

Municipal Water and Infrastructure

**UNESCO-IHE
Institute for Water Education**

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This report was finalised on 11 December 2012

Report on the master Programme Municipal Water and Infrastructure of the UNESCO-IHE Institute for Water Education, Delft

This report takes the NVAO's Assessment Framework for Limited Programme Assessments as a guiding document.

Administrative data regarding the programme

Master Programme Municipal Water and Infrastructure

Name of the programme:	Municipal Water and Infrastructure Municipal Water and Infrastructure
CROHO number:	75009
Level of the programme:	master of science
Orientation of the programme:	academic
Number of credits:	106-120 EC
Specialisations or tracks:	The programme offers the following specialisations: <ul style="list-style-type: none">• Sanitary Engineering, Delft, also as double degree with Univalle, Colombia and KNUST, Ghana (106 EC);• Water Supply Engineering, Delft, also as double degree with Univalle, Colombia and KNUST, Ghana (106 EC);• Urban Water Engineering and Management, as double degree with AIT, Bangkok (joint degree application) (120 EC).
Location(s):	Delft (in cooperation with other institutes as indicated per specialisation)
Mode(s) of study:	full-time
Expiration of accreditation:	31-12-2013

The visit of the assessment committee to the UNESCO-IHE Institute for Water Education took place on 17-19 September 2012.

Administrative data regarding the institution

Name of the institution:	UNESCO-IHE Institute for Water Education
Status of the institution:	(partly) publicly funded institution
Result institutional assessment:	pending

Quantitative data regarding the programme

The required quantitative data regarding the programme are included in Appendix 6.

Composition of the assessment committee

The committee that assessed the master's programme Municipal Water and Infrastructure consisted of:

- Prof. dr. André van der Beken (chair), emeritus professor, Free University Brussels (Vrije Universiteit Brussel);
- Prof. Ing. Janos Bogardi, professor in Water Resources at the Faculty of Agriculture of the University of Bonn, Germany;
- Academician Dipak Gyawali, professor at the Nepal Academy of Science and Technology (NAST);
- Prof. dr. Rivka Kfir, extraordinary professor Microbiology and Plant Pathology and senior advisor at the Water Institute, University of Pretoria, South Africa;
- Prof. dr. Grietje Zeeman, professor in New Sanitation at Wageningen University and Research Centre (WUR);
- Franca Kramer BSc, master student of Water Management at Delft University of Technology.

Appendix 1 contains the CV's of the members of the committee.

The committee was supported by Adrienne Wieldraaijer-Huijzer M.A., QANU staff member and project leader, and by Dr. Marianne van der Weiden who acted as the committee's secretary.

All members of the committee and the secretary signed a declaration of independence as required by the NVAO protocol to ensure that the committee members judge without bias, personal preference or personal interest, and the judgement is made without undue influence from the institute, the programme or other stakeholders (see Appendix 9).

Working method of the assessment committee

Preparations for the site visit

Upon receiving the critical reflection of the master's programme Municipal Water and Infrastructure (MWI) on 29 June 2012, QANU checked the critical reflection to ensure that it could serve as the key document informing the assessment. Additional information was requested by QANU concerning the joint degrees and a revised version, received on 16 July 2012, was found to fulfill the criteria of relevance and completeness. Copies of the critical reflection were sent to the members of the assessment committee.

In addition to the critical reflection, the committee received eight recent student's theses from the MWI programme. This was done based on a pre-selection of ten from the list of theses in the critical reflection. The theses evaluated by the committee covered the full range of marks: included in the sample were theses with a low mark (6.0-6.9), with an intermediate mark (7.0-8.4) and with a high mark (8.5-10). The committee members used QANU's checklist for the assessment of theses to ensure that their assessments were comparable and covered the relevant aspects.

Prior to the site visit, the project leader met with representatives of the UNESCO-IHE Institute and agreed on the programme for the site visit and the associated practical arrangements. The programme included consultations with staff members and students and both groups were informed about the opportunity to speak to the committee confidentially during the visit.

The site visit

The site visit took place on 17, 18 and 19 September 2012. The detailed programme of the site visit is presented in Appendix 2. It started with a preparatory meeting, in which the committee members discussed the critical reflections and the theses they had received prior to the site visit. The committee also discussed and agreed on the questions and issues to be discussed during the interviews with representatives of the programme, students and other stakeholders.

