

## ANNUAL REPORT 2003



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## DIRECTOR'S STATEMENT

By any measure 2003 was a memorable year for the UNESCO-IHE Institute for Water Education. In March the final documents were signed transferring the old IHE to UNESCO. This event set the stage for the participation of the Institute in the World Water Forum in Japan as the co-organiser of the Water Education and Capacity Building session plus the formal launching of the Institute to the international community.

With my arrival in July as Director of UNESCO-IHE, the Institute became operational as a UN entity. Shortly after that time, the Office of the Director General formalized the appointment of the thirteen-member Board of Governors and agreement was reached on the nomination of Maarten Blokland as the Deputy Director of the Institute.

UNESCO immediately began to advance the profile of the Institute by convening a meeting on 'Strategies, Actions, and Coalitions in Water Education and Capacity Building' in Delft from 15 -18 July. It was the first time the entire 'UNESCO water education family,' including UNESCO-IHE, UNESCO-IHP, UNESCO water-related chair-holders, network coordinators, centre directors, and course directors had met to discuss a common strategy for future cooperation and coordination activities. It is not an overstatement to say that holding such an event in Delft was an important indicator that UNESCO-IHE will serve, as the Director General stated, as the 'hub of the UNESCO water family.' Our work with the water family will now focus on inputs to the International Decade on Education for Sustainable Development and the International Decade for Freshwater 'Water for Life' processes.

This Institute completed the process to revise the existing education programmes, leading to the

launch of four new Masters Programmes at the start of the 2003-2004 academic year in October. Additionally, an internal 'self-study' committee was established to begin the process leading to the renewal of our current accreditation, which will expire at the end of 2007.

The Partnership for Water Education and Research (PoWER) made significant strides during 2003. Work was initiated on development of 10 innovative learning modules in cooperation with partner institutes. These modules will in part be delivered using the distance-learning studio, of which the construction was finalised at the beginning of 2003. The Distance Learning Centre was dedicated as part of the World Bank's Global Development Learning Network.

Finally it should be noted that the context of the Institute's relationship to our host country is also evolving. As a UNESCO entity we must find ways to expand our funding base to include other donors, from OECD countries, and from the private sector. To this end we have established the UNESCO-IHE Fellowship Trust Fund.

All things considered, 2003 has been a year of tremendous challenge and opportunity. We look forward to continuing to serve the capacity building needs of developing and transition countries in the water sector.



Professor Richard A. Meganck,  
Director



# INTRODUCTION



UNESCO-IHE Institute for Water Education continues the work initiated in 1957 when the Institute first offered a postgraduate diploma course in hydraulic engineering to practicing professionals from developing countries. Over the years, UNESCO-IHE has developed into a world renowned international education institute providing a host of postgraduate courses and tailor-made training programmes in the fields of water, environment and infrastructure; conducting applied research; implementing institutional capacity building and human resource development programmes; participating in policy development; and offering advisory services worldwide.

The Institute has gradually expanded its academic base to include disciplines such as sociology, economics, and environmental and management sciences. Its range of activities has broadened, accordingly, from identifying solutions to engineering problems, to designing holistic and integrated approaches in the development and management of water and environmental resources, and urban infrastructure systems. The Institute's services now also comprise integrated water resources management, effective service delivery and institutional reform, all of which aim to enhance full stakeholder involvement, equity, accountability and efficiency in water sector development and management.

In November 2001, UNESCO's 31st General Conference decided to make IHE an integral part of the Organisation. By March 2003, the necessary treaties and agreements between the IHE Delft Foundation, UNESCO and the Netherlands Government were signed, allowing for the entry into operation of the new UNESCO-IHE Institute for Water Education.

UNESCO-IHE envisions a world in which people manage their natural resources in a sustainable manner, and in which all sectors of society, particularly the poor, can enjoy the benefits of basic services.

The mission of the Institute is to contribute to the education and training of professionals and to build the capacity of sector organisations, knowledge centres and other institutions active in the fields of water, the environment and infrastructure in developing countries and countries in transition.

Within the UNESCO mandate and the mission statement, the Institute has the following functions:

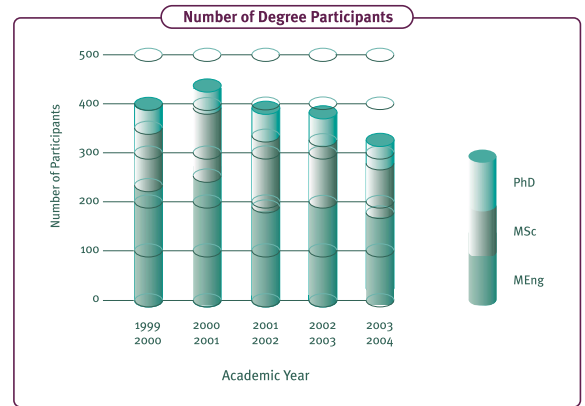
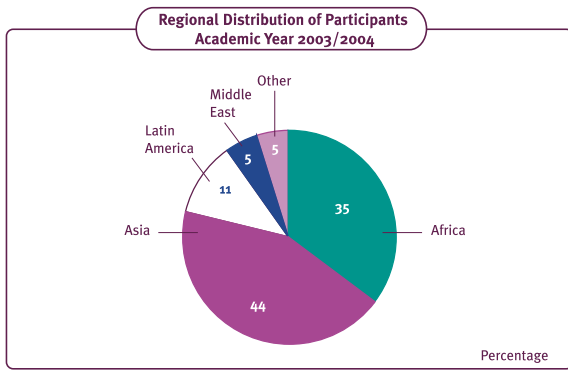
- Post-graduate education and professional training;
- Research relevant to development;
- Capacity building;
- Developing and managing networks of educational and water sector organisations;
- Setting a standard for postgraduate water education programmes and continuing professional training;
- Policy forum for UNESCO's Member States and other stakeholders.

UNESCO-IHE focuses on six strategic objectives:

- To deliver effective, demand-responsive and accredited postgraduate education programmes;
- To establish and foster partnerships between academic centres and professional organisations that offer education, training and research programmes at the local or regional level;
- To do research into aspects of integrated water resources management relevant to development;
- To position UNESCO-IHE in the water education and training market as an independent, pre-eminent, demand-responsive centre of excellence;
- To share the knowledge and experience of the Institute's network with sector organisations for the benefit of all people;
- To have an organisation that can fulfil the present ambitions and can easily adapt to the changing needs of the sector.

UNESCO-IHE FOCUSES ITS ACTIVITIES ON FOUR CORE ACTIVITIES: EDUCATION, RESEARCH, CAPACITY BUILDING, AND PARTNERSHIPS AND NETWORKS. WITH THESE CORE ACTIVITIES, THE INSTITUTE AIMS TO REALISE ITS VISION AND MISSION, AND AID IN RESOLVING THE MAJOR WATER AND ENVIRONMENT CHALLENGES FACED BY THE DEVELOPING WORLD.

# CORE ACTIVITIES | EDUCATION



Degree programmes offered at UNESCO-IHE in 2003 are the 12-month Master of Engineering (MEng), the 18-month Master of Science (MSc), and the 4-year Doctor of Philosophy (PhD) programme. The institute also organises various short courses and group training programmes throughout the year.

In the Academic Year 2002-2003, the Institute offered the following Masters Programmes:

Masters Programmes	Number of Participants enrolled
Environmental Science & Technology	33
Water & Environmental Resources Management	38
Sanitary Engineering	33
Urban Infrastructure, Engineering & Management	23
Hydraulic Engineering	51
Hydroinformatics	14
Hydrology & Water Resources	26

Statistics on participants are available in Annex 1.

In 2003, 38 research fellows were enrolled in the PhD programme, and approximately 250 participants joined the various short courses of which 93 were alumni participating in Refresher Seminars. 125 MSc degrees were given throughout the year.

In addition to the Delft-based programmes, UNESCO-IHE assisted partner institutes in Ghana, Palestine, Yemen, Zimbabwe, Kenya, Egypt and Colombia to deliver postgraduate education and training. Through various guest-lecturing assignments, UNESCO-IHE contributed to the education of professionals in a large number of countries.

## RESTRUCTURING UNESCO-IHE'S MASTERS PROGRAMMES

At the end of 2002 an internal academic committee (NEMAP) advised the management of UNESCO-IHE to reduce the number of Masters Programmes offered and to restructure the existing curricula. The restructuring would assist the institute to better prepare for accreditation by the Netherlands Accreditation Council (NAO) in

2005-2006. Accreditation is required to ensure core funding in future years. Based on recommendations of NEMAP, it was decided to reduce the number of programmes from nine to four. Core subjects would all be maintained in the various curricula by increasing the number of specialisations. Another important decision was to develop all programmes according to a modular set-up. The transformation of curricula into 3-week modules gives participants more flexibility in planning their studies and will allow for sharing education activities with partner organisations in the future.

A Programme Committee was established for each new programme, with the terms of reference to develop coherent programmes, maximizing synergies at both the programme and the specialisation level. Special emphasis was put on introducing innovative ways of knowledge transfer, including distance learning and sharing resources with institutes in our networks.

The restructuring and redevelopment of the Masters Programmes was finalised by the summer of 2003. Four new Masters Programmes, with a total of fifteen

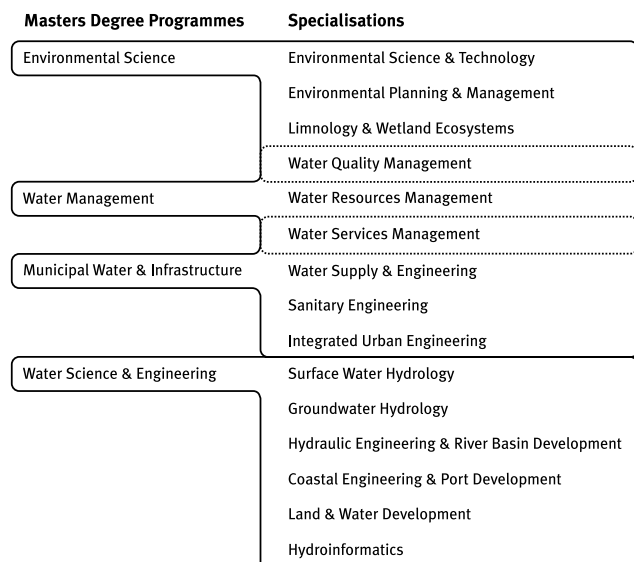
specialisations were initiated in October 2003. The programmes and the number of participants enrolled in the academic year 2003-2004 are listed below.

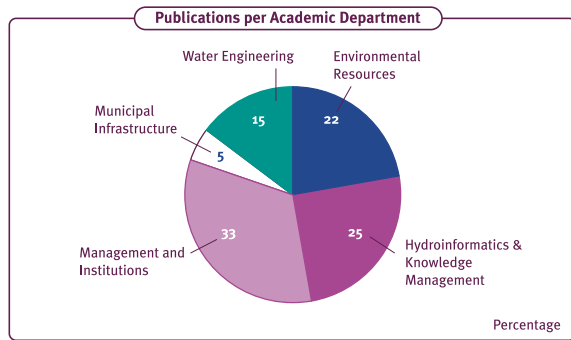
Examination regulations and administrative processes have been adapted to the modular structure of the new Masters Programmes.

