

UNU-INWEH

2008 Annual Report



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Executive Summary

Institutional Update

UNU-INWEH continues to pursue the strategy of proactive, selective and longer-term programme development. In particular, there is a strong focus on developing new activities that address the nexus between human health and water. Additional impetus to these activities was provided during 2008, which was designated the International Year of Sanitation. This was intended to bring attention to the plight of over 2.6 billion people without access to adequate sanitation. UNU-INWEH actively participated in the dialogue to reform the international policies and to mobilize greater resources to meet this global crisis.

Programmatic growth at UNU-INWEH continued in 2008 on the basis of a renewed, strong partnership with the Canadian Government and a growing network of partner institutions throughout the world. A key aspect of these emerging partnerships has been an influx of requests to provide specific support from funding partners like the Global Environment Facility (GEF). The hosting institution, McMaster University, also formally renewed in March 2008 its long-term commitment to continue administrative and logistical support to UNU-INWEH, in addition to developing an array of mutual research, dissemination and capacity building initiatives.

A major highlight of the year was UNU-INWEH's relocation to new office facilities at the McMaster Innovation Park in Hamilton. These facilities, offering about four-time greater office space, co-locate UNU-INWEH with a number of institutions involved in cutting-edge research. UNU-INWEH hosted the 35th Session of the Conference of UNU Directors (CONDIR) in these new office facilities. The presence of world-class researchers from the UNU family offered a unique opportunity to create visibility for UNU within Canada.



*UNU-INWEH's new home at the
McMaster Innovation Park*

UNU-INWEH also continued the implementation of an institution-wide results based management (RBM) framework. This effort is particularly focused on two key areas: (a) bringing greater focus on the results being sought and achieved, and recording them through a revised structuring of its project documents and annual reports; and (b) documenting the lessons being learned from its setbacks and successes. The RBM framework was fully deployed during 2008.

Activity Highlights

UNU-INWEH's flagship e-learning initiative, UN Virtual Learning Center for Water (WVLC), continued its regional deployment in 2008. In February 2008, UNU-INWEH and the Water Center for the Humid Tropics of Latin America and the Caribbean (CATHALAC) signed an Agreement of Cooperation to jointly establish and operate a WVLC Regional Centre at CATHALAC to service the needs of the Latin America and the Caribbean region. This Spanish programme is the first deployment of WVLC in another UN language.

The "Lake Twinning" project brings together five lake commissions in Africa and North America with similar mandates and a wealth of common interests, challenges and experiences. The project explores the potential for international collaboration to strengthen the current lake management programmes of the five commissions. A

first planning workshop was organized in Hamilton during March 2008, followed by a high-level policy dialogue, organized in September 2008 in Entebbe (Uganda). The participants of the dialogue agreed on a framework for long-term collaboration between the African and North American counterparts, and also identified a set of common issues. The latter include improvement in human wellbeing, climate change adaptation, management of invasive species and variation in lake levels, and broad engagement of the private sector and other stakeholders.

UNU-INWEH continued its focus on assessment, monitoring and management of persistent toxic substances in the Wider Caribbean Region (WCR), where the coastal marine environment has a great economic, cultural, and biodiversity importance. This project directly addresses the WCR capacity needs for monitoring influx of pollutants in coastal areas of the eight participant countries: Belize, Dominican Republic, Guatemala, Honduras, Jamaica, México, St Lucia and Trinidad & Tobago. The project pays particular attention to: (a) the capacity of coastal marine managers to monitor pollutants and ameliorate coastal pollution; (b) the ability of environmental managers to investigate the land-based sources of pollutants; and (c) the public awareness about the consequences of pollution.

UNU-INWEH started a new initiative requested by the Global Environment Facility (GEF) that focuses on its International Waters projects. This \$2 million project, funded and approved by GEF in August 2008, aims to provide a synthesis of scientific knowledge contained in GEF's International Waters portfolio with an overall investment of over \$1 billion. The purpose of the exercise is to extract scientific knowledge, identify programme gaps, improve science-to-policy bridging, and contribute to strategies for allocation of resources in the future. UNU-INWEH's partners in this major project include UNEP, UNESCO, the Scottish Association for Marine Science, the Land-Ocean Interactions in the Coastal Zone science network (LOICZ), UNU-EHS, and the University of Plymouth.

A special seminar, entitled "Stemming Decline of the Coastal Ocean - Rethinking Environmental Management" was organized by UNU-INWEH at the UN Headquarters, New York (4 June 2008). It highlighted the enormous value of ecosystem services that coastal environment provides to the human society, and explored the management challenges in effectively utilizing these natural resources. The speakers emphasized that the current management practices are ineffective and to continue them will endanger coastal economies and ecosystems that support over one half of the world's population. The seminar summarized the steps which need to be taken to remedy the failure of management in any particular coastal region.

Together with McMaster University, UNU-INWEH organized an art exhibition entitled "Sanitation is Dignity" (15 October - 1 November 2008, Hamilton, Canada). This exhibition is part of UNU-INWEH's activities to commemorate the International Year of Sanitation, and is created to break taboos associated with publicly discussing the issue of sanitation. Developed by the German Toilet Organization and displayed at the McMaster Museum of Art, the exhibit depicts illustrations of people without toilets attempting to maintain privacy and dignity.

Introduction to UNU-INWEH

The core concern of the UNU-INWEH is the global water crisis. The lack of effective management of watersheds, and inadequate access to water and sanitation, leads to impacts on food security, increases health impacts on communities, and directly blocks efforts to alleviate poverty and meet the Millennium Development Goals. It is now widely accepted that a critical factor contributing to the water crisis is the lack of capacity – scientific, educational, managerial, technological and institutional – for effective water management in many developing countries.



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In response to this challenge, UNU-INWEH continued its efforts during the reporting period to undertake capacity building and applied research that will enable water managers to better address both the root causes and current manifestations of the global water crisis. This is consistent with UNU-INWEH's core mission to “contribute, through capacity development and directed research, to efforts to resolve pressing global water problems that are of concern to the United Nations, its Member States and their peoples.”