The committee conducted interviews with the management of the institute, students, lecturers, alumni, members of the Programme Committee (the equivalent of the Education Committee), the Examination Board, the student counsellor and the alumni officer. In addition, the members of the committee studied supplementary materials made available by the programme management. An overview of this documentation is given in Appendix 7.

The site visit was extended by half a day to allow for the assessment of the proposed joint degree programmes. The committee studied additional documents that were made available by the programme management, relating to the structure of the joint degree programmes and their management, the cooperation agreements, joint exam regulations and detailed module and course descriptions. Interviews with the partner institutes were arranged through Skype and telephone conferencing. In its deliberations the committee paid separate attention to the assessment of the joint degrees.

The committee conducted a concluding interview with the management, followed by a internal committee meeting. During this meeting the committee discussed its findings, formulated its conclusions and gave its assessment of the standards of the assessment framework. Finally, the chairman of the committee presented the committee's preliminary findings to staff and students of the institute.

After the site visit

Following the site visit, the committee secretary composed a draft report. Thereafter, the report was studied by all committee members who provided further comments and insights to the secretary. The secretary processed all corrections, remarks and suggestions for improvement provided by the committee members to finalise the preliminary report which was submitted to QANU. QANU's secretariat sent this version to the UNESCO-IHE Institute, inviting them to check it for factual errors, inaccuracies and inconsistencies. The secretary forwarded the comments and suggestions provided by the Institute to the chairman of the committee, and, where necessary, to the other committee members. The committee decided whether the comments and suggestions were to be incorporated in the report or ignored. On the basis of the committee's decisions, the secretary compiled the final version of the programme report.

Explanation of the definitions used for the assessment

In accordance with the NVAO's Assessment Framework for Limited Programme Assessments, the committee used the following definitions for the assessment of both the standards and the programme as a whole.

Generic quality

The quality that can reasonably be expected in an international perspective from a higher education bachelor's or master's programme.

Unsatisfactory

The programme does not meet the current generic quality standards and shows serious shortcomings in several areas.

Satisfactory

The programme meets the current generic quality standards and shows an acceptable level across its entire spectrum.

Good

The programme systematically surpasses the current generic quality standards across its entire spectrum.

Excellent

The programme systematically surpasses the current generic quality standards well across its entire spectrum and is regarded as an (inter) national example.

The default assessment is 'satisfactory', i.e. the programme complies adequately with the criteria.

Summary judgement regarding the quality of the Master programme Municipal Water and Infrastructure

The judgement of the assessment committee is based on information provided in the critical reflection, a sample of theses, additional documentation provided during the site visit and interviews conducted with staff, students and graduates of the programme. During its assessment, the committee noted positive aspects as well as ones which could be improved. Taking these aspects into consideration, the committee decided that the programme in Municipal Water and Infrastructure **fulfills the requirements** set by the NVAO for accreditation.

Standard 1: Intended learning outcomes

UNESCO-IHE is a development oriented institute of higher education and the Master Municipal Water and Infrastructure is one of the four Master programmes offered to mid-career professionals from around the world. Municipal Water and Infrastructure offers three specialisations, all of them in cooperation with international partner institutes: Sanitary Engineering (SE), Water Supply Engineering (WSE), Urban Water Engineering and Management (UWEM).

The programme aims to deliver graduates who are able to use their knowledge of natural science and engineering to develop and implement solutions for water supply and sanitation problems, mainly for the urban poor. For this, the graduates also need skills that enable them to work in multidisciplinary teams.

The programme's learning objectives are the acquirement of scientific knowledge and understanding of natural science and engineering principles within the broader socio-economic framework covering the urban water cycle, the application of this knowledge in multidisciplinary contexts, the ability to conduct research on the basis of a good research plan and appropriate methodologies, the skills to communicate the results of research to colleagues and stakeholders both orally and in writing, and the ability to plan, design, rehabilitate, maintain and operate municipal water infrastructures. The final qualifications show a good balance between applied and academic science. The character of the programme is considered most appropriate for a field such as Municipal Water and Infrastructure. The committee therefore assesses the first standard as **satisfactory**.