Masters Programmes	Number of Participants enrolled
Environmental Science	38
Water Management	24
Municipal Water & Infrastructure	65
Water Science & Engineering	65

## ACADEMIC QUALITY ASSURANCE

The Academic Board of UNESCO-IHE advised the Rectorate to install a special committee to be charged with the development, guidance and monitoring of the Institute's academic quality assurance system. The Academic Quality Assurance committee (AQA) was established as a sub-committee of the Academic Board, and charged with addressing quality issues in four important activities of the institute: Education and Training; Research; Capacity Building Projects and Validation; and Review and Accreditation.





The Institute’s research and development activities address priority issues of the Global Water Agenda, and, in particular the areas of water security, environmental integrity, urbanisation, integrated water resources management, and (water) information and communication. The academic departments focus their research efforts on these issues as they are of concern to developing countries and countries in transition. The objective of the research programme is to contribute to the overall knowledge base on the five thematic areas, and to enhance education and capacity building. Increasingly the Institute is collaborating in its research with partner institutes around the world.

A priority is to train researchers from developing countries and countries in transition. This is done both through the individual research projects included in the MSc programme and through PhD studies. MSc participants are encouraged to address issues of concern to their home countries, and the majority of PhDs are done on a sandwich basis, with at least half of the time of an individual PhD participant spent in their country of origin.

An important measure of the success of research done at the Institute is the dissemination of the knowledge generated. Emphasis is placed on increasing the number of peer-reviewed papers published in academic journals. At the same time there is concern to improve the quality of the research through the introduction of internal audits linked to staff performance assessment (BTW).

The Institute has a long term Professorial Plan, which identifies additional chairs to enhance the scope and quality of the research through attracting leading academics. Collaborative research in new areas across the Institute’s academic departments is encouraged through internal funding. A certain amount of such funding is also available for matching research funds from other sources.

There were four general research objectives in 2003. The first was to steadily increase the number of PhDs graduating. In 2003 two PhD candidates successfully defended their thesis, and many more came much closer to their promotion date. Mr. Zimmo from Palestine defended his thesis entitled ‘Nitrogen transformations and removal mechanisms in algal and duckweed waste stabilisation ponds’ and Mr. Varoonchotikul defended his thesis entitled ‘Flood forecasting using artificial neural networks’. For a list of ongoing and graduated PhD fellows during 2003, please refer to Annex 2.

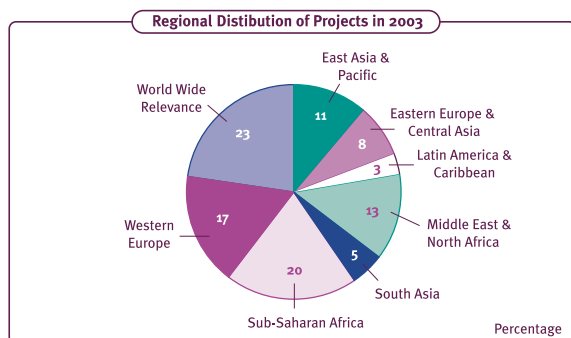


The second was to increase the number of published peer reviewed papers. The research outputs in 2003 are shown in the table below, and for a full list of publications please refer to Annex 4. Third, there was to be a focus on scientific quality, for which procedures were developed, but yet have to be fully implemented.

Research Outputs	Number in 2003
Books	6
Chapters in books	14
Journal articles	52
Other publications	109
<b>Total</b>	<b>181</b>

Finally, the professorial plan was to be implemented. One professorial appointment was made during 2003 and a number of new professorial vacancies will be filled in 2004. In addition, action was taken to increase the research training content of the educational programmes in accordance with NAO (Netherlands Accreditation Organisation). There was also a modest increase of external funding of research compared to 2002.

## CORE ACTIVITIES | CAPACITY BUILDING



In addition to education and research, UNESCO-IHE is actively engaged in both long-term and short-term capacity building projects. Via these projects, the Institute contributes to the implementation of development policies of multi-lateral and bi-lateral agencies, and national governments. The project activities support public and private water sector institutions in strengthening their human and institutional capacities. The execution of projects also contributes to upgrading and updating of UNESCO-IHE's knowledge base with region-specific information and expertise.

In late 2003, the Academic Quality Assurance Committee was established as a sub-committee of the Academic Board. This committee is charged with development, guidance and monitoring of the Institute's academic quality assurance system. One of the four portfolios of the committee is on 'Capacity Building Projects'.

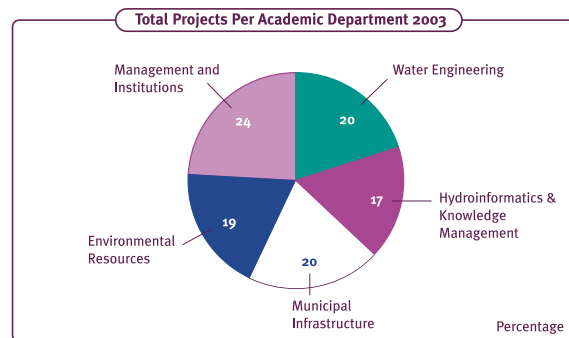
The year 2003 marked the start of a transition period during which the institutional development programme of the Ministry of Foreign Affairs of the Netherlands was substantially revised. The ongoing SAIL Project Programme (SPP) is being phased out in June 2004, while a new capacity building programme (NPT) was started in 2003. As a result, the ongoing SAIL projects (Ghana, Palestine, Egypt, Colombia, Zimbabwe, Kenya and Yemen) were largely aimed at consolidation and at achieving self-sufficiency. UNESCO-IHE targeted efforts to attract other sources of funding to sustain the cooperation with project partners after June 2004.

The UNESCO-IHE Partnership for Water Education and Research (PoWER) is the largest of the Institute's ongoing projects. The partnership – created in 2002 – made substantial progress during 2003 to initiate the development of joint education and training packages with partner institutes. PoWER also began initiatives to mobilise the alumni networks of UNESCO-IHE and its 17 regional partners, eventually leading to better demand identification and more effective response by the PoWER partners. The partnerships and alumni networks will also be instrumental in acquisition and joint implementation of projects and advisory services.

Two EU-Alfa network proposals, coordinated by the Universidad del Valle in Colombia and UNESCO-IHE, were approved late 2003. In support of UNESCO-IHE's capacity building activities in the Nile region, the World Bank allocated funds to establish five additional nodes in the Nile Basin Capacity Building Network for River Engineering. This allows for active participation of all ten Nile Basin countries in this knowledge network, established as part of one of the SPP projects.

New acquisitions included a first NPT project with two Hydrometeorological Colleges in Vietnam. The project is a partnership between Saxion, ITC and UNESCO-IHE. An inventory of upcoming opportunities showed that other tender notices for NPT projects in the field of water and environment will be forthcoming in 2004.

The European Commission approved the project 'Water Liberalisation Scenarios, an Empirical Analysis of the Evolution of the European Water Supply and Sanitation Sector'. This project is being implemented by a consortium of ten institutes, lead by UNESCO-IHE, and extends over a period of three years.



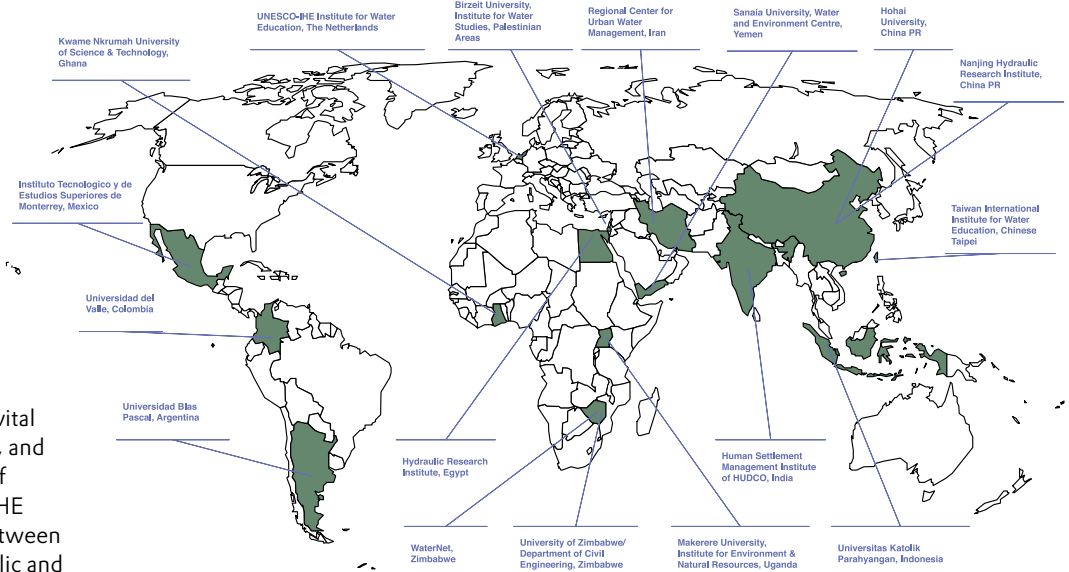
The Partners for Water programme of the Netherlands Government awarded the Institute funds to develop sustainable development scenarios for the Upper Mekong region. This programme also sponsors the implementation of a demonstration scheme for the removal of arsenic from contaminated groundwater in Bangladesh. In the Middle East, the Institute started implementing two new projects funded by Partners for Water: an assessment of training needs and knowledge mapping in the field of integrated water resources management, and an institutional development project aiming at strengthening the Al-Raqqqa Training Institute in Syria.

In Africa, UNESCO-IHE received a contract from UNCHS for the project 'Low cost urban mobility demonstration programme'. This project aims at developing an institutional framework for sustained environmental planning and management.

A large number of smaller projects and advisory services were also executed in 2003. Some examples include the implementation of cleaner production workshops for representatives from industries and for school teachers in Ecuador, a study on costs versus health benefits of water supply and sanitation, a study on the water quality objective for developing regions, a tailor-made course in Environmental Management for directors of regional Environmental Protection Agencies in Taiwan, an institutional analysis of the water sector in Nigeria, various evaluation missions (Hydrology Programme India, Bank Netherlands Water Partnership Programme, DGIS Water Unit), and training of Bulgarian water sector professionals in the framework of the introduction of the EU Water Framework Directive. These, and other smaller projects, are particularly important as they are aimed at specific target groups and generate new knowledge. For a complete overview of ongoing and newly started projects in 2003, please refer to Annex 3.