Programme Strategy

UNU-INWEH continues to follow the strategy of pursuing a proactive, selective and longer-term programme development. The resultant programme structure fully represents the original water-environment-health mission, while ensuring progressively greater coherence in the programme of work. The programme structure is a “matrixed” one, in which three core functions are applied to four selected thematic sub-programmes. These core functions are derived from its mandate, and were approved by the International Advisory Committee in April 2008:

Capacity development: Helping developing countries meet the MDGs through:

- Cross-cutting, adult-education programmes, including distance education
- “Learning networks” for comparative research, monitoring and knowledge sharing
- New water-related research and management institutions

Knowledge enhancement: Facilitating global knowledge networks in:

- Generating new knowledge, based on cutting-edge science
- Synthesizing existing knowledge – through “learning networks” – in areas that relate to UNU-INWEH's thematic focus
- Mobilizing the learning networks to effectively disseminate information and knowledge

Research-policy bridging: Fostering better water management and governance approaches through applied research. Where local capacity is weak, UNU-INWEH helps communities:

- Diagnose problems
- Interpret information into policy-relevant formats
- Evaluate existing policy, often through “think-tank” collaborations and “knowledge-brokering” within projects, or through international policy-oriented networks

Our programme is delivered through four integrated, thematic sub-programmes. The three core functions are applied through each of the four sub-programmes. The four thematic areas are:



Freshwater Ecosystems: contributing to improved and integrated water management, with particular emphasis on data-information-knowledge systems, and on pertinent policy support. Capacity building focuses on distance learning programmes directed at decision makers and practitioners.



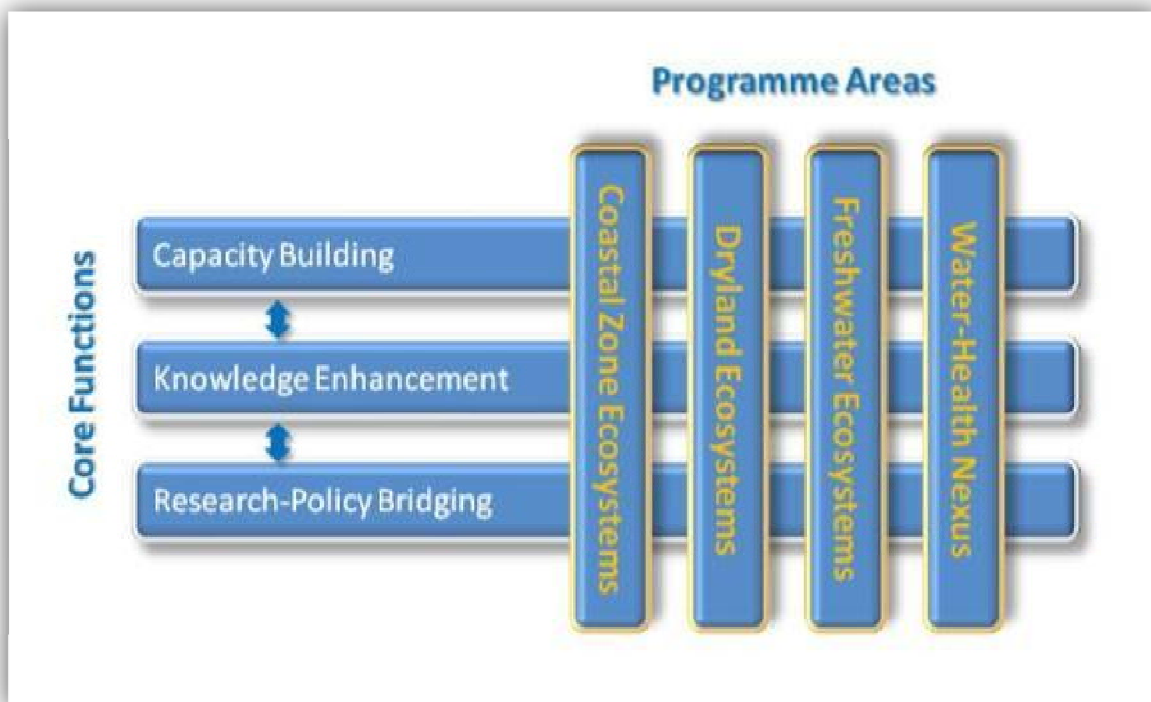
Coastal Zone Ecosystems: focusing on capacity development efforts to address critical gaps in coastal science, achieved through diffusion of scientific research and promotion of human and institutional capacity. The research-to-policy bridging is directed at coral reefs and mangroves, two particularly threatened ecosystems.



Dryland Ecosystems: assisting developing countries in dry regions to manage their water, land and biodiversity resources sustainably. Utilizing a broad expert network, this sub-programme is synthesizing the global knowledge on sustainable land management. Capacity building efforts are closely interlinked with research on alternative, community-based livelihoods in drylands.



Water-Health Nexus: addressing the peoples' need worldwide for safe water to ensure both individual and community health. Our work facilitates the development of effective governance frameworks, through its global expert network. The focus is on fostering community-level approaches for engagement, ownership and empowerment.



UNU-INWEH's Matrixed Programme Structure

Comparative Advantages of UNU-INWEH

UNU-INWEH offers a number of comparative advantages, linked to its core competencies and demonstrated experience; these include:

- **Resource Leveraging:** UNU-INWEH has demonstrated the highest resource leveraging against the core funds received from the host government. This allows flexibility in delivering on our strategic priorities, and ensures demand-driven nature of our work.
- **Research Management Capability:** Through a consortium of world-class experts and researchers, UNU-INWEH has established and led regional and global-scale research initiatives on critical water issues and related ecosystem services – particularly those related to great lakes, drylands and coastal zone ecosystems. This capability has positioned us to receive an increasing number of requests for support from developing countries and funding partners.
- **Delivery of Targeted Capacity Development:** UNU-INWEH promotes a paradigm of integrated, demand-responsive capacity development, based on community ownership and broad participation. Through many focused and targeted training programmes in developing countries, UNU-INWEH addresses the development of indigenous capacity – scientific, educational, managerial, technological and institutional – for effective water management. A most important aspect of this work is fostering development of and strengthening institutions in developing countries.
- **Project Implementation Experience:** There is an extensive experience in conceptualization, development, management and successful implementation of regional-scale projects within UNU-INWEH. The knowledge gained from these projects is key in ensuring on-time and effective delivery to other recipients and regions of the world.
- **Network Development:** UNU-INWEH carries considerable experience of successful development, implementation and sustained interest in networks of experts and institutions – a major emphasis is on learning networks that synthesize and disseminate knowledge.
- **Formulation of Unbiased Policy Recommendations:** UNU-INWEH formulates unbiased, science-based policy recommendations on key subject areas for development and management of water resources on local to global scales. As described in Section 7, there has been significant uptake these recommendations by the scientific community and key UN agencies. A specific example is the uptake of the policy recommendations related to desertification by the UNCCD Executive Secretary, who has cited its core information and key policy guidelines. Consequently, UNU-INWEH's has been engaged by the secretariat to help reform its Committee on Science and Technology.

Institutional Progress

A major highlight of the year was UNU-INWEH's relocation to new office facilities at the McMaster Innovation Park in Hamilton (April 2008). These facilities, offering about four-time greater office space, co-locate UNU-INWEH with a number of institutions involved in cutting-edge research. UNU-INWEH hosted the 35th Session of the Conference of UNU Directors (CONDIR) in these new office facilities. The presence of world-class researchers from the UNU family offered a unique opportunity to create visibility for UNU within Canada.



Hoisting the United Nations flag at the McMaster Innovation Park

From L to R: *Dr. Zafar Adeel (Director UNU-INWEH), Prof. Konrad Osterwalder (Rector UNU), Ms. Harriet Bigas (Project Associate UNU-INWEH), Prof. Peter George (President McMaster University), Mr. David Sweet (MP, Ancaster-Westdale), Dr. Paul Sockett (Public Health Agency of Canada), Mr. Fred Eisenberger (Mayor of Hamilton), and Prof. George Dixon (Vice President, University of Waterloo)*

During 2008, UNU-INWEH's engagement with funding partners continued to grow. Enhanced links with donors were developed in the context of new projects; these notably include the Global Environment Facility (GEF) and the World Bank. On the whole, UNU-INWEH was successful in securing additional funds for the following projects during 2008:

- Enhancing the use of Science in International Waters Projects: **US\$ 1,000,000**
(Source: GEF/UNEP)
- Monitoring and Management of POPs in the Wider Caribbean Region: **US\$ 130,000**
(Source: World Bank; this is in addition to US\$ 300,000 secured in 2007)
- Lakeshore Drinking Water around African Great Lakes: **US\$ 60,000**
(Source: AGFUND)

In addition to the above funding for new activities, UNU-INWEH received about US\$ 2.7 million in specific programme contributions for existing projects.

Project Portfolio

Sub-Programme 1: Freshwater Ecosystems



This theme area contributes to improved and integrated river basin management, with particular emphasis on data-information-knowledge systems, and on policy support for integrated, holistic management of river basins. Capacity building focuses on distance learning programmes in IWRM directed at decision makers and practitioners.

The UN Virtual Learning Center for Water (WVLC):

UNU-INWEH's flagship distance education initiative, originally developed in partnership with the UN Department of Economic and Social Affairs (UN DESA), is directed at practicing water professionals to enhance their knowledge of modern water management concepts and practices. It offers broad-based coverage of the principles and practices of IWRM, with students learning core concepts in the natural sciences, engineering, health, governance, public administration, social sciences, economics, resource conservation, strategic planning, as well as aspects of programme and project management. The curriculum is CD-ROM based and Internet-supported and consists of 10 courses, totalling approximately 250 learning hours.

The WVLC implementation continued at the Regional Centers (RC) in West Africa (the University of Ghana), East Africa (University of Nairobi, Kenya), South Pacific (the University of the South Pacific, Fiji), Middle East (Arabian Gulf University, Bahrain) and Southeast Asia (the Asian Institute of Technology, Thailand). In February 2008, UNU-INWEH and the Water Center for the Humid Tropics of Latin America and the Caribbean (CATHALAC) signed an Agreement of Cooperation to jointly establish and operate a WVLC Regional Centre at CATHALAC to service the needs of the Latin America and the Caribbean region. This Spanish programme is the first deployment of WVLC in another UN language.



Signing ceremony for WVLC agreement at CATHALAC (Panama, February 2008)

UNU-INWEH is partnering with other UNU units in the **UNU Open Courseware Project**. The introductory course from WVLC has been “imported” to that joint initiative, with the aim to serve as open educational resource to a wider set of audiences.

“Twinning” of Water Commissions in the Great Lakes Region:

This “Lake Twinning” project involves five lake commissions in Africa and North America with similar mandates and a wealth of common interests, challenges and experiences; these are:

- The International Joint Commission (IJC), serving as an independent advisor to prevent or resolve disputes between USA and Canada under the 1909 Boundary Waters Treaty.
- The Great Lakes Fishery Commission (GLFC), established by Canada and USA in 1955.

- The Lake Victoria Fisheries Organization (LVFO), established formed in 1994 by the three riparian states of Uganda, Kenya and Tanzania.
- The Lake Victoria Basin Commission (LVBC), formed by The East African Community Council of Ministers in July 2005.
- The Lake Tanganyika Authority (LTA), a new agency established in 2008.



Workshop participants on the shore of Lake Victoria (Uganda, September 2008)

As part of a larger GEF project “Regional Dialogue to Improve Transboundary Water Resources Governance in Africa”, the project explores the potential for international collaboration to strengthen the current programmes of the five commissions, with the goal to enhance effectiveness of great lakes management. A first planning workshop was organized in Hamilton in March 2008. This was followed by a high-level policy dialogue, organized in September 2008 in Entebbe (Uganda), in which the five commissions and key government representatives from the East African countries were engaged. The participants agreed on a framework for long-term collaboration between the African and North American counterparts, and also identified a set of common issues. The latter include improvement in human wellbeing, climate

change adaptation, management of invasive species and variation in lake levels, and broad engagement of the private sector and other stakeholders.