Standard 2: Teaching-learning environment

The Delft-based curriculum consists of 106 ECTS and runs for 18 months. It has four distinct phases: foundation, specialisation, integration and research. The institute has used the T-shape model in designing the curriculum. In this model the vertical bar of the letter T represents the in-depth knowledge of the main discipline and the horizontal bar reflects the basic knowledge of adjacent disciplines. The students appreciate the contents of the programme and the ample opportunity of choice.

The double degree programmes are neatly combined with the specialisation modules of the Delft programme and add a specific regional focus. The committee concludes that these double degree programmes are a worthwhile addition and that the programme staff ensures that their contents and level are of the same quality as the single degree programme. The committee has looked separately at the double degree that is proposed to become a joint degree and will formulate its assessment at the end of the summary judgment of the Master Municipal Water and Infrastructure.

The didactical concept is well-considered. In the beginning of the programme, the emphasis is on lectures, assignments, laboratory sessions and self-study. During the specialisation phase fieldwork, group discussions, laboratory exercises, role-playing and presentations are added to broaden the students' perspective and to stimulate interaction. The learning objectives are described in clear module sheets. Each module uses a variety of teaching and assessment methods, depending on the goal of the course. Lectures are given by UNESCO-IHE staff and by guest lecturers who provide additional theoretical expertise and examples from the professional field. The students appreciate the input of guest lecturers.

Students find the study load quite demanding. Much material has to be covered in 18 months, and many students have not been in class for years. The double degree with AIT (UWEM) has a longer duration, of 120 EC. For next year the staff has adapted some modules to spread the workload more evenly. The work on the research project is especially difficult for many students because only a few of them have a research background. The guidance and supervision during the research phase are intensive to provide the students with the necessary support.

The academic staff is well-qualified academically and professionally, and has good teaching skills. They are also highly committed. Their international background and experience fit the scope of the programme and the contexts of the students. For additional input guest lecturers are called upon. The Student Office offers non-academic support in a proactive manner and well-coordinated with the academic support by the Programme Coordinator and the Specialisation Coordinator. The committee recommends to establish for each incoming student a 'portfolio' with his/her initial motivation and career plan, which should be discussed and updated as needed, preferably with a personal mentor from the start.

The committee recognises the often intricate selection of the right candidates with the correct background. It recommends therefore to explore the possibilities for on-line preparation and self-learning opportunities through the e-Campus development. The committee recognises the effort to balance the appropriate level of the curriculum and its necessary flexibility within the constraints of the duration of the programme. The committee suggests to look into the possibility of offering a programme of 120 EC for all students and granting credits to incoming students with professional experience, comparable with an internship of 6 months.

The curriculum clearly reflects the T-shaped concept but the committee recommends to pay careful attention to the balance 'depth vs breadth'. The group work approach is a useful way to prepare future environmental scientists to face real-life problems. This approach as well as most of the curriculum allows for good interaction among students. An international exposure is given in field trips and site visits. The institute has well-staffed specific services and good facilities. The committee therefore assesses the second standard as **satisfactory**.

Standard 3: Assessment and achieved learning outcomes

The committee established that the assessment system of the UNESCO-IHE functions well. Good control mechanisms ensure that work is systematically and consistently graded. The committee further found the variety of assessment methods to be appropriate. The examination structure has clearly been tailored to the intended learning outcomes of the programme. The assessments are transparent, valid and reliable.

The committee studied a representative sample of the Municipal Water and Infrastructure theses. In most cases the committee agreed with the mark given by the thesis committees, but in a number of cases the committee would have marked a little higher. All theses met the

minimum requirements for academic quality and some were at a higher level. On this basis the committee concludes that the Master Municipal Water and Infrastructure graduates have achieved the intended learning outcomes of an academic master. The positive effect of the master programme was confirmed by the alumni with whom the committee met. The committee therefore assesses the third standard as **satisfactory**.

The committee assesses the standards from the assessment framework for limited programme assessments in the following way:

Standard 1: Intended learning outcomes	satisfactory
Standard 2: Teaching-learning environment	satisfactory
Standard 3: Assessment and achieved learning outcomes	satisfactory
 General conclusion	 satisfactory

Assessment of the joint degree programme UWEM

In addition to the assessment of the Master Municipal Water and Infrastructure the committee has assessed a specialisation for which UNESCO-IHE intends to request accreditation as a joint degree.