## Multilateral Partnership for Water Education & Research (PoWER)



Partnerships and networks are of vital importance in improving access to, and in the sharing and dissemination of information. In 2003, UNESCO-IHE continued to act as an interface between knowledge centres, as well as public and private sector organisations.

In 2003 the Institute strengthened its ties with the UNESCO 'water family'. The family includes the IHP programme and UNESCO's water-related Chair holders, network coordinators, centre directors and course directors. In July 2003, UNESCO-IHE hosted a meeting on strategies, actions and coalitions in water education and capacity building. As a result collaborative actions were formulated, the UNESCO Water Family announced to be willing to take a lead role in developing a water component for the UN Decade of Sustainable Development (2005-2014), and a list of action principles were drafted on water education for sustainable development.

PoWER was registered as partnership with the UN Commission for Sustainable Development in 2003. Activities focused on mobilising content to serve development, while shaping and strengthening its governance structure. The development of ten innovative learning modules was initiated. These I-learning modules use a mix of technology-based systems (blended learning), and make use of interactive techniques to activate the creative thinking of professionals.

A comprehensive web-based platform was developed to facilitate the exchange of knowledge between the PoWER partners and other networks, including the UNESCO-IHE alumni community. This platform also hosts the software needed to implement joint distance learning modules. A major development that enhanced the Institute's global connectivity was the creation of a distance-learning studio

within the UNESCO-IHE premises. This state of the art facility – connected to the Global Development Learning Network (GDLN) of the World Bank – was inaugurated on 11 April 2003. In 2003, over 1700 professionals and VIP's were connected using this facility to exchange views on different aspects of water and the environment.

Regional networks for water sector capacity building that received active support from UNESCO-IHE in 2003 included WaterNet in Southern Africa, AWARENET in the Middle East region, the Nile Basin Capacity Building Network for River Engineering, and LA-WET-NET in Latin America. World Bank support has been obtained to establish new nodes in the Nile region. The Netherlands government sponsored various activities in the framework of AWARENET. Multi-year capacity building projects were still ongoing with partners in Yemen, Palestine, Egypt, Colombia, Kenya, Zimbabwe and Ghana.

For Delft Cluster, the partnership between five Delft-based institutes cooperating in research on the management of densely populated deltas, 2003 was a transition year. Phase one was completed in 2002. In 2003 the partners developed a proposal for a second phase, which also aims to broaden the geographical scope to developing countries. Prospects for funding are good. The Institute hosts and closely cooperates with IRC, Cap-Net, the Netherlands Water Partnership, and the International Secretariat for the Dialogue on Water and Climate. Discussions on further interaction with IRC are ongoing and will be continued in 2004.

## MEMORANDA OF UNDERSTANDING

UNESCO-IHE has a number of long- and short-term international co-operation agreements with various partners, comprising a wide range of fields and technical cooperation in human and institutional capacity building. Memoranda of Understanding (MoU) set the framework under which specific activities are carried out with each partner. The MoUs signed in 2003 are listed below.

### University of Brasilia

signed: February 2003

goals: exchange of faculty, joint research, information sharing, exchange of students.

### SUEZ

signed: July 2003

goals: SUEZ-financed part time Professorial Chair in Public Private Partnerships / Water Supply & Sanitation, fellowships, guest-lecturing.

### Netherlands Ministry of Transport, Public Works and Water Management

signed: 01 September 2003

goals: sponsoring of part time Professorial Chairs, joint development and delivery of educational packages, cooperation in capacity building projects, information and knowledge sharing, staff exchange.



UNESCO-IHE ADOPTED FIVE THEMES AS FUNDAMENTAL TO ITS EDUCATION, RESEARCH AND CAPACITY BUILDING PROGRAMMES: WATER SECURITY, ENVIRONMENTAL INTEGRITY, URBANISATION, INTEGRATION, AND INFORMATION AND COMMUNICATION. THROUGH EACH OF THESE THEMES, THE INSTITUTE FOCUSES ITS CONTRIBUTIONS ON RESOLVING THE MAJOR ISSUES AND CHALLENGES FACED BY MANY DEVELOPING COUNTRIES, AS IDENTIFIED BY A NUMBER OF GLOBAL CONFERENCES, MOST NOTABLY THE UN MILLENNIUM SUMMIT (2000), THE 2ND AND 3RD WORLD WATER FORUMS (2000 AND 2003) AND THE WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT (2002).

Water security relates to the development and management of a sustainable balance between water availability and water demand. It involves protection against water related hazards (floods and droughts), wise use of water resources and safeguarding (access to) water functions and services. In the context of the theme water security UNESCO-IHE is primarily concerned with human interventions in water systems to enhance the beneficial and sustainable use of water and the protection against water related shortcomings and disasters such as floods and droughts.

In recent years, UNESCO-IHE has focused more on operational design principles and policy development than structural design principles. Exchange of knowledge with a wide array of disciplines related to water and environmental science is therefore becoming a more important focus for UNESCO-IHE water professionals than it was in the past. In parallel to worldwide trends, led by the EU Water Framework Directive, the concepts and tools developed and used for integrated water resources management have become almost exclusively river basin-based.

The primary educational development within the theme of water security was the start of the restructured Masters Programme in Water Science and Engineering. The former Masters Programmes of Hydraulic Engineering and Hydrology and Water Resources were combined with Hydroinformatics to form the new Masters Programme in Water Management. This Masters Programme offers six specialisations: Surface Water Hydrology, Groundwater Hydrology, Hydraulic Engineering and River Basin Development, Coastal Engineering and Port Development, Land and Water Development, and Hydroinformatics.

In 2003, UNESCO-IHE reinforced and expanded its presence in research and capacity building projects in several major national and transboundary river basins throughout the world. In the Aral Sea Basin cooperative projects were initiated with TIAME in Tashkent and the relationship with SIC-ICWC was reinforced. Project cooperation involves the Tempus funded EWASA project and the initiative for the AralNet project.

On August 20, 2003 Mr. Varoonchotikul successfully defended his PhD thesis on the subject of flood forecasting using artificial neural networks. These networks are a quick and flexible approach for modelling the rainfall runoff process in a wide variety of catchments under specific circumstances. His research focussed on finding a solution to the limitation of predicting beyond the limits of a training range (extrapolation problem).

In the Middle East various activities were undertaken related to integrated water resources management under conditions of water scarcity and support to the Arab Integrated Water Resources Network (AWARENET) of the Economic and Social Commission for Western Asia (ESCWA).

In the Yellow River Basin several projects were undertaken, including the development of the Water Monitoring and Flow Forecasting System with the Yellow River Commission, the group training Series 'Ground Water Development in Northwest China', the development of a China Groundwater Information Centre, and a group training in Water Scarcity Management.

Highlights of continued capacity building programmes include the Nile Basin Capacity Building Network project (with the Hydraulics Research Institute in Cairo and research clusters in Ethiopia, Uganda, Sudan, Kenya and Tanzania), participation in various



components of the Exact program with Jordan, Israel and the Palestinian Authority (contributions included groundwater monitoring projects and the small-scale water treatment and artificial recharge demonstration projects), and cooperation with the Southern Africa Technical Advisory Committee (SA-TAC) of the Global Water Partnership (GWP) in the WaterNet project for 'Pooling Capacity for Integrated Water Resources Management in Southern and Eastern Africa'.

Closer to the home base of UNESCO-IHE in Delft, cooperation with Dutch and European research clusters has continued. Highlights include participation in the Delft Cluster and in the Netherlands Center for Rivers, cooperation with RWS based institutions such as RIKZ (National Institute for Coastal and Marine Management) and RIZA (Institute for Inland Water Management and Waste Water Treatment), participation in various projects related to flood control in the Rhine and Meuse basins and continued cooperation with leading core research and education groups for water and environment in the Universities of Delft, Wageningen and Amsterdam.

The theme of environmental integrity addresses the balance between human development and quality of the environment. Central issues of concern are the efficient, equitable and sustainable allocation and use of natural resources, pollution prevention and control and wise use of aquatic ecosystems. UNESCO-IHE believes that these issues can be addressed only through an interdisciplinary approach and has translated this throughout its research, training and educational activities.

The most important activity in 2003 was the development and start of the new Masters Programme in Environmental Science, with four specialisations: Environmental Science and Technology, Environmental Planning and Management, Water Quality Management and Limnology and Wetland Ecosystems.

The staff group working on the theme of environmental integrity was expanded with a professorial chair in Water Quality Management, funded by the Dutch Ministry of Public Works, Transport and Water Management.

Mr. Zimmo successfully defended his PhD thesis on the comparison of duckweed based and algae-based stabilisation ponds for domestic wastewater treatment. He particularly focused on the behaviour of nitrogen in these systems, with a view to optimise nitrogen recovery and reuse. To this end Mr. Zimmo established detailed nitrogen mass balances and clarified the various nitrogen transformation mechanisms taking place in both types of lagoon systems. The knowledge generated will contribute to the development of low cost wastewater treatment and reuse systems.

Under the framework of the Memorandum of Understanding with UNEP/GPA, a new training course on 'Municipal Wastewater Management for Decision Makers at Municipal Level' was delivered in East Africa jointly with the WIOMSA, with participants coming from Kenya, Tanzania and South Africa. In Southern Africa a Refresher Seminar for UNESCO-IHE alumni was organised focussing on 'Wetland Systems, Water Resources and Climate Variability and Change'. The seminar, part of a process of building an active community of African wetland professionals, was organised in collaboration with the School of Bioresources Engineering and Environmental Hydrology (BEEH) and the University of Natal.

A proposal was developed for the Mekong River Commission (MRC) for establishing a permanent Integrated Training Programme in the region, aimed at meeting the large training requirements in the four Lower Mekong countries (Laos, Cambodia, Thailand and Vietnam). A Training Module on Integrated River Basin Management was developed, an initiative together with the World Wide Fund for Nature (WWF) within the context of the Partnership for Water Education and Research (PoWER). In November, a workshop on IRBM was organised in Hanoi, in cooperation with WWF, MRC and the Hanoi Water Resources University, with participants from all Mekong basin countries. Within the context of a joint project for capacity building in the field of Water and Ecosystems with the Chinese State Forestry Administration, a workshop and fieldwork was undertaken in the Upper Mekong area.

In September UNESCO-IHE contributed to the organisation of the international conference Agua 2003 in Cartagena de las Indias, Colombia, which focused on 'Multiple Uses of Water for Life and Sustainable Development'. The conference was organised by the Cinara Institute and Universidad del Valle, one of UNESCO-IHE's partners, under the auspices of the International Water Association (IWA).

Within the theme of environmental integrity, UNESCO-IHE co-organised a Session on Virtual Water Trade and Geopolitics at the Third World Water Forum in Japan, March 2003, together with the World Water Council and the UN Food and Agriculture Organisation. In the context of the worldwide Dialogue on Water and Climate, a training package on Water and Climate was developed and presented at the Third World Water Forum.