GEF International Waters Scientific Synthesis:

GEF has invited UNU-INWEH to serve as the Executing Agency for this project, with UNEP as the Implementation Agency. GEF needs a synthesis of the science contained in over \$1 billion worth of projects, both historical and ongoing, to better inform IW projects of contemporary science, identify programme gaps, improve science-policy bridging, and contribute to strategic prioritization for GEF-5. The project will disseminate the science synthesis widely; provide science-based analyses for transboundary fact-finding; and catalyze the building of research capacity within the GEF family.

UNU-INWEH’s partners in this major project include UNEP, UNESCO, the Scottish Association for Marine Science, LOICZ network, UNU-EHS, and the University of Plymouth. The project entails an initial inventory of GEF project science and its examination by working groups for rivers, lakes, groundwater, coastal marine systems and the open ocean. A scientific synthesis group will then integrate and synthesize the results for wide dissemination.

Sub-Programme 2: Coastal Zone Ecosystems



This sub-programme focuses on capacity development efforts to address critical gaps in coastal science, achieved through diffusion of scientific research and fostering human and institutional capacity. The research-to-policy bridging function are selectively directed at coral reefs and mangroves, two particularly threatened ecosystems in developing countries.

Coastal Zone Management in the Arabian Gulf:

This US\$4.5 Million, 5-year project, formally launched in January 2007, is a partnership between UNU-INWEH and Nakheel (a subsidiary of the Dubai Port Authority) that contributes to the strengthening of coastal environmental management, particularly in the Arabian Gulf and other tropical ecosystems. These systems are facing increasing pressures from pollution and urban development. The key elements of this project include: monitoring and assessment of five large coastal land-reclamation development projects, including associated provisions to protect the local marine environment from pollution and habitat degradation; targeted research leading to a management program that will help secure the long-term sustainability of these projects; a series of annual workshops for the Gulf region on topics related to coastal management; and sponsorship of a global conference series on coastal zone management, to organized by UNU-INWEH every three years.

An environmental monitoring program, covering Palm Jumeirah waters and some reference sites in natural coral reef habitat, was designed and implementation commenced with the installation of equipment; the project team has been actively collective ecosystem data during 2008. A first regional capacity building workshop, focused on Environmental Impact Assessment, was held in January 2008.

Coral Reef Research and Capacity Building:

Coral Reefs are under threat worldwide, but improved management is hampered by critical gaps in scientific understanding. A major global programme, *Coral Reef Targeted Research and Capacity-Building for Management*, sponsored by the Global Environment Facility (GEF) and the World Bank, seeks to address these deficiencies. The first five-year, US\$14 Million phase of this long-term World Bank-GEF initiative, began in December 2004. The budget for UNU-INWEH's component is US\$1.6 Million over 5 years, which will be used to execute one of the six project components concerning "coral reef connectivity". The inter-connection among local populations of reef species is very poorly understood and is thus a high priority in the marine science community, because spatially explicit management approaches (such as the use of Marine Protected Areas) should be designed and implemented using this information. The UNU-INWEH program is developing technologies, and implementing demonstration projects, that will obtain explicit estimates of connectivity for specific species of fish, coral or lobster in specific places – while ensuring technology transfer to and capacity building of various management agencies with responsibility for reef regions.

In 2008, research has continued on four core demonstration projects: connectivity in the reef fish, *Stegastes partitus*; post-settlement bottlenecks to connectivity in corals; coral larval biology and dispersal following spawning; and lobster connectivity. A number of papers and posters resulting from the project were presented at the 11th International Coral Reef Symposium (Fort Lauderdale, USA, 7-11 July 2008). In conjunction with the symposium, a project workshop entitled "Connectivity and Protected Area Management on the Mesoamerican Reef – Lessons to Date" was organized on 12-13 July 2008. The topics discussed in the workshop ranged from

new advances in connectivity science to applications of this science to reef management, and including issues of reef management in a time of growing stresses. The workshop concluded with a review of the project plan for Year 5 (2009), and possible activities for a potential Year 6.

International Training Course on Mangroves Biodiversity:

The main objective of this 15-day training course is to build the capacity of professionals and institutions in developing countries to undertake monitoring, research and conservation of critical coastal ecosystems within mangrove forests. This is achieved through training of young professionals in the scientific methodology and description of latest research work on related subjects. A secondary objective is to promote development of a network of professionals from developing countries working in this field. The course focuses primarily on mangroves, while maintaining an integrated approach towards management of coastal ecosystems.

The course is offered once a year jointly by UNU-INWEH, UNESCO's Man and Biosphere Programme, and Annamalai University, India. The eighth annual course was completed in India in November 2008; it was attended by 14 participants from Asia, and an updated handbook and training manual for the students was produced. As part of the **UNU Open Courseware project**, UNU-INWEH has worked with Annamalai University to upload this training course onto the UNU open courseware website.



*Trainees at the mangroves workshop
(India, November 2008)*

Assessment, Monitoring and Management of Persistent Organic Pollutants (POPs) in Coastal Ecosystems of the Wider Caribbean Region:

This project commenced in September 2007 and is being funded by the World Bank through the Canada Persistent Organic Pollutants Fund. The purpose of this project is to build a network among environmental managers, analytical laboratories, and other pertinent governmental agencies in the Caribbean countries. The project is meant to facilitate the measurement, evaluation and eventual reduction of pollution entering into the coastal environment. The project builds on the outcomes and the recommendations of, and will address some of the specific data gaps identified in, past PTS/POPs initiatives in the region. It includes eight countries, in all of which pollution by POPs and other PTS has been identified as an issue: Belize, Dominican Republic, Guatemala, Honduras, Jamaica, México, St Lucia and Trinidad & Tobago.