Urban Water Engineering and Management (UWEM) is a 22-months joint programme with AIT, Bangkok, Thailand. The aim of the programme is to provide the students with the knowledge, insight and skills that are required to function as independent professionals within the field of Urban Water Engineering and Management and to be appropriate candidates for further study towards a research career. With the joint degree, UNESCO-IHE and AIT wish to take their long-standing cooperation a step further and show the complementarity of their input clearly on the degree certificate. The learning objectives are phrased in a different format than the UNESCO-IHE learning objectives, but cover the same areas and target the same level of academic work. Students are trained in problem solving at an academic level and gain the ability to conduct independent academic research which is an essential element of the programme. The final ten months of UWEM are spent on the Master thesis research project. The committee, therefore, assesses standard 1 as **satisfactory**.

The joint programme is well-structured and makes intelligent use of the modules that are already available at the institutes. The Joint Management Committee has developed a combination of modules that guide the students in a logical way to the level of specialisation that is required to prepare a research proposal, and to conduct the research under supervision of a professor of AIT and co-supervised by a staff member of UNESCO-IHE. There are clear module sheets for all parts of the joint programme. The cooperation with AIT is based on a long-standing relationship and experience with each other's educational programmes and research activities. The arrangements have been laid down in a detailed cooperation agreement with equal responsibilities for each partner. This, however, makes the organisational structure rather heavy, and may lead to a loss of flexibility in adapting the programme to new needs. The committee noted that the staff members involved are aware of this risk and that they expect this to be mainly an issue at the start which will be 'ironed out' in time through 'learning by doing'. The programme makes use of the same staff and facilities as the Master programme Municipal Water and Infrastructure and has good facilities in the field. In conclusion, the committee assesses standard 2 as **satisfactory**.

The committee studied the assessment system and the way the checks and balances have been worked out in the cooperation agreement, and found them to be appropriate. The committee

considers the quality (transparency, validity, reliability) of the assessments for the joint programme at UNESCO-IHE to be in order, as these are the same as those assessed for the Master Municipal Water and Infrastructure. AIT has a quality control system of its own, but the committee has not looked into this in detail. The committee is satisfied with the explicit regulation that for the marking of the thesis and the award of the degree both partner institutes are involved and have to agree to the decision explicitly. One UWEM thesis was part of the sample of theses, was of the required level and was marked appropriately. The committee assesses this standard as **satisfactory**.

In conclusion, the committee assesses the proposed joint degree programme as **satisfactory**.

The chair and the secretary of the committee hereby declare that all members of the committee have studied this report and that they agree with the judgements laid down in the report. They confirm that the assessment has been conducted in accordance with the demands relating to independence.

Date: 11 December 2012



Prof. dr. André van der Beken



Dr. Marianne van der Weiden

Description of the standards from the Assessment framework for limited programme assessments

Structure and mission of the institute

The UNESCO-IHE Institute for Water Education was established jointly by UNESCO and the Government of the Netherlands in 2003 as a UNESCO 'category I' institute. The Institute carries out research, education and capacity building activities in the fields of water, environment and infrastructure. UNESCO-IHE continues the work that began in 1957 when IHE first offered a postgraduate diploma course in Hydraulic Engineering to practising professionals from developing countries.

UNESCO-IHE envisions a world in which people manage their water resources sustainably and in which all sectors of society, particularly the poor, can enjoy the benefits of basic water services. Its mission expresses a commitment to generating and sharing knowledge, training water leaders and building capacity all over the world.

Whilst UNESCO-IHE is involved in its own research and education on the Delft premises, it is also instrumental in strengthening the efforts of other universities and research centres throughout the world, which increase the knowledge and skills of professionals working in their respective water sectors.