The rapid pace of urbanisation exerts enormous pressure on the local environment and on available resources. This generates a high demand on infrastructure services such as water supply, sanitation, transport and housing. Both technological and integrated approaches to human settlements infrastructure services provision and management are important aspects of urbanisation. For years, UNESCO-IHE has emphasised the engineering aspects of several sectors such as water supply treatment and distribution, wastewater collection and treatment, solid waste, transport and mobility. Integration and exchange of knowledge with a wide array of disciplines is currently becoming a more important focus for the UNESCO-IHE water professional.

In 2003, UNESCO-IHE successfully reviewed its Masters Programmes with an aim to enrich the strengths of its former Sanitary Engineering and Urban Infrastructure Engineering and Management programmes into one Masters Programme in Municipal Water and Infrastructure. Four specialisations were developed, adapted to the present and future needs of the participants: Water Supply Engineering, Sanitary Engineering, Integrated Urban Engineering, and Water Services Management. Several short courses and refresher seminars were also organised, dealing with priority themes including urban infrastructure provision and management (refresher seminar in West Africa), water distribution and transport (Delft), solid waste management (in Delft and in Nepal) to

membrane technology (in Delft and Jordan). The Institute reinforced and expanded its presence in urbanisation (research) projects in some major regions of the world. In Africa, the UN-Habitat/UNEP Sustainable Cities Programme continued. UNESCO-IHE initiated a project aimed at strengthening environmental planning and management through demonstration projects on sustainable urban mobility. The second phase five-year programme was officially launched during the summer 2003.

During the summer of 2003, an assessment of urban water problem and strategic planning was started with the Regional Center on Urban Water Management based in Tehran. The main goals of this study carried out for UNESCO are to assess the present situation in terms of urban water and sanitation challenges in Middle East and Central Asian cities and to develop a guideline for strategic urban planning.

In Eastern Europe, UNESCO-IHE initiated a project that supports local organisations in designing and creating resource centres in Bulgaria and Romania. The main role of these centres will be to collect and make information available on topics related to urban and rural water supply and sanitation.

In Western Europe, a project on the design and test of a pilot installation for Arsenic removal in Greece – making water suitable for drinking – was completed and created spin-offs in several other countries. A project on the development of a point-of-use device ('family filter') for Arsenic removal in rural areas of South East Asia and demonstration-scale application in a selected village in Bangladesh was initiated in 2003. UNESCO-IHE recently conducted research on an innovative approach for arsenic removal at household level, which can be an adapted as an affordable answer to the ongoing arsenic problem in Bangladesh. A patent request for the protection of a new Arsenic removal technology developed at UNESCO-IHE has been submitted.

At the Third World Water Forum, UNESCO-IHE contributed to a Session on Self-financing of Local Water Management, together with the Union of Water Boards, the Netherlands Bank for Water Boards and the Netherlands Water Partnership (NWP). A small booklet gathering various experiences was produced.

The importance of the integration theme for UNESCO-IHE is that it brings to life the concepts of integrated water management. Efficiency, equity and maintaining the integrity of natural resource use can only be achieved through an integrated approach involving engineering, law, policies, institutional development and management. This theme relates to the interest of users and economic sectors, institutional arrangements, functioning of water services institutions and the formulation of strategies under the complete set of national objectives, potentials and constraints. The field is inherently cross-cutting, integrating and multi-disciplinary and it helps to combine and reinforce strengths of all UNESCO-IHE academic departments.

In 2003, the Institute's educational expertise working on the theme of integration was broadened by the appointment of a part-time professor of Policy and Law in Water and Environmental Resources. This will deepen the knowledge on cross-cutting themes such as conflict resolution and sharing of international water resources. The core of Capacity Building was reactivated with the return of a part-time professor from his secondment to the World Bank. An MoU with SUEZ International was signed, with the intention to deepen education in water services management and facilitate research in this theme.

The existing Masters Programme on Water and Environmental Resources Management was harmonised in the new Water Management Programme, strengthening the management and institutional component. The programme offers three specialisations: Water Resources Management, Water Services Management and Water Quality Management. The latter two specialisations are shared with the Masters Programmes in Municipal Water and Infrastructure and Environmental Science, and all three specialisations share group-work modules.

Tailor-made courses were developed for Ethiopia, Afghanistan, Mekong River basin, Syria and UNEP. Other new activities were the development of a (partly distance learning) module in integrated river basin management, and a simulation model on international rivers (Incomati). The PCCP (from Potential Conflicts to Cooperation Potential) became part of the WaterNet curriculum, and a module on water demand management was developed in collaboration with IUCN-SA. The modules on public private partnerships, water law and institutions were upgraded in the context of the PoWER project.

Research themes addressed in 2003 were water scarcity, options for sustainable development, value of water, understanding physical processes, management support, options for the delivery of water services (public, private sector, community based) and sector reform. Fourteen PhD studies address various aspects of the Integration theme, funded either in the framework of a research project, in the framework of capacity building projects (SAIL), or on individual fellowships. The theme is covered by six long-term multi-disciplinary research projects, funded by a multitude of donors (WOTRO, SIDA, DGIS, IWMI, EU, WorldBank, WSSCC), and carried out with partners in various countries.

A major activity in 2003 was the guidance given to the development of WaterNet in Southern Africa, which has established a collaborative Masters Programme in Integrated Water Resources Management (IWRM). A network of 39 knowledge institutions, professional organisations and NGO's from eleven countries in the region contributed to a jointly recognised educational programme. The core programme is delivered at University of Zimbabwe (Harare) and University of Dar-es-Salaam (Tanzania) with specialisations given in three other countries. WaterNet is also engaged in collaborative research, and in 2003, the legal foundation of WaterNet was formalised and the ties with the Southern African Development Community (SADC) further strengthened.

In addition, staff was engaged in several smaller projects and challenging advisory missions. A few notable assignments were the analysis and formulation of policy for the establishment of water boards in Egypt, assistance to the implementation of the EU water framework directive in Turkey, review and guidance to small scale water resources development in Bangladesh, institutional analysis and reform of the water sector in (part of) Nigeria, river basin management in China, external evaluation of the Netherlands Water Unit programme, and external evaluation of the World Bank Netherlands water partnership programme.



The thematic area of information and communication highlights the growing importance of acquisition, analysis, archiving, application and dissemination of information. To meet the Millennium Development Goals, the knowledge base on water resources and systems needs to be enhanced. This means focusing on both the education of water professionals and researchers and the production and widespread dissemination of explicit knowledge in the form of documents, tools, methods and procedures. UNESCO-IHE uses existing knowledge and information in its educational processes, in training researchers and in generating new knowledge. The Institute's information and communication activities also aids in establishing and facilitating networks and partnerships of organisations, professionals and others with a strong interest and involvement with water.

An educational highlight of 2003 was the integration of the former Hydroinformatics Masters Programme as a distinct specialisation in the newly established Masters Programme in Water Science and Engineering. This specialisation focuses on modelling and information systems for improved management of water based systems, and contributes to bridging the digital divide between developed and developing countries. The Hydroinformatics participant is taught to understand and make sound use of advanced modelling techniques, and their integration into information and communication technology tools and systems for water management. An important component of the Hydroinformatics specialisation is its research programme, which is mainly carried out through PhD studies. The research topics are in the areas of physically based and data-driven modelling, forecasting and warning systems, uncertainty and risk analysis, non-linear dynamics and chaos theory, and decision support systems. In most cases PhD research is carried out in cooperation with and support from water sector organisations, and implemented in the framework of multi-year research programmes. Examples are Delft Cluster's Data Mining programme and the

Operational Solutions for the management of the Inundation Risks in the Information Society programme (OSIRIS).

UNESCO-IHE continued its development of custom-designed web-based systems for integrating effective face-to-face interaction for learning, problem solving, research, and team building. The Basic Support for Collaborative Work (BSCW) platform has been the core of several Community of Practice initiatives, such as Masters Programme development (e.g. the Collaborative Engineering topic in Hydroinformatics), Refresher Seminars (in Brazil, Uganda and China), and Hydroplan, an EU project that links organisations in five countries concerned with urban water infrastructure management. Collaborative platforms have also been developed for Waternet, Nilenet (NBCBN) and Awarenet, all capacity building networks initiated and supported by UNESCO-IHE. The Institute has developed and is maintaining over 20 such platforms for different water-related professional networks and communities.

UNESCO-IHE has played a leading role in developing the innovative, multi-organisation Delft Cluster. This virtual research organisation has been focused on Dutch national concerns about sustainable infrastructure development for densely populated delta areas, but is now turning its attention to the international arena, and will involve research and application in a number of deltas in developing countries. UNESCO-IHE carries out research and disseminates knowledge in these countries within the context of Delft Cluster.

In 2003, the members of UNESCO-IHE's Partnership for Water Education and Research (PoWER) project initiated development of ten innovative learning modules (I-modules). These innovative, blended learning modules are designed to utilise diverse modes of content delivery, incorporating learning components that make use of Internet, satellite, video-conferencing and other innovative ICT applications, combined with traditional



human-to-human interactions. Through the initiatives of PoWER, the Institute continued working on expanding the options for continuous education for its 12,000 alumni and staff from partner institutions using the Internet. In particular, the establishment of the Virtual Alumni Community (VAC) platform is envisaged to give significant support to these processes.



On 31 December 2003, a total of 147 people were employed or attached to the Institute, compared to 140 at the end of 2002. Of these, 73 are academic staff members and 74 supporting staff.

### PERSONNEL CHANGES

As of 11 July 2003, Richard Meganck started as the new Director of UNESCO-IHE Institute for Water Education. Maarten Blokland was Acting Director since the departure of Wim van Vierssen in August 2002, and took up the position of Deputy Director of the Institute as per the start of Richard Meganck as Director.

On the 12 May 2003, Joop de Schutter replaced Paul van Hofwegen as Head of the Academic Department of Water Engineering.

### ORGANISATIONAL CHANGES

In 2003, P&O continued the 'Role Development Programme' to support UNESCO-IHE management. Special attention was given to Change Management, Planning & Control and the individual and collective responsibilities of the Management Team members, the Director and the Deputy Director.

The Value-Added Rewarding System was, after two pilot years, implemented for the whole organisation. This system aims to develop staff competencies and rewards individuals for their performance, assessed on the basis of predefined criteria. This system is being reviewed and will be adjusted if required to better serve the heads of the Institute.

### PERSONNEL POLICIES

During the past year a number of policy papers have been produced and several outdated policies eliminated. The most important new policies are the Working Conditions Policy, Code of Conduct, Regulation for Complaints of Undesirable Behaviour, Sickness Policy, Non-Smoking Policy and the Staff Planning Policy.

The regulation 'discounting holidays full timers' was agreed upon with the labour union. It allows fulltime employees to trade leave days for additional salary on a permanent basis.

A new personnel information and registration system has been implemented and the salary administration has been transferred to Logica/CMG.