*Participants at the POPs training workshop
(Trinidad & Tobago, June 2008)*

Through targeted workshops, lab visits and assessments, baseline monitoring and sampling, data analysis, outreach and networking, the project pays particular attention to: (a) the capacity of coastal marine managers to monitor pollutants and to ameliorate coastal pollution; (b) the ability of environmental managers to mount investigations that trace pollutants to their land-based sources; and (c) raising awareness of the public to recognize the seriousness of pollution, leading to mobilizing the political will to bring about real change.

Sub-Programme 3: Dryland Ecosystems



This programme theme assists dryland communities in developing countries to manage their water, land and biodiversity resources sustainably. The scientific focus is on rehabilitation of marginal drylands under threat of degradation, and on global land-degradation assessment programmes, leading to harmonization of methodologies and capacity development. This programme gives recognition to the importance of traditional and indigenous knowledge, as well as scientific assessment techniques for adaptive management in drylands.

Sustainable Management of Marginal Drylands (SUMAMAD):

This 4-year project has assisted developing countries in Northern Africa and Asia to enhance the sustainable management and conservation of their marginal drylands, as called for in the UN Convention to Combat Desertification (UNCCD). Training, capacity building and interaction with landowners and farmers, with a focus on sustainable and indigenous dryland management practices, are key elements of the project. The project involves a collaborative network of researchers and institutions in eight countries (China, Egypt, Iran, Jordan, Pakistan, Syria, Tunisia and Uzbekistan), and is jointly organized and managed by UNU-INWEH, UNESCO and ICARDA. The project successfully concluded in December 2007. Two major publications were produced by UNESCO and UNU, which capture the findings of the project. The project was also presented to a wide audience comprising UN and member states' representatives in CSD-16 in New York (May 2008). Plans for a 5-year follow-up project are now finalized and approved by the Flemish Government of Belgium.



Solar-powered water desalination for rural household use (Egypt)

GEF Knowledge Management for Land Degradation (KM:Land):

The overall objective of this GEF-funded project is to contribute to the mitigation of land degradation through diffusion of best practices, cross-fertilization of ideas, enhancement of learning and capacity building, and increased opportunities for innovation. In particular, the project aims to produce a framework for indicators of impact and performance in the GEF Land Degradation Focal Area, to be followed by indicator selection, and long-term monitoring and evaluation activities. The results will enhance the effectiveness of large-scale, land management projects, particularly those operated by the GEF, in improving ecosystem function, integrity, stability and services. The project's main beneficiaries will be project managers, national agencies and other stakeholders. "Integration" benefits will also accrue to other GEF focal areas. In addition, linkages and synergies with the UN CBD program of work on forests and agrobiodiversity and with the UN Framework Convention on Climate Change regarding work on Clean Development Mechanisms (CDMs) will be established.

UNU-INWEH executes this project in close cooperation with an interagency group, comprising the GEF, UNDP, UNEP, FAO, World Bank, and IFAD. The project focuses on the continued development of the framework and indicators, and the initiation of a Learning Network. A second expert workshop was successfully held in Bonn (21-23 January 2008), in partnership with UNU-EHS; the expert advisory group

helped finalize the measurements to be used for four global indicators; land use, land productivity, water availability per capita, and rural poverty. An advisory programme review was completed in October 2008 to ensure that the project serves the evolving requirement of the GEF member states.

Integrated Watershed Management, Jordan River Valley:

The natural carrying capacity of the land and water resources in the watersheds on both sides of the Jordan River has been greatly exceeded, resulting in stunted economic development and environmental degradation in the watershed. This project addresses watershed-related issues at the Wadi Al-Fara'a area of Palestine in the West Bank and at the Wadi Zerqa in Jerash, Jordan, for the sustainable development of the rural populations located there. The project is funded under the Short and Medium-Term Environmental Priority Action Program (SMAP), EURO-MED Partnership of the European Community, in partnership with the Ministry of Environment in Jordan and the Palestinian Environment Quality Assurance Agency (EQA).

The implementation of pilot projects was initiated in 2005 and planning was also completed for the public awareness campaigns and work continued on the GIS/database system. The pilot projects address reuse of rural wastewater, water harvesting and drought management measures, application of marginal waters for agricultural purposes, adoption and optimization of cropping patterns, and soil erosion protection. The project was on hold between March 2006 and September 2007 due to the continued political unrest in the region. Since then, the pilot studies were completed in October 2008 and final reports submitted to project partners. Key project findings were presented at the 9th International Drylands Development Conference (7-10 Nov 2008).

Master's Degree Programme in Integrated Land Management in Dry Areas:

This joint Master's Degree is an international programme designed for capacity enhancement in developing countries to facilitate management of their drylands resources. It is jointly organized by: UNU, the Institut des Régions Arides, Tunisia (IRA), the Cold and Arid Regions Environmental & Engineering Research Institute (CAREERI) of the Chinese Academy of Sciences, the Institut National Agronomique de Tunisie, Tunisia (INAT), ICARDA and Arid Land Research Center (ALRC, Tottori University, Japan). The programme is intended to provide to young professionals and scientists an international perspective on resource management approaches for drylands. UNU-INWEH works closely with UNU-ESD in the implementation of this programme. During 2008, a new cohort of six students started the programme.



Sub-Programme 4: Water-Health Nexus



This sub-programme addresses challenges in the provision of safe drinking water and sanitation in rural areas of developing countries. The focus is on the global assessment of capacity needs in the health and water area; the identification of innovative approaches to service provision in rural settings, particularly in conjunction with renewable energy provision; and toxic pollution management.

Water-Health Policy Brief:

A new policy brief, entitled “Safe Water as the Key to Global Health” was launched in mid-October 2008. The content of the report was based on a workshop jointly hosted last year by UNU-INWEH, WHO and McMaster University. The workshop helped identify targeted research themes; outlining projects for which UNU-INWEH and McMaster University can collaborate; and developing an informal network for experts involved with water and health. The analysis provided in the report indicated that better water and sanitation reduces poverty in three ways: (a) new service business opportunities are created for local entrepreneurs; (b) significant savings are achieved in the public health sector; and (c) individual productivity is greater in contributing to local and national economies.

Public dissemination of the report spawned more than 20 original media stories; these also appeared online on about 110 media websites in eight languages across 28 countries.