UNESCO-IHE offers four Master programmes, partly with international partner institutes:

- Master Water Management
- Master Municipal Water and Infrastructure
 - Including double degree programmes with KNUST, Ghana; UniValle, Colombia; AIT, Thailand*
- Master Water Science and Engineering
 - Including double degree programmes with UniValle, Colombia; Ain Shams University, Egypt; Haramaya University, Ethiopia; AIT, Thailand; Sriwijaya University, Indonesia; Technical University Dresden, Germany, Barcelona Tech, Spain and University of Ljubljana, Slovenia (Erasmus Mundus); University of Algarve, Portugal, University of Lodz, Poland and University of Kiel, Germany (Erasmus Mundus)
 - Including specialisations together with Hohai University, China
- Master Environmental Science
 - Including double degree programmes with AIT, Thailand*; UniValle, Colombia; ICT, Prague and University of Ghent, Belgium (Erasmus Mundus)*; BOKU, Austria and Egerton, Kenya*

* UNESCO-IHE intends to change four double degrees into joint degrees.

Characteristic for the institute is its combination of applied research and advisory work, its multidisciplinary and international staff and its teaching programmes for an international student body.

Standard 1: Intended learning outcomes

The intended learning outcomes of the programme have been concretised with regard to content, level and orientation; they meet international requirements.

Explanation:

As for level and orientation (bachelor's or master's; professional or academic), the intended learning outcomes fit into the Dutch qualifications framework. In addition, they tie in with the international perspective of the requirements currently set by the professional field and the discipline with regard to the contents of the programme.

1.1. Findings

This section deals with the mission of the programme (§1.1.1.), the domain-specific framework of the field of Municipal Water and Infrastructure (§1.1.2.), the educational objectives (§1.1.3.), the level (§1.1.4.) and benchmarking of the programme (§1.1.5.).

1.1.1 Mission of the programme

The critical reflection states that over one billion people in the developing world remain without access to drinking water from improved sources (UN 2011), and more than double this number still lacks access to basic sanitation. The programme in Municipal Water and Infrastructure aims to address this need by providing the essential skills and knowledge required to plan and conceptually design, operate and maintain drinking water and wastewater treatment systems, as well as rainwater and wastewater collection infrastructure, drinking water transport and distribution systems and integrated management of the urban water cycle. The programme targets mid-career professionals, with a background in civil, environmental and (bio)chemical engineering, who have at least 2-4 years of working experience in water supply and wastewater companies, municipal authorities, government ministries or consulting companies.

1.1.2 Domain-specific framework

The academic field of Municipal Water and Infrastructure (MWI) is described in the critical reflection as part of the domain of environmental, civil and chemical engineering. Engineers in this domain are confronted with two challenges. One is the increasing rate of urbanisation, particularly in developing regions and in countries in transition. The high concentration of people in urban areas will place enormous pressure on the local environment and on available resources. It will also generate ever-higher, sometimes conflicting demands on services such as water supply and sanitation. The second is the decentralisation policy governing infrastructure in many countries, delegating the responsibility for delivering such services to lower levels of government that are often ill equipped for this challenge in terms of financial and human resources. To help cope with these challenges, the Master programme Municipal Water and Infrastructure aims to educate professionals in the fields of water and waste water engineering and management, particularly addressing urban areas. The domain-specific framework, as described in the critical reflection, is provided in Appendix 3.

1.1.3 Educational objectives of the programme

The aim of the programme is to educate the students to adequately evaluate, design, develop and manage the (urban) water cycle, thereby contributing to sustainable development. After successful completion of the programme, MWI graduates will have achieved the following learning outcomes:

Knowledge and understanding

1. Understanding the required basic chemical, physical, (micro)biological principles commonly applied in the field of water supply and sanitation;

2. Demonstrating knowledge of relevant theories and contemporary developments in the chosen specialisation;
3. Being able to interpret the broader scientific, engineering and socio-economic framework covering the urban water cycle;

Applying knowledge and understanding

4. Demonstrate disciplinary knowledge, engineering skills and academic capabilities independently and within a multidisciplinary context;
5. Select and apply suitable methods and techniques for assessment, planning, design, rehabilitation, operation and maintenance;
6. Formulate the questions to identify suitable approaches, and to pose original models, tests and/or engineering solutions;
7. Collect, analyse, prioritise and structure required data and information;
8. Contribute to theoretical, methodological or application development and integrate these within the respective discipline;

Making judgements

9. Identify original ideas and approaches from the literature or other sources and evaluate the potential for application, integration or further development;
10. Prepare a research plan, including the description of the approach and the realisation of the research;
11. Critically assess own investigation results, implementation feasibility and risks, and to reflect on the ethical and