# SUPPORTING SERVICES | COMMUNICATION, MARKETING AND ACQUISITION

## STUDENT AND EDUCATIONAL AFFAIRS

### FACILITY MANAGEMENT

#### ICT

#### COMMUNICATION, MARKETING AND ACQUISITION

In 2003, a new 'house style' was introduced to communicate the revised identity of the Institute. The logo of the UNESCO-IHE Institute for Water Education was first displayed in July 2003, at the occasion of the UNESCO Water Family meeting in Delft. The new line of marketing materials was gradually introduced in the months thereafter.

Much effort went into informing potential participants and sector organisations about the restructured Masters Programmes. During the World Water Fair in Kyoto (March 2003) the new education brochure was first presented. Towards the end of 2003, marketing of the academic programmes 2004-2005 started. Revised NFP-deadlines and the competitive model for allocation of NFP fellowships introduced by NUFFIC called for redoubling the marketing and acquisition efforts. Group training projects could not be financed due to budget cuts affecting Netherlands Embassies. In order to focus and streamline the marketing and fellowship acquisition efforts, the management team organised regular brainstorming and coordination sessions. The number of applications received by the end of 2003 proved encouraging.

To increase its exposure in the East Asian region, UNESCO-IHE purchased new memberships with Netherlands Education Support Offices (NESO's) in Indonesia and China (Hong Kong and Beijing). The World Water Fair (and Forum) in Japan was also an excellent event to develop new relations and revitalise existing ones. The Institute presented itself at several educational and professional fairs, including Vietnam, Japan, Syria, Sri Lanka, Colombia and Sweden. Targeted Internet-based advertising was

undertaken in 2003 to complement the more traditional printed advertisements. Governing board members were briefed on the acquisition challenges and asked to actively contribute. Institute materials were also sent to all UNESCO National Offices and National Committees, and several presentations were made by staff of the Institute to various bodies to inform them of UNESCO-IHE's new institutional structure and academic offerings.

An important initiative was to establish the UNESCO-IHE Fellowship Trust Fund. The fund aims at raising funds from private and public organisations, companies and individuals for partial or full sponsorship of a participant's study at UNESCO-IHE. It is independently administered and accounts annually for its operations. The IHE Delft Foundation has pledged a substantial amount to the fund in anticipation of the public launch in 2004.

Within the framework of the PoWER programme, UNESCO-IHE built its own video-conferencing studio. In 2003, various technical sessions have connected over 1 700 water experts and decision makers. This powerful communication facility allows for instant mobilisation of UNESCO-IHE's network (alumni, partners) in a variety of consultation processes.

Cooperation with UNESCO resulted in the publication of a summary of UNESCO-IHE Nile Basin activities in the Courier magazine. Topics for future articles have also been identified. Discussions are ongoing with the Netherlands UNESCO Centre to explore synergies in communication activities.

In 2003, five refresher seminars were organised for UNESCO-IHE alumni. These courses were held in China, Nepal, South

Africa, Egypt and Ghana. All seminars included innovative learning components, primarily aimed at increasing the interaction between participants and offering them a communication platform to build Communities of Practice. Academic departments have been successful in maintaining their project portfolio at the level of the past years. This year saw the first acquisition of a project in Vietnam under the NPT programme and various projects funded by the Partners for Water programme of the Netherlands Government. More information on projects is available in the capacity building section of this report, and a list of ongoing and newly started projects can be found in Annex 3.



## STUDENT AND EDUCATIONAL AFFAIRS

The main activities in the field of student and educational affairs are admission and registration, services, care and welfare for the participants, contacts with alumni, planning support, and contacts with and logistical support for guest lecturers.

The participants in UNESCO-IHE's postgraduate programmes originated from 69 different countries. In December 2003, the total number of registered participants was 352 for the Master of Engineering, Master of Science and PhD programmes, and a further 253 attended UNESCO-IHE's regular short courses.

Non-academic support was given to UNESCO-IHE's participants during their stay in the Netherlands. Two memorable annual events were the closing and opening of the academic year. During the registration period, activities were organised to introduce participants to UNESCO-IHE, each other and to living in the Netherlands.

Throughout the year, social and cultural evenings with international themes were organised, where participants performed and introduced their culture to fellow participants, staff and friends. Social excursions this year included trips to the Keukenhof, Volendam, the Zaanse Schans, Barcelona, Belgium and Paris.

In 2003, UNESCO-IHE's participants actively participated in the International Education Sports Day. This event took place on March 15th. Ten International Institutes were present to compete for the challenge cup. The UNESCO-IHE teams brought back the challenge cup to Delft, as the overall winners of this event.

## FACILITY MANAGEMENT

Facility Management deals with the maintenance of UNESCO-IHE's buildings and facilities, the restaurant, print shop and transportation services.

On 11 April 2003, the Vice-Minister of Public Works, Transport and Water Management, Ms. Melanie Schultz van Haegen, officially opened the first Distance Learning Centre (DLC) of the World Bank's Global Development Learning Network (GDLN) in the Netherlands. The DLC is one of over 60 Centres worldwide connected to the GDLN

During the course of the year the DLC connected over 1700 international development experts in 40 different videoconferences centred on water and environmental issues. From the Americas to Africa, Europe and Asia, UNESCO-IHE is using video-conferencing as one means to boost the numbers of professionals trained in sustainable water management worldwide as well as a means to maintain contact with the UNESCO-IHE alumni community.

Other modifications to the physical plant in 2003 consisted of upgrading UNESCO-IHE's auditorium by installing professional stage lights and by renovating the chairs, redesigning the layout of and replacing the bicycle stand, and general maintenance of the buildings.



## ICT

Automation related activities include the provision of technology services, access to information and supporting educational and administrative systems for UNESCO-IHE participants, staff and administrations, and the creation and maintenance of the technology infrastructure to support electronic communication and document sharing.

Salsa, the participants registration and education management software was further improved, and adjusted to the new Academic Masters Programmes in 2003. More improvements and further integration of Salsa into the organisation will follow in 2004, with special attention to administration and planning activities.

Construction of the Virtual Alumni Community (VAC), designed to serve UNESCO-IHE's alumni began in 2002 and continued in 2003. The alumni can access this system via Internet, and can create their own personalised UNESCO-IHE-related information system and communities. A significant investment was made in ICT/infrastructure towards the latter half of the year, particularly in terms of hardware, software and programming. The VAC is scheduled to be launched in 2004.

In 2003, the connection of all of UNESCO-IHE participant hostels to a glass-fibre network was completed. This provided Internet access in all rooms of the Institute's participant accommodations. This facility permitted a shortening of the opening hours of the building and a small savings in security and operations budgets.

## FINANCIAL RESULT 2003

Operations in 2003 showed a decrease in both income and expenditures. The primary reason is direct project expenditure, which is reported as an income on projects and as expenditure for IHE Delft. For the greater part these direct expenditures are contributions to project partners. The balance between the income and the expenditures in 2003 shows a surplus, while the work plan assumed a zero balance at the end of the year. The 'surplus' amount will be added to the general capital of IHE Delft to cover future losses or to make necessary investments. The surplus in 2003 is lower than in 2002. This is due to a large donation to the UNESCO-IHE Fellowship Trust Fund in 2003. Without this donation the results 2003 would be considerably better as compared to 2002. A considerable portion of the savings realised was the result of a V.A.T. tax refund on the cost of lease (building) for 2002 and 2003.

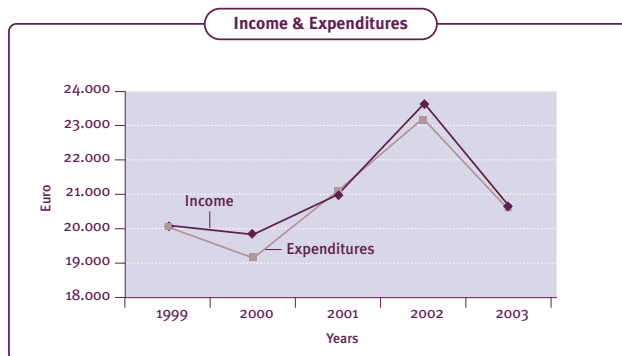
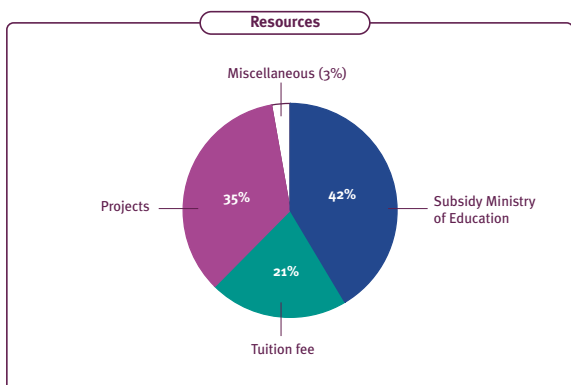
As agreed with UNESCO Headquarters, the financial operations of UNESCO-IHE will start in 2004.

## INCOME

The income of IHE Delft consists of three major sources, of which the proportions are shown in the graphs in this section (fig. 1). The subsidy from the Ministry of Education is subject to an indexation on costs of salary and housing costs. According to a strategic agreement with the Dutch government, subsidies for scientific education are no longer subjected to a price compensation for inflation and they gave the higher education a task setting efficiency push of 1% a year, up to 4% in 2006. For IHE Delft it means a reduced increase in net income of roughly 1% per year. The tuition fee income consists of the fees participants pay for the educational programmes and the income from fellowships. Fellowships cover the costs of the participants' stay during their study. The equivalent of these incomes is also booked under the expenditures. The project income results from capacity building projects, short courses, consultancies, and research projects. The sponsors of these projects vary from local partners to (Dutch) governments, and bilateral and multilateral donors.

## EXPENDITURE

The expenditures of IHE Delft are roughly split into salary, housing, direct project costs, participant's expenditures and material costs of operation. The salary costs follow the general salary development scales at Dutch universities. Including the 'end of year bonus' the total cost of salaries according to the collective agreement increased with approximately 3% in 2003. The number of staff compared with 2002 increased to 127,6 FTE at the end of the year. However, the financial statement shows a modest reduction in personnel costs, due to the withdrawal of leave days from former years, which were covered by the holiday leave reservation. The direct project costs depends entirely on the content of the project programme expenditures, which vary annually. These totals do not influence the overall financial result. The most important reason for the limited rise in running costs is inflation. New expenditures included the cost of the UNESCO-IHE Institute for Water Education tax advisory services, new brochures for the specialisations, marketing costs for the newly established Fellowship Trust Fund and a considerable donation to this fund by the IHE Foundation.



## BALANCE SHEET

The balance sheet shows a proportion of approximately 8/92 between equity and borrowed capital (solvency 8%). The current liabilities include prepay on projects and the accounts receivable include the prepaid expenditures (contributions to partners) on projects. When these two are balanced, the proportion between equity and borrowed capital is approximately 25/75. The provisions are for building maintenance and redevelopment. The current ratio is 1.06, which means that in the short term IHE Delft is creditworthy.

