economic development and environmental preservation.



Five outputs are expected:

- Water-related conflicts are prevented thanks to the functionality of alert networks and the monitoring of uses and risks
- Water-related conflicts are resolved peacefully through appropriate institutional mechanisms (Local Water Committees, water police, arbitration procedures)
- The technical methods of adaptation to climate change are identified, promoted and popularised among the water use sectors
- (optimisation of water productivity, reduction of waste, replacement of water when there are alternatives)
- Knowledge and forecasting of water resources and related resources are improved
- Water resources are protected by better management plans and protection, restoration and development measures (springs, groundwater, optimised management of dams, etc.).

Project Title	Country	Years
Planning and design of the Water Resources Management Program	Cambodia	2022-2023
National Programme for Integrated Water Resources Management	Burkina Faso	2021-2025
Ayeyarwady Integrated River Basin Management Project	Myanmar	2017-2020
EU water sector technical assistance and reforms support	Egypt	2018-2020
Integrated Flood Risk Management in 13 Districts Affected by 2015 Floods	Malawi	2017-2018
Multinational Lakes Edward and Albert Integrated Fisheries and Water Resources Management Project (LEAF II)	DRC/Uganda	2017-2018
Preparation of Water Resources Management & Investment Plan	Somaliland	2016-2018
Reform in Water Sector On Central Level	Macedonia	2016-2017
Mahaweli Water Security Investment Programme	Sri Lanka	2015-2020
Support of the Water Management Reform Programme - Training Management & Human Resources Development for IWRM	Egypt	2012-2018
Shire River Basin Institutional Planning & Decision Support System	Malawi	2014-2017
National Water Sector Reform Studies	Gambia	2013-2015
Master Plan for the Development of Water Resources	Mauritius	2010-2012
Dry Zone Urban Water and Sanitation Project	Sri Lanka	2010-2012
Watershed M&E of the Tana Beles Integrated Water Resources Development	Ethiopia	2009-2014
Support to IWRM & TA to Water Resources Commission	Ghana	2000-2008
Wang Watershed Management Project	Bhutan	2000-2008

Institutional Development in the Public Sector: strengthening capacity

It is crucial to strengthen the capacity of public water sector institutions if we are to advance developments in water sector processes at national and local levels.

Capacity building is a vast area of intervention and draws on a broad range of skills and specialist expertise such as policy formulation, institutional and organisational development, human resource development, legislation and enforcement and technical capacities in water organisations and utilities. Capacity building also covers analysis and adjustments to the allocation of resources and responsibilities between the different levels of government and supports decentralisation processes and outsourcing.

NIRAS' approach to capacity building is always result oriented. We focus on the mandate and strategic goals of the organisation/utility in question, the external and internal contexts in which they operate, staff motivation and the promotion of willingness to change. Our support aims to enhance levels of service and ensure adherence to defined standards.

OUR SERVICES:

- Policy and strategy formulation, including advisory services to policy makers and development of strategies for policy implementation, sector master plans etc
- Legal and policy assessment and enforcement mechanisms
- Development of corporate plans and business plans for water utilities
- Strengthening of institutions and organisations with a view to improving management, efficiency and transparency
- Strengthening of technical skills in organisations, including formal and on-the-job training, development of manuals and guidelines, etc.

Urgent Water Supply and Sanitation Rehabilitation Project

DONOR:
African Development Bank

DURATION
2013-2014

VALUE
€500K

This project aimed to support the health and social wellbeing of the Zimbabwean population through improved provision of water and sanitation services. NIRAS oversaw institutional development for six project towns covering a population of 1.9 million. The project comprised curriculum development for O&M - water supply and sewerage - as well as training for public officials on:

- basic water treatment processes;
- operation & maintenance training of sewerage system;
- occupational health & safety procedures;
- water quality assurance;
- basic computer skills; and
- development of strategy and implementation plan for revenue and cost recovery.



Project Title	Country	Years
Urgent Water and Sanitation Services Rehabilitation Project	Zimbabwe	2013-2014
Institutional Development for Quang Binh Development One Member Ltd. Company	Vietnam	2012-2014
Capacity Building on Water Utility Management to Zanzibar Water Supply Authority	Tanzania	2011- 2013
Institutional Development - National Water Supply & Sewerage Authority	Grenada	2010-2011
Application of Integrated Technology Systems for Control of Water Leakage, Cairo	Egypt	2010
Capacity Building of Urban & District Water Supply & Sewerage Authorities	Tanzania	2009-2011
Institutional Development to Water Supply and Sanitation Authorities	Sri Lanka	2008-2011
Technical and Institutional Review of Dominica Water & Sewerage Company	Dominica	2007-2008

International Training Programmes: building change on knowledge

Water scarcity hampers development in many countries today although there is no scarcity of knowledge on ways in which to address the issue. Research continues and knowledge is constantly on the increase. Sharing of such knowledge is lacking and training is needed at all levels and for all purposes.