Sanitation Policy Workshop:

UNU-INWEH held an international policy workshop “Sanitation: Innovations for Policy and Finance” in recognition of the International Year of Sanitation (20-21 October 2008, Hamilton). The purpose of the workshop was to formulate guidance and insights that can be used to change policies and mobilize much-needed financial resources. The workshop brought together 35 people from government, academia, non-governmental organisations and foundations. Keynote speakers were Jamie Bartram (WHO), Edward Kairu (Maji na Ufanisi and ANEW) and Jamie Benidickson (University of Ottawa, Canada).



*Participants of the international sanitation workshop
(Canada, October 2008)*

Outcomes from the workshop will be used to inform the water-health future initiatives at UNU-INWEH; these recommendations include the following:

- There is a need for broad behavioural change towards sanitation, including a review of the definition of what is acceptable in terms of sanitation access.
- The achievement targets set by the international community need to be reviewed, and expanded to include 100 % global coverage.
- We need to enable local communities, including local governments, to identify needs, take action and overcome obstacles like absence of property ownership in urban slums.
- The existing multiple channels for investment and sanitation advocacy must be streamlined to achieve a high visibility at the global stage and inclusion in national development plans.
- New business models need to be designed which would enable local entrepreneurship.

Solutions to Polluted Lake-shore Drinking Water in Rural African Communities:

Through a funding grant provided by AGFUND, the main objective of the project is to develop an integrated planning framework for the provision of safe drinking water to lakeside communities. Applicability of this framework will be tested through a pilot project in Kenyan communities on the shore of lake Victoria. The pilot project will lead to the planning, implementation and operation of community-based, women-led pollution control and drinking water treatment programmes. These lake water treatment programmes and technologies will be designed to be replicable on a large-scale throughout the African Great Lakes Region.



*Community-scale water treatment facility in Kisumu
(Kenya, September 2008)*

A first expert workshop was held in September 2008 at Kisumu, Kenya. The primary focus of the meeting was to explore key issues and develop an integrated planning framework for the provision of safe drinking water to lakeshore communities. Some near-future challenges, like impacts of global climate change and effective watershed protection from upstream land uses, were considered. A major emphasis of the project is the involvement of local communities and empowerment of women and girls, who often carry the heaviest burden for water provisioning.

Interaction with McMaster University

The interaction with the McMaster University continues to grow rapidly. McMaster University signed a long-term agreement with UNU-INWEH to continue its administrative and logistical support, including provision of office facilities. The UNU Rector appointed Prof. Susan Elliott, the Dean of Social Sciences at McMaster University, as a Senior Research Fellow to UNU-INWEH. This is an important development that will allow the two institutions to continue to build stronger research and programmatic partnerships in the area of water and sanitation issues. Prof. Elliott is now leading the sub-programme focused on the Water-Health Nexus.