## TABLES AND GRAPHS

The tables in this section show the Institute's income and expenditure statement and the balance sheet for 2003, including the most likely outcome of 2003, because the external accountants have not yet certified the official financial annual report. The graphs show the allocation of the source of income in 2003 and a five-year review of the expenditures and the income of the foundation. Comparative figures from other years have been converted to Euros.

Statement of income and expenditures in Euro \* 1000

	2003		2002	
	Expenditures	Income	Expenditures	Income
Personnel Costs	8058		8293	
Housing Institute	1935	281	1961	270
Other Material Costs	2218		1897	
Projects	4575	7335	7069	10184
Subsidy Ministry of Education		8473		8230
Tuition Fee		2021		2029
Fellowships Participants	2886	2362	2525	2423
Housing Participants	862		846	47
Excursion Participants	355	270	412	364
Miscellaneous		220	260	14
Interest	10	72	10	105
Donation or Withdraw from General Assets	135	-	393	-
<b>Total</b>	<b>21034</b>	<b>21034</b>	<b>23666</b>	<b>23666</b>

Balance sheet in Euro \* 1000

	31 December 2003	31 December 2002
<b>Assets</b>		
Fixed assets	1792	1740
Accounts receivable	21196	22860
Cash and banks	7107	7183
<b>Total</b>	<b>30095</b>	<b>31783</b>
<b>Equity and liabilities</b>		
Equity	3077	2942
Provision	1151	1010
Current liabilities	25867	27831
<b>Total</b>	<b>30095</b>	<b>31783</b>





## REGISTERED PARTICIPANTS FOR THE ACADEMIC YEAR 2003-2004

	Source of Funding				Gender	
	Full NFP	Co-financed NFP	Other	Total	Female	Male
<b>MEng programmes</b>	120	36	36	192	33	159
Water Science and Engineering	42	10	13	65	8	57
Water Management	17	5	2	24	5	19
Environmental Science	22	11	5	38	8	30
Municipal Water and Infrastructure	39	10	16	65	12	53
<b>MSc programmes</b>	16	28	55	99	24	75
<b>PhD programmes</b>	3	4	41	48	10	38
<b>Total</b>	139	68	132	339	67	272
Percentage	41.0	20.1	38.9		19.8	80.2

	Region of Origin					Total
	Africa	Asia	Latin America	Middle East	Other	
<b>MEng programmes</b>	70	85	20	8	9	192
Water Science and Engineering	24	27	6	2	6	65
Water Management	10	9	3	2	0	24
Environmental Science	16	15	3	3	1	38
Municipal Water and Infrastructure	20	34	8	1	2	65
<b>MSc programmes</b>	31	45	16	4	3	99
<b>PhD programmes</b>	18	18	3	5	4	48
<b>Total</b>	119	148	39	17	16	339
Percentage	35.1	43.7	11.5	5.0	4.7	



**PROMOTIONS IN 2003**

Name	Country	Promotor
<i>Title thesis</i>		
Promotion date: March 25, 2003		
Mr. Omar Zimmo	Palestine	Gijzen
Nitrogen transformations and removal mechanisms in algal and duckweed waste stabilisation ponds.		
Promotion date: August 20, 2003		
Mr Pichaid Varoonchotikul	Thailand	
Hall Flood forecasting using artificial neural networks.		

**REGISTERED PHD FELLOWS**

Name	Country	Promotor
<i>Working title thesis</i>		
Mr. EL-SHAFAI	EGYPT	Gijzen
<i>Valorisation of nutrients via duckweed-based wastewater treatment and aquaculture</i>		
Mr. ISMAEL	EGYPT	Schultz
<i>Water use efficiency in field crop production</i>		
Mrs. DWI TIWI	INDONESIA	Rijsberman
<i>Comprehensive environmental monitoring, evaluation &amp; management Information system</i>		
Mr. MOUSSA	EGYPT	Gijzen
<i>Effect of salinity on biological nitrogen removal from industrial wastewater</i>		
Mr. VELICKOV	MACEDONIA	Price
<i>Nonlinear dynamics and chaos with applications to hydrodynamics and hydrological modelling</i>		
Mr. NHAPI	ZIMBABWE	Gijzen
<i>Options for wastewater management in Harare, Zimbabwe</i>		
Mr. ABEBE	ETHIOPIA	Price
<i>Information theory and artificial intelligence to manage uncertainty in hydrodynamic and hydrologic models</i>		
Mr. S. MASKEY	NEPAL	Price
<i>Modelling uncertainty in flood forecasting systems</i>		
Mr. CHEN QUIWEN	CHINA PR	Mynett
<i>Artificial intelligence and cellular automata in ecohydraulics modelling</i>		
Mr. ABU MADI	PALESTINE	Alaerts
<i>Incentive systems for wastewater treatment and reuse in irrigated agriculture</i>		
Mr. MORALES	MEXICO	Hall
<i>Stochastic analysis of the groundwater quality at the Mezquital valley, Hidalgo state, Mexico</i>		
Mr. KIWANUKA	UGANDA	Denny
<i>Constructed treatment wetland, integrated approach, waste water treatment &amp; effluent reuse in uganda</i>		
Mr. BESSA	BRAZIL	Petry
<i>Water quality in reservoirs: monitoring, modelling and control</i>		
Mr. NYAGWAMBO	ZIMBABWE	Savenije
<i>Groundwater recharge processes and groundwater management in tropical crystalline basement aquifers</i>		
Mr. LIMSIRI	THAILAND	Schultz/Nieuwenhuis
<i>Very soft organic clay applied for road embankment</i>		

Mr. AZZA <i>Nearshore retention of sediment and nutrients in Lake Victoria</i>	UGANDA	Denny	Ms THAMPANYA <i>Mangrove colonisation, expansion and viability in areas with positive sedimentation</i>	THAILAND	Denny
Mr. CHAPAGAIN <i>Virtual water: a new tool in water resources management</i>	NEPAL	Savenije	Ms NACORDA <i>Effects of burrowing invertebrates on sediment and seagrass dynamics along a siltation gradient</i>	PHILIPPINES	Van Vierssen
Mr. NYARKO <i>Ghana water and sanitation sector: drivers and performance</i>	GHANA	van Dijk	Ms CAICEDO <i>Duckweed ponds as alternative for wastewater treatment &amp; biomass production with(out) anaerobic pretreatment</i>	COLOMBIA	Gijzen
Mr. URRUTIA <i>Under preparation</i>	COLOMBIA	Schultz	Ms BREMERE <i>Saving energy and water by maximizing the conversion of membrane filtration system</i>	LATVIA	Schippers
Mr. BUAMAH <i>Adsorptive removal of arsenic, manganese and iron from groundwater</i>	GHANA	Schippers/Blokland	Mr GUMBO <i>Material flow mechanisms and balancing in urban drainage systems</i>	ZIMBABWE	Savenije
Mr. BHATTACHARYA <i>Machine learning and data mining approaches to modelling water and geotechnical problems</i>	INDIA	Price	Mrs AWUAH <i>Pathogen removal mechanisms in macrophyte and algal based wastewater stabilisation ponds</i>	GHANA	Gijzen
Mr. YASIR ABBAS MOHAMED <i>Under preparation</i>	SUDAN	Savenije	Mr LAI <i>An analysis of environmental capacity characteristics of heterogeneous traffic corridors</i>	CHINA R.O.C.	Howe
Mr. EYASU YAZEW HAGOS <i>Development and management of irrigated lands in Tigray, Ethiopia</i>	ETHIOPIA	Schultz	Ms ARANO <i>Phylogeographic relationships as tool in managing the structurally dominant seagrass 'Enhalus acoroides' in Philippine coastal waters</i>	PHILIPPINES	Van Vierssen
Mr. PREECHA WANDEE <i>Optimisation of water management of polder areas</i>	THAILAND	Schultz	Mrs. ABIRA <i>Potential of a constructed wetland for the treatment of pulp and paper mill effluent</i>	KENYA	Denny
Ms. KAGGWA <i>Organic manure and artificial substrate use in fingerponds in East Africa; processes &amp; implications</i>	UGANDA	Denny			
Mr. KIPKEMBOI <i>Utilisation of wetlands through integration of fingerponds into riparian farming systems in East Africa</i>	KENYA	Denny			
Mr. NGIGI NJUGUNA <i>Hydrological impacts of up-scaling rainwater harvesting on Ewaso Ng'iro river basin water resources management</i>	KENYA	Savenije			
Mr. ABRAHAM MEHARI HAILE <i>A tradition in transition; spate irrigation in Eritrea</i>	ERITREA	Schultz			
Ms. TU MIN <i>Assessment of the effects of land-use changes on the hydrology of the Meuse river basin</i>	CHINA	Hall			
Mr. GUPTA <i>Decision support for conflict resolution in Indian river basins</i>	INDIA	Hall			
Mr. TEMESGEN <i>Conservation tillage systems using improved implements for small holder farmers in semi-arid regions of Ethiopia</i>	ETHIOPIA	Savenije			
Mr. VALENCIA <i>Under preparation</i>	MEXICO	Gijzen			
Mr. NTOW <i>Pesticides in Agricultural Use, and their Impact on the Environment and Health of Ghanaians</i>	GHANA	Gijzen			
Mr. NAHM CHUNG JUNG <i>Under preparation</i>	KOREA	Price			
Mr. NGUYEN ANH DUC <i>Under preparation</i>	VIETNAM	Savenije			
Mr. JIANG TAO <i>Under preparation</i>	CHINA	vRollegheem/ Schippers			
Mr GUPTA <i>Control of transient phenomena in hydraulic pressurised systems</i>	INDIA	Petry			