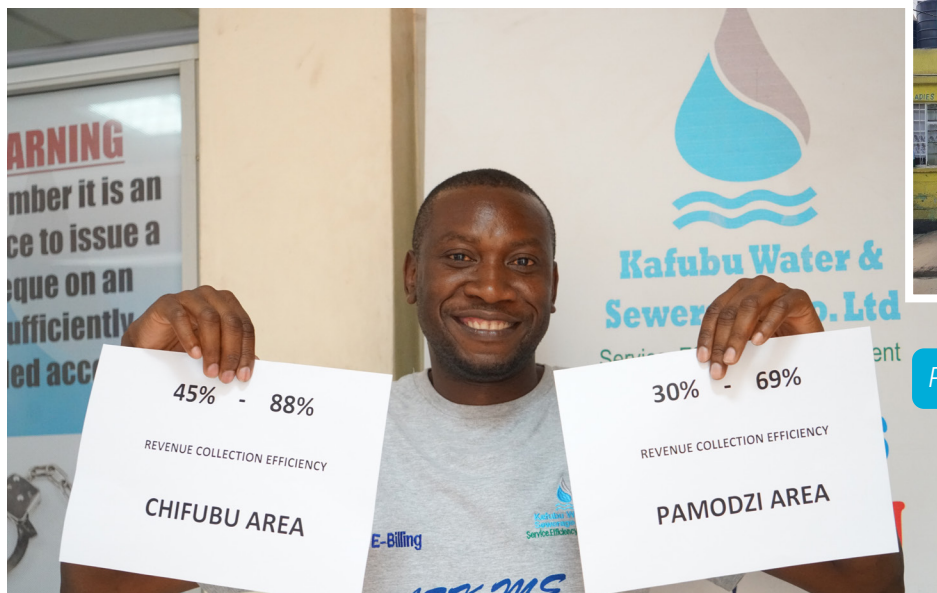
NIRAS' involvement in the training of water professionals and decision-makers goes back many decades. Over the years, we have provided intensive, advanced water management capacity building programmes for senior staff from government agencies and authorities, the private sector, academia, and civil organisations.

OUR SERVICES:

- Broad, long-term global and regional training programmes
- Specific basin-focused programmes in basin management
- Senior staff seminars and workshops
- Distance-learning programmes
- Tailor made and progressive pedagogy
- Training in project design & implementation
- Organisational strengthening and change management
- Training modules within projects and programmes
- Training programmes driven by national demand

Programmes have been many and varied, covering both global and local perspectives, including Integrated Water Resources Management (IWRM) or taking the form of small seminar-styled workshops for members of government. Over 2000 professionals have taken part in some 70 programmes.

Training must be driven by demand and aim for concrete results. In other words, training is a change process. This requires progressive approaches to tuition. Our programmes combine individual work at home with group sessions that include lectures, role play, panel discussions, excursions, field work and case studies. The rewarding interaction between participants and lecturers from all corners of the world is also an extremely important part of the process.



Photos courtesy of WaterAID

“ The ITP programmes that Sida has been providing together with our partners all over the world, such as NIRAS and WaterAid, have proved that not only within a country but between countries, they have increased awareness of financial resources for one of the most basic human rights, which is access to water and sanitation. It has also raised awareness amongst politicians, who are normally not directly involved in these issues.

**Annika Otterstedt Counsellor,
Head of Section for Kenya Development Cooperation,
Embassy of Sweden**

Sustainable Urban Water and Sanitation - Integrated Processes (SUWAS) International Training Programme

DONOR:
Sida

DURATION
2016-2022

VALUE
€10 M

“ The good thing about SUWAS is that it focuses on helping participants to change the way they do things and it also helps them to look at what can be changed in their organisation, that way making their organisations more effective in the delivery of services to the people in their communities.”

Annabell Waititu, National Facilitator for SUWAS Kenya

On a global scale, 2.2 billion people lack access to safe drinking water and more than half of the global population does not have access to safely managed sanitation services. Unsafe water and sanitation conditions pose a hazard towards many people’s health and also hamper education, economic development and gender equality. Money is not the only resource needed to address these challenges. Human capital, new skills and strengthening of capacity in the institutions and organisations that provide the services are critical.

In response to this challenge, the Sustainable Urban Water and Sanitation - Integrated Processes intervention - SUWAS for short - aimed to create awareness, knowledge and change processes to promote integrated approaches for planning and implementation of urban water and sanitation that is more sustainable and equitable in the long run. SUWAS spanned 17 programmes and ten countries in Asia and Africa, implemented by NIRAS in partnership with the international organisation WaterAid.