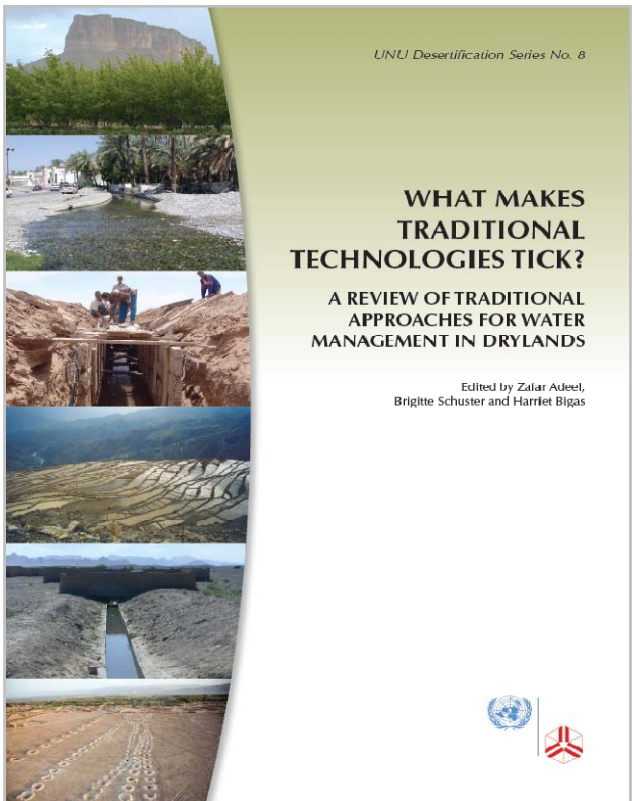
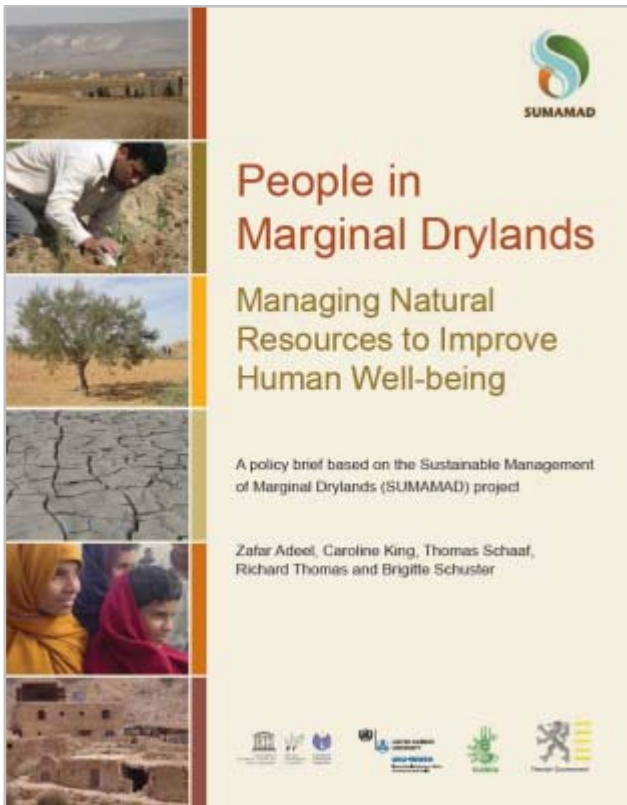
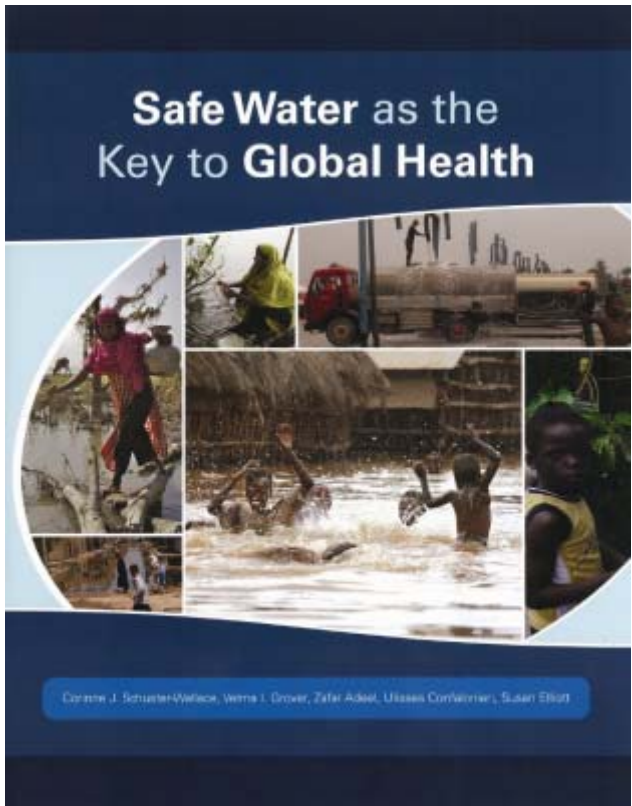
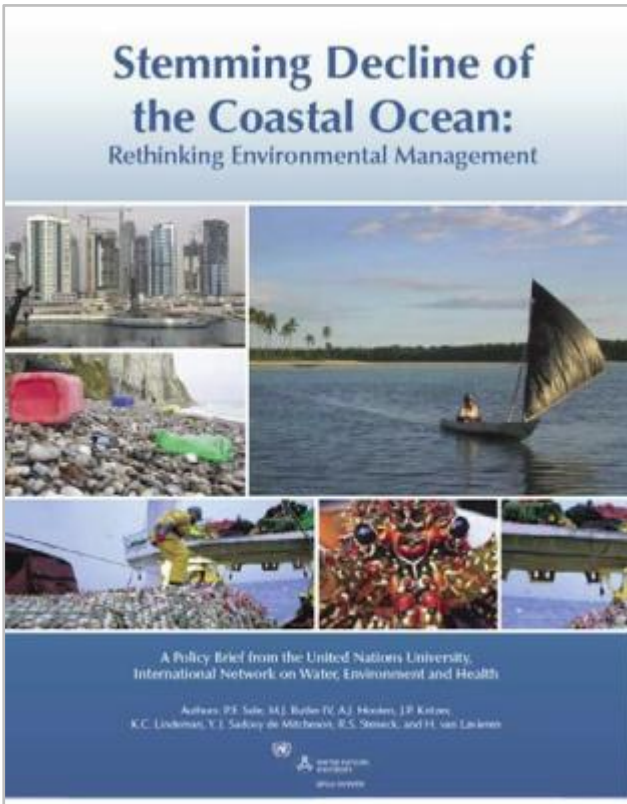
UNU-INWEH continued the “Water-Health Seminars” during 2008, the following seminars were organized:

- 9th Water-Health Seminar - Dr. Glen McDonald: The Perfect Drought: Global Warming and Water Resource Crises in Southwestern North America and Beyond; 10 December 2008.
- 8th Water-Health Seminar - Prof. Chris Metcalfe: The Art and Science of Managing Watersheds in the Developing World; 26 November 2008.
- 7th Water-Health Seminar - Dr. Deborah McGregor and Sue Chiblow: Aboriginal Traditional Knowledge & Source Water Protection: First Nations Views on Taking Care of Water; 18 October 2008.
- 6th Water-Health Seminar - Prof. Hadi Dowlatabadi: Water Quality Objectives in Heterogeneous Populations; 1 October 2008.
- Special Seminar: Stemming Decline of the Coastal Ocean: Rethinking Environmental Management, 4 June 2008, UN Headquarters New York
- Special Symposium: Global Development Agenda at Peril? Climate Change Puts Global Gains at Risk; 23 April 2008.

Publications

The following publications were completed during 2008. Additionally, project partners in most ongoing projects contributed to scientific publications in research journals.

- Zafar Adeel and Uriel Safriel, 2008. Achieving sustainability by introducing alternative livelihoods. *Sustainability Science*, Vol. 3 No. 1.
- Uriel Safriel and Zafar Adeel, 2008. Development paths of drylands: thresholds and sustainability. *Sustainability Science*, Vol. 3 No. 1.
- Peter Sale, M.J. Butler IV, Andrew Hooten, J.P. Kritzer, K.C. Lindeman, Y.J. Sadovy, Robert Steneck, and Hanneke van Lavieren, 2008. **Stemming Decline of the Coastal Ocean: Rethinking Environmental Management**. UNU-INWEH, Hamilton, Canada.
- Zafar Adeel, 2008 **What Makes Traditional Technologies Tick? A Review of Traditional Approaches for Water Management in Drylands**, UNU-INWEH, Hamilton, Canada.
- Zafar Adeel, Caroline King, Thomas Schaaf, Richard Thomas and Brigitte Schuster, 2008. **People in Marginal Drylands; Managing Natural Resources to Improve Human Well-being**, UNU-INWEH, Hamilton, Canada.
- Corinne J. Schuster-Wallace, Velma I. Grover, Zafar Adeel, Ulisses Confalonieri, Susan Elliott. **Safe Water as the Key to Global Health**, UNU-INWEH, Hamilton, Canada.
- UNESCO, 2008. **Using Science to Promote Sustainable Development** - SUMAMAD Project Findings from Northern Africa to Asia, UNESCO, Paris.