## CAPACITY BUILDING

COUNTRY	TITLE	FUNDING	DEPT	PARTNERS	START	END
Palestinian Authority	Capacity Building on Wastewater Valorisation for Agricultural Production	DGIS/ SAIL	ER	WAU (leading), BZU, NRC (Egypt), Univ. of Jordan	apr-97	jun-04
Asia	Development of International MSc Program on Environment and Water Resources Management in Central Asia - EWASIA	EC TEMPUS	ER	WUR ea	dec-03	dec-05
Colombia	Cooperation in Sanitary and Environmental Engineering, Phase II	SAIL	ER	Univalle (Cali, Colombia) and IHS	jan-99	jun-04
Palestinian Authority	Capacity Building on Wastewater Valorisation for Agricultural Production, Phase II	SAIL	ER	WUR, BZU (Pal), NRC (Egypt), UJ-WERSC (Jordan)	jul-01	jun-04
Egypt	Strengthening the Regional Training Capacity of the Hydraulics Research Institute - Phase 2	SAIL	HIKM	HRI, ITC	jun-00	mei-04
Yemen	Sana'a University Support, Phase III	SAIL/SPP	HIKM	Sana'a University, ITC	jan-98	dec-02
Netherlands	Partnership for Water Education and Research	DGIS	IHE	10 regional nodes to be selected	jan-02	dec-06
Netherlands	Connectivity for Development; Capacity Building in Water, Environment and Transport	V&W	IHE		dec-02	jun-04
Zimbabwe	Emergency Programme in Support of the WaterNet MSc Programme at UZ	DGIS/SAIL	MAI	Univ. of Zimbabwe	jul-02	dec-03
Zimbabwe	WaterNet, Forging the Network	DGIS/SAIL	MAI	University of Zimbabwe, IWSD	sep-99	dec-04
South-Africa	Support to South-African Institutions in Decentralisation of Water Supply & Sanitation	NL Embassy	MAI	DWAF, DPLG	jun-01	dec-04
Zimbabwe	Programme for Capacity Building in the Water Sector of Zimbabwe	SAIL/ SPP	MAI	University of Zimbabwe, IWSD	dec-96	jun-04
Turkey	Implementation of the Water Framework Directive in Turkey	SENER/MATRA	MAI	Grontmij (lead), NEI, RIZA, RWS	jan-02	dec-03
Africa	Smallholder System Innovations in Integrated Watershed Management	WOTRO/SIDA/DGIS	MAI	Sokoine (Tan), Natal & IWMI (SA), Stockholm Univ.	jul-02	jul-06
Russian Federation	Training Programme in Urban Public Transport Reform in ECA/Russian Federation	Ecorys (WB)	MUI		nov-03	sep-04

Romania	Assistance in Resource Centre Development in Romania and Bulgaria	IRC	MUI	IRC	jul-03	jun-04
Ghana	Water and Environmental Sanitation Sector Capacity Building	SAIL/ SPP	MUI	UST Kumasi	okt-96	jun-04
Africa	Water for African Cities Programme: Training and Capacity Building Component	UNCHS / DGIS	MUI	UZ, KNUST	jul-02	dec-04
Africa	Low Cost Urban Mobility Demonstration Programme	UNCHS / DGIS	MUI	KUTIP, IHS	jul-03	jun-06
Palestinian Authority	Water Sector Capacity Building in Palestine	SAIL/ SPP	MUI/WE	Birzeit University	okt-96	jun-04
Indonesia	National Workshop on the Development of a Capacity Building Network for Water Resources and Irrigation Management	WB	OD	UNPAR	mei-03	jun-03
Vietnam	Upgrading of Training Capacity in Coastal Engineering at the Hanoi Water Resources University	DGIS	WE	TUD CICAT(lead), WL	sep-00	aug-04
Vietnam	Vietnam-Netherlands Integrated Coastal Zone Management Project	DGIS	WE	WL (lead) / Haskoning / DHV	mei-01	mei-03
Netherlands	ICZM in Practice - Activity 1	DGIS	WE	RIKZA/CZMC National Institute for Coastal & Marine	dec-03	dec-04
Netherlands	Creating an Internet Communication and Training Platform for Russia, Ukraine and Turkey on Public Participation in Coastal Management	MATRA	WE	EUCC	feb-02	okt-04
China	Group Training in Soil and Water Conservation and Ecosystem Restoration for the Chinese Ministry of Water Resource Restorations	NL Gov. / RWS	WE	Min. of Water Resources	okt-02	mrt-04
China	Research and Training Project on Management of Water Scarcity	NL-Embassy	WE	China Min. Water Resources (MWR)	okt-01	jul-04
China	Capacity Building of a China Groundwater Information Center	ORET/ MILIEV	WE	TNO (lead), v. Essen, China Min. Natural Resources	jul-03	jun-08
Middle-East	Arab Integrated Water Resources Management Network - Training Needs Assessment and Endorsement Workshops	Partners for Water	WE	UN-ESCWA, IRC, various regional partners	okt-03	okt-04
Syria	Twining of the New National Al-Raqqa Training Institute and IHE Delft to Establish Syrian Training Capacities on Water Management	PfW, RWS	WE	RIZA (lead)	jan-03	dec-03
Bolivia	Consolidation of the Centre for Aerospace Survey and GIS Applications	SAIL	WE	ITC (lead), UMSS (Cochabamba)	jan-00	dec-03
India	Geoinformatics for Natural Environment Assessment and Disaster Management, Phase II	SAIL	WE	ITC (lead), WU	jul-00	jun-04
Kenya	Support for Post-Graduate Education in Applied Hydrology and Water Management for the Anglophone African Region	SAIL	WE	University of Nairobi, IMRT	okt-96	jun-04
Bulgaria	Strengthening of the Capacity and Enhancement of the National Groundwater Monitoring System of Bulgaria towards the Implementation of the WFD	SENER/MPAP	WE	Arcadis Euroconsult	jan-03	dec-04
Philippines	Expert mission to the University of San Carlos, Cebu, Philippines to assist with the development of the course WRD in the MSc curriculum of the Civil Engineering Department	TUD/ CICAT	WE	University of San Carlos (Cebu) TUD CICAT	nov-03	jan-04

Middle-East	Knowledge Mapping for IWRM in the Water and Environment Sector in the UN-ESCWA Region (an Awareness Activity)	UN-ESCWA	WE		feb-03	mei-03
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## ADVISORY SERVICES

COUNTRY	TITLE	FUNDING	DEPT	PARTNERS	START	END
Ecuador	Environmental consultancy	Fundacion Ecuacien	ER	Fundacion Ecuacencias	mei-03	jan-04
Ethiopia	Design of a Waste Stabilisation Pond System for Addis Ababa	DHV	ER		jun-03	jun-03
Netherlands	Water Needed to Produce Coffee and Tea	Novib	ER		aug-03	sep-03
Cambodia	Development of an Integrated Training Strategy for the Mekong River Commission	MRC / WB	ER		jun-02	mrt-03
China	Integrated Lancangjiang (Upper Mekong) River Basin Management for Soil and Conservation and Ecosystem Protection	PFW/ NL-Gov	ER	WUR, ITC, State Forestry Adm., Kunming Province	jun-03	dec-04
India	Evaluation Mission Hydrology Project India	NL Embassy INDIA	HIKM		feb-03	mei-03
Netherlands	FLows - Mapping and Modelling Inventory	Friesl. Waterboard	HIKM	HydroLogic BV	sep-03	dec-03
Netherlands	Development of an Internet-based Collaborative Platform for PIE	PIE	HIKM		feb-03	mrt-03
Netherlands	Platform for Royal Haskoning	Haskoning	HIKM		mrt-03	mrt-04
Netherlands	International Network for Capacity Building in Integrated Water Resources Management	DGIS/ UNDP	IHE		aug-01	dec-04
Bangladesh	Independent Advise in the framework of the Small Scale Water Resources Sector Development Project-II	DGIS/ Embassy	MAI		nov-00	jun-03
Egypt	Preparatory Mission APP Panel Workshop, Egypt	APP	MAI		jan-03	apr-03
Kenya	Collaboration between IHE and RELMA in the Field of Rural Environmental Management	SIDA	MAI	RELMA	mrt-01	dec-03
Nigeria	Institutional Review of Public Water Resources Management Institutions and CB for Reform	WB	MAI	Haskoning (lead), IWACO, Andersen	feb-03	dec-03
Netherlands	Promotion of the book "Negocio Privado, Propietarios Publicos" in Latin-America	VROM	MAI		sep-03	jul-04
Netherlands	Quick Scan: Health Benefits versus Cost of Water Supply and Sanitation	RIVM	MAI	RIVM, EUR/BMG	nov-03	dec-03
Netherlands	Evaluation of the Bank Netherlands Water Partnership Programme	DGIS	MAI		aug-03	nov-03
Netherlands	WSS-CC Institutional & Management Options Working Group, 2001-2003	DGIS	MAI		aug-02	aug-05
Netherlands	Modes of Engagement with Public Sector Water Supply & Sanitation Services in Developing Countries	WB-BNWP	MAI	various local consultants	dec-02	feb-05
Netherlands	Evaluation of the Netherlands Ministry of Foreign Affairs Water Unit	DGIS	MAI		sep-03	dec-03
Netherlands	EU Water Initiative	DGIS	MAI		okt-02	mrt-03

Sweden	Swedish Water House Project "the Dialogue on Water for Food and Environmental Security Documenting Lessons Learnt"	Swed. Govt	MAI	SIWI (lead)	jan-03	dec-04
Mozambique	Follow-up to the International Conference on Floods in Mozambique		MAI/WE	Univ Eduardo Mondlane	feb-03	jun-03
Croatia	Mission for PSO project in Croatia	Nl. Govt/ SENTER	MUI	Haskoning (lead)	sep-02	mrt-03
Hungaria	Demonstration Scale Arsenic Removal Plant in Mako, Hungary	SELOR	MUI		sep-02	aug-03
Iran	Problem Assessment and Strategic Planning on Urban Water Management	Regional Centre for Urban Water Management	MUI		jun-03	jun-04
Netherlands	Success Factors in Selffinancing Local Water Management	PfW	MUI	Unie van Waterschappen	jan-03	mrt-03
Netherlands	Strategic Trends in the Desalination Market in the Middle East and Central Asia	WB-BNWP	MUI		okt-02	jun-03
South-Africa	SANTF Steering Committee: Formulation Mission	CROW / V&W	MUI		sep-02	dec-04
Bangladesh	Development of a Point-of-Use Device for Arsenic Removal in Rural Areas of South East Asia and demonstration scale application in a selected village in Bangladesh	PfW, Vitens	MUI	FILTRIX, NORIT, VITENS, IRC, Woord & Daad	jun-03	apr-04
World-wide	Demonstration Scale Groundwater Treatment Systems for Arsenic Removal	DGIS/ PfW	MUI		nov-02	apr-04
Indonesia	Water Resource Management Program - Preparation in Indonesia	WB	WE	Gajah Mada and Andalas Universities	okt-01	jun-03
Netherlands	Wetterskip Marne-Middelsee Friesland	Duflow	WE	Wetterskip Marne-Middelsee	mei-03	dec-03
Netherlands	Upgrading of Cress Software	RWS	WE	DUT (lead)	nov-03	dec-03
Pakistan	Indus Basin Drainage Consultation Mission	WB	WE		okt-02	nov-02
Romania	Identification Mission "Establishing of a Project on Flood Management related to an Integrated Approach on Water Management"	Senter/PSO	WE	NWP	aug-03	sep-03
Saudi Arabia	Advisor to Wadi Hanifah Development Programme in the area of Environmental Biotechnology	Arriyadh Dev. Auth	WE	Arriyadh Development Authority	feb-03	mrt-03
Syria	Damascus University Science Week	DGIS/ DAM	WE		okt-03	okt-03
Indonesia	Lowland Development Manual	CUR	WE	RWS / Min. Public Works	feb-02	feb-05
Middle-East	Small Scale Water Treatment Facilities for Domestic Use and Artificial Recharge with Surface Water - Middle East	DGIS	WE		apr-02	mrt-07