Left to right: Lisa Andersson, First Secretary/Senior Programme Manager at the Embassy of Sweden, Florence Gatome, NIRAS Africa Country Director, Annika Annika Otterstedt, Counsellor, Head of Section for Kenya Development Cooperation, Embassy of Sweden, Jenny Fredby, Programme Director for the Africa programmes and alumni Rono Obadiah from Narok County Government



500
people participated in the SUWAS intervention across five countries in Africa and five countries in Asia

17
programmes have been completed since 2016

Course Titles	Years
Sustainable Urban Water and Sanitation - Integrated Processes	2016-2022
Integrated Coastal Development	2010-2017
Climate Change Adaptation, Danida Fellowship Course Provider	2009-2015
Environmental Mainstreaming	2009-2012
Transboundary Water Management	2005-2012
Integrated Water Resource Management (IWRM)	2004-2011

Climate Change Adaptation: challenges and opportunities for development

Adaptation to extreme weather events, changes in precipitation patterns and increased weather unpredictability caused by climate change are challenges facing the whole world. The fact that the least developed countries are expected to suffer the most from climate change due to their high dependency on natural resources and the lack of funds for adaptation measures makes the challenge even greater. NIRAS works with stakeholders at all levels to design and implement effective adaptation strategies in some of the world's most vulnerable places.

Our approach is based on technical expertise and state of the art technologies, carefully adapted to the environment in which they are to be applied. Turnkey solutions are not favoured: we will always develop programmes in close dialogue with the client and beneficiaries. NIRAS provides technical assistance in adaptive water management.

We focus on addressing uncertainties by taking a flexible approach to water management and introducing water infrastructure design that is adaptable to climate change. Solutions can be adapted if unknown or unexpected conditions arise, ensuring that they can be adjusted and corrected as new knowledge is gained and, thus, are geared to the future.

Rural Water Supply & Sanitation (RWSS) investment in Cambodia

DONOR:
ADB

DURATION
2017-2019

VALUE
€1.7 M

Cambodia's second RWSS project improved water supply and sanitation for up to 400,000 rural residents in 400 villages. NIRAS advisors designed a comprehensive capacity development programme for the RWSS sector that recognises Cambodia's susceptibility to climate change and natural disasters. The project covered:

- development of rural water safety plans;
- education and training in CC resilience and adaptation to floods, droughts, and impacts on groundwater;
- disaster risk management; and
- mainstreaming of CC impact management into RWSS initiatives at local government and village levels.

The capacity development programme added considerable value to RWSS investments at national and provincial levels. It increased operational knowledge at commune and village levels in 28 communes. A roll-out of new activities in selected communes supported infrastructure initiatives and enhanced RWSS sustainability through replication and scaling-up on new projects.





Integrated Urban Environmental Management in the Tonle Sap Basin

DONOR:
ADB



DURATION
2016-2022



VALUE
€4 M

The Mekong River Basin is changing rapidly due to accelerating water infrastructure development and climate change, bringing considerable modifications to the flood pulse of the Tonle Sap Lake, the largest source of freshwater fish in Southeast Asia.

Aiming to enhance urban climate change resilience – including flood protection, basic public services and physical and non-physical infrastructures – this project applied integrated urban environmental management and community mobilisation in Kampong Chhnang and Pursat, Cambodia.

NIRAS helped identify climate resilient infrastructure investments, demonstrate innovative solutions of integrated solid waste management and promote public-private partnerships in the operation and maintenance of sustainable and reliable urban services.

OUR SERVICES:

- Identification and development of viable solutions for increasing water availability, including increased utilisation of groundwater, increased storage capacity, desalination, water harvesting schemes and water transfers (inter- and intra-basin water conveyance systems)
- Improvement of water-use efficiency, e.g. recycling water or reducing losses in existing water systems schemes, and of economic incentives, including metering and pricing, to encourage water conservation
- Advice on reduction in water demand for irrigation by changing the cropping calendar, crop mix, irrigation method and area planted or by importing agricultural products, i.e. “virtual water”
- Promotion of indigenous practices for sustainable water use
- Expanded use of water markets to reallocate water to highly valued uses
- Legislation and administrative reform programming
- Public awareness creation and training in climate change adaptation
- Sea level rise modelling and identification of areas potentially in risk of being flooded.
- Urban storm-water management

Project title	Country	Years
Integrated Urban Environmental Management in the Tonle Sap Basin	Cambodia	2016-2022
Second Rural Water Supply and Sanitation Sector Project	Cambodia	2017-2019
Technical Assistance for Climate Action Support to Caribbean Development Bank	Caribbean	2014-2016
Mid Term Review for Lake Chilwa Basin Climate Adaptation Project	Malawi	2014
Agricultural Water Productivity for Adaptation to Climate Change	Egypt	2013-2016
Institutional Strengthening of MICOA, Environmental Mainstreaming, and Climate Change Initiatives	Mozambique	2011-2016
Technical Assistance to the Natural Resource Management Programme	Kenya	2011-2016
National Intelligent Rainwater Use Projects for Royal Danish Horticultural Society	Denmark	2011- 2012
Sustainable Management of Land and Environment in Zanzibar (SMOLE)	Tanzania	2010-2013
Disaster Risk Reduction: Policies, Planning, Budgeting and Action, Danida Fellowship Course	Denmark	2010-2012
Addressing Climate Change in Development Assistance, Danida Fellowship Course	Denmark	2009-2015
Technical Assistance to the Arid Lands Resource Management Project	Kenya	2007-2011
Formulation Mission “Climate Change Awareness Programme”	India	2008
Municipal Plan Adapted to Climate Change, Hedensted Municipality	Denmark	2007-2009

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