Findings of Results Based Management for 2008

Based on the RBM approach developed in 2007, this report contains a summary of five selected “macro-indicators of institutional development” (MIDs). A fuller description of these MIDs and their correlation to institutional strategic directions is provided in the RBM policy document.

Resource Leveraging

a. Direct revenue: (from CIDA)	US\$ 1,598,000
b. Specific programme contributions: (listed by donors and pro-rated for 2008)	US\$ 2,767,100
Threatened River Basin Ecosystems	
AGFUND (WVLC - East Africa)	US\$ 30,000
Arab Fund (WVLC - Middle East)	US\$ 116,000
UNOPS (GEF - Lake Twinning)	US\$ 45,800
AGFUND (Lakeshore Drinking Water)	US\$ 60,000
Threatened Coastal Zone Ecosystems	
Nakheel (Arabian Gulf project)	US\$ 1,195,600
U. of Queensland (Coral Reef project)	US\$ 328,300
World Bank (Mesoamerican POPS)	US\$ 280,900
Threatened Dryland Ecosystems	
UNOPS (GEF – KM:Land)	US\$ 590,000
Jordan Min. Environment (Fara'a & Jaresh)	US\$ 120,500

Number of Requests for Collaboration

- a. Donors and other funding partners:
- GEF: UNU-INWEH responded to a major request received from the GEF Secretariat for providing support to and leading initiatives related to management and synthesis of knowledge in the International Waters focal area.
 - McMaster University: Based on the request from McMaster University, a proposal is being crafted to develop a joint Master’s Degree program that will focus on Ecosystems and Human Health. Particular attention will be paid to the role of water and sanitation in this context.
 - AGFUND: UNU-INWEH was invited to submit proposals to two rounds of review, leading to one successful outcome and pending results of the second cycle. The requested theme was water and sanitation provision in Africa, with a focus on women and children, which aligns quite well with the projected growth in the water-health sub-programme.
 - CIDA: Based on preliminary discussions, CIDA has expressed interest in developing new initiatives and supporting ongoing ones in Latin America and Africa. Accordingly, proposals related to SUMAMAD-II were submitted to CIDA.
 - Flemish Government of Belgium: It has requested UNU-INWEH and UNESCO to develop a 5-year project proposal and finalize it in consultation with our developing-country partners. The proposal was formally submitted in October 2008 and subsequently approved by the Flemish Parliament.

b. Developing country partners:

- UNCCD: Based on a revised strategy proposed by “affected” developing-country members of the convention, UNCCD requested two supporting interactions by UNU-INWEH. It was invited to join an inter-agency task force that is helping to re-write the reporting template for affected member states. This reporting is a key element of the review process within the convention. UNU-INWEH also joined a consortium of 5 organizations to respond to the request from UNCCD Secretariat to help reform its Committee on Science and Technology (CST).
- Lake Victoria Basin Commission: LVBC has expressed interest in developing broader partnerships with UNU-INWEH in the African Great Lakes region.
- Countries in Marginal Drylands: Countries in the existing SUMAMAD Project – China, Egypt, Iran, Jordan, Pakistan, Syria, Tunisia and Uzbekistan – have expressed a strong interest in continuation of SUMAMAD. Additionally, Bolivia, Burkina Faso and India have also expressed interest in also participating.
- Bangladesh: UNU-INWEH received two separate requests, from the World Bank and the Bangladesh University of Engineering and Technology, to investigate the long-term impacts of climate change on water resources in Bangladesh.

Personnel Management

a. Staff changes:

A number of new staff members joined UNU-INWEH in the reporting period. These include: Dr. Richard Thomas (Assistant Director, Dryland Ecosystems), Mr. Andrew Dansie (Project Officer, Freshwater Ecosystems), Ms. Lisa Benedetti (Project Assistant, Coastal Ecosystems), Ms. Irene Gaerdes (Office Assistant) and Ms. Maria Baby (Accounting Clerk). Overall, this expansion and strengthening of the UNU-INWEH team is directly linked to the strategic goals for growth over the next five years. One staff members departed in 2008: Mr. Ricardo Smalling (Project Assistant) left UNU-INWEH to pursue a Law Degree at Queens University.

b. Significant administrative changes:

Administrative support for the office was significantly strengthened through: (a) increased delegation of financial authority from UNU Centre to UNU-INWEH, allowing near-complete independence in obligation contractual documents and processing payments; (b) formalizing planning support to managers for financial management of individual projects; and (c) formalizing performance review of all staff members by putting in place position descriptions and annual work plans, linked to performance review.

Fund Allocation to Strategic Gaps

Programme Development Funds, accrued as overheads from SPC-funded projects, are being used strategically to: (a) provide additional resources for developing new projects, particularly the water-health sub-programme; and (b) providing additional resources for supporting activities to increase the outreach of existing projects.

Relevance of Results

The following examples can be cited as demonstration of the relevance of UNU-INWEH's work:

- a. Uptake of the findings of the policy brief related to desertification by the member states as well as the UNCCD Secretariat. The Executive Secretary continues to cite the key information points and policy guidelines from the UNU-INWEH reports. A direct consequence of such uptake is UNU-INWEH's engagement by the secretariat in the reform process for its Committee on Science and Technology.
- b. A strong expression of interest in the "Lake Twinning" initiative by the commissioners of the International Joint Commission, following a presentation by the UNU-INWEH Director in February 2008; this has been followed by active participation by IJC Commissioners and staff members in the project activities.
- c. Continued and extensive coverage of research findings from UNU-INWEH in the international media provided a good indicator of how relevant this work is to general public and policymakers alike. The policy brief "Stemming Decline of the Coastal Ocean: Rethinking Environmental Management" was launched in June 2008, and gained extensive media coverage internationally. Ten major stories in four languages distributed by six newswires were captured on more than 60 media websites across 14 countries.
- d. A major highlight of the 2008 media coverage was the launch of policy brief "Safe Water as the Key to Global Health" in mid-October 2008. The report spawned more than 20 original media stories; these also appeared online on about 110 media websites in eight languages across 28 countries.