## EDUCATION AND TRAINING

COUNTRY	TITLE	FUNDING	DEPT	PARTNERS	START	END
Asia	E3-toolbox (electronic-eco-efficiency): An eco-efficiency awareness and improvement programme with measures and actions delivered by ICT	EC/Asia IC&T	ER	Wuppertal Institut (lead), BECO, CPC VN & IN	apr-03	sep-04
Kenya	Upgrading of an Existing Training on Municipal Wastewater Management	UNEP-GPA	ER		sep-03	mei-04

Netherlands	Upgrade of the GPA/SAP Working Document "Guidance on Municipal Wastewater"	UNEP-GPA	ER	UNEP-GPA, UNEP-Bangkok	jan-03	feb-03
Netherlands	Training Package Water and Climate	DGIS	ER	University of Natal, Inst. Integr. Systemanalysen	jul-02	jun-03
Taiwan	Environmental Training Programme Netherlands Trade & Investment Office (NIET)	NIET	ER	NIET	jul-03	jul-03
Tanzania	Development and First Delivery of a Training Course for Municipal Wastewater Managers in Tanzania	UNEP-GPA	ER	WIOMSA	feb-03	mrt-03
Vietnam	WWF-IHE Training Course on Integrated River Basin Management in the Mekong	PoWER/WWF	ER	WWF, HWRU	jun-03	mei-04
South-Africa	Wetland systems, water resources and climate variability and change: a challenge for southern Africa. Building a Community of Wetland Professionals.	Nuffic/ NFP	ER	BEEH University of Natal	nov-03	nov-03
Netherlands	Opportunities and Constraints of the Env. Quality Objective Approach to Waste Water Discharge	BNWPP	ER	Haskoning (lead), RIZA, KUN	jan-03	aug-03
China	River Basin Management: Modelling and Decision Support Systems for Floods and Droughts	Nuffic/ NFP	HIKM	Nanjing Hydraulic Research Institute NHRI	nov-03	nov-03
Netherlands	Hydro-Europe	EC	HIKM	Univ. de Nice, et al	jan-03	jan-07
Africa	Development of a Multidisciplinary Water Demand Management Tertiary Training Module	IUCN	MAI		feb-03	jun-03
Ethiopia	Conservation Tillage Systems Using Improved Implements for Small-Scale Dryland Farmers in Ethiopia	NWO/ WOTRO	MAI		jul-02	jun-06
Ethiopia	Tailor made Programme on Financial Management for Ethiopian Professionals from ESRDF	UNDP/ ESRDF	MAI	Ethiopian Social Rehabilitation and Development Fund	jan-03	jan-03
India	Management Development for Senior Urban Public Health Officials in India	DFID (UK)	MAI	WEDC Loughborough	jan-97	dec-04
South-Africa	Development of a Multidisciplinary WDM Tertiary Training Module	IUCN	MAI	IUCN WaterNet	mei-03	okt-03
Afghanistan	Short course on International Integrated Water Resources Management	UNESCO	MUI		jan-03	feb-03
Ghana	Urban Infrastructure Provision and Management: Integrating Engineering, Social and Environmental Considerations	Nuffic/ NFP	MUI	Kwame Nkrumah University, EIER, NWRI, HASKONING	sep-03	sep-03
Jordan	Short Course on Membrane Technology in Drinking & Industrial Water Treatment	MEDRC	MUI	MEDRC	okt-03	nov-03
Korea	Training Programme in Water Supply and Membrane Technology for KOWACO Staff	KOWACO	MUI	Korea Water Resources Corporation (KOWACO)	okt-02	jan-03
Netherlands	Short Course in Membrane Technology, June 2003	by participants	MUI		jun-03	jun-03
Nepal	Solid Waste Management	Nuffic/ NFP	MUI	Netherlands Alumni Association of Nepal	nov-03	nov-03
Indonesia	Training of Indonesian water distribution experts from Bekasi, Indonesia.	Duinwaterbedr. ZH	MUI		mei-04	jun-04
China	Special Training Programme for Young Professionals from the Yellow River Conservancy Commission	Yellow River Conservancy Commission	WE		okt-02	sep-03
China	Special training programme Dr. Xingzheng Wu en MRs. Yanyan Wang (China)	RWS	WE		jul-03	nov-03

Egypt	Modelling Support for Management of Water Scarcity in Africa and Arab Peninsula	Nuffic/ NFP	WE	HRI, Cairo	dec-03	dec-03
Netherlands	CoastLearn: Development of Transnational Networks	EC/ LEONARDO	WE	EUCC (lead), RIKZ, Southampton	okt-02	okt-05
Netherlands	Distance training for biodiversity conservation and integral coastal management in CRO, POL, RU&TU	EC/ Pin Matra	WE	EUCC	nov-01	okt-03
Nepal	Geo-informatics for Watershed Management in the Hindu Kush Himalayas	NFP-TP	WE	ICIMOD, ITC, AidEnvironment	feb-04	mei-04

## POLICY DEVELOPMENT

COUNTRY	TITLE	FUNDING	DEPT	PARTNERS	START	END
Netherlands	Water, Climate, Food and Environment: Adapting Strategies for River Basins under Changing Environments	DGIS	ER	IVM (lead) IWMI, ZEF (Germany), WRI (Ghana), SEI	jun-02	jul-03
Niger	Seminar on World Water Wisdom	Nuffic	ER	VU	feb-03	feb-03
Netherlands	Dutch Dialogue on Water and Climate	DGIS	ER	WL, RIKZ, NWP, KNMI,	jul-02	jun-03
Netherlands	Dissemination of ETNET <sub>21</sub> project	EC	HIKM	VROM	okt-03	okt-04
Netherlands	ETNET 21 Environment - Water: European Thematic Network of Education and Training	EC/ SOCRATES	HIKM	BTU Cottbus VU Brussel (lead), Cottbus, Greece, BOKU Vienna	sep-00	okt-03
Netherlands	Dialogue on Water and Climate: Partner Activities	DGIS	IHE	IUCN, Organisation of American States, WL, a.o.	mei-02	aug-03
Netherlands	International Secretariat for the Dialogue on Water and Climate	DGIS	IHE	WUR et al	sep-01	dec-03
India	Seminar on Research in the Water and Sanitation Sector in South Asia and Europe	IDPAD	MAI		apr-03	mei-03
Netherlands	Organisation of the UNESCO Water Meeting, July 2003	UNESCO	OD		apr-03	sep-03

## RESEARCH AND DEVELOPMENT

COUNTRY	TITLE	FUNDING	DEPT	PARTNERS	START	END
Africa	The dynamics and evaluation of Finger Ponds in East African freshwater wetland Ecotones	EC/ DGXII/ INCO	ER	MUIENR, UDMSM, Kings College, ENKI, Egerton	jun-01	jun-05
Africa	Tools for Wetland Ecosystem Resources Management in Eastern Africa	EC/ INCO-DEV	ER	Univ. Siena (It)(lead), KIP-PRA, Trinity, Makarere	nov-01	apr-05
Netherlands	Kennisoverdracht en Inbedding PV in Waterbeheer bij WU en IHE Delft	NOVEM	ER	WU (=lead), Ecofys bv	jan-02	dec-03
Netherlands	Multi-level Analytical Framework for the Integrated Assessment of the Exploitation of Water and Environmental Resources	IHE Research Fund	ER		jan-03	dec-04
Netherlands	Effect of Salinity on Biological Nitrogen Removal from Industrial Wastewater II	SENER/BTS	ER	Shell, Heyploeg, Ecco, TU Delft	okt-02	okt-04
Netherlands	Research on Secondary Environmental Impacts of Wastewater Treatment	SENER/EET	ER		jun-03	jun-07



Netherlands	Thematic Network on Sustainable Policies for Promoting "Water Conservation Technologies & Practices"	EC/ INCO-DEV	ER	IIIEE (Lund, lead)	nov-00	aug-03
Netherlands	Effect of Salinity on Biological Nitrogen Removal from Industrial Wastewater	SENER/BTS	ER	Shell, Heiploeg, Ecco, TU Delft	sep-99	jul-03
Netherlands	Scarcity and Value of Water	EC/ IRMA+ ICES	ER	WL	jan-00	jun-03
Netherlands	Preparatory work for FLOODsite	EC FP6	HIKM		sep-03	dec-03
Netherlands	Forecasting Accuracy of River and Seaward Boundary Conditions for the Zeedelta Model	RIKZ	HIKM		sep-01	aug-03
Netherlands	HYDROPLAN-EU	EC	HIKM	AQUAFIN (lead)	mrt-03	feb-06
Netherlands	Integrated Modelling of Wetlands	IHE Research fund	HIKM		dec-02	dec-03
Netherlands	Delft Cluster II, I-Portal		HIKM	Delft Cluster	mei-03	jun-03
Netherlands	Value-Based Knowledge	ICES	HIKM	Delft Cluster	jan-01	jun-03
Africa	Challenge of Integrated Water Resources Management for Improved Rural Livelihoods (Limpopo)	CP/ CGIAR	MAI		jan-04	dec-08
Africa	Water Scarcity and Food security in Tropical Rainfed water scarcity systems: A multi-level assessment of existing conditions, response options and future potentials.	CA-Govt NL- ICRISAT	MAI	ICRISAT	jun-03	mei-05
Botswana	Water and Ecosystem Resources in Regional Development - Okavango Delta	EC/RTD	MAI	Linkoping Univ (lead), ORC, DRFN, Sussex	apr-01	apr-04
Netherlands	Water Liberalisation Scenarios: An empirical Analysis of the Evolution of the European Water Supply and Sanitation Sectors	EC	MAI	IDHEAP (CH), Erasmus Univ., et al	jan-03	dec-05
China	Sustainable Groundwater Development in Northwest China	IHE Research Fund	WE		dec-02	jun-04
Netherlands	Biogeomorphological Development of Floodplains	ICES	WE	Delft Cluster (WL=lead), Alterra, KUN, RWS	apr-00	mrt-04
Netherlands	Surface Water Hydrology	ICES	WE	Delft Cluster (WL=lead), RIZA	okt-00	mrt-05
Netherlands	Environmental Flow Requirement: an Aid for Integrated Management (ENFRAIM)	ICES	WE	Delft Cluster (WL=lead), ALTERRA, BUET	jul-01	jul-03

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## ANNEX 6 | UNESCO-IHE & NETHERLANDS ALUMNI ASSOCIATIONS

*UNESCO-IHE alumni perform a vital role as 'ambassadors' to the world. The establishment and strengthening of the UNESCO-IHE Alumni Network is essential to promoting and facilitating knowledge dissemination, including the exchange of professional expertise and personal experience between alma mater as well as amongst Alumni. These independent Associations organise various activities in their country.*

*Prospective candidates are suggested to contact the local Alumni Association before they leave their own countries. UNESCO-IHE fervently encourages all its Alumni to partake in the Institute's aim to deepen and strengthen Alumni networking world-wide.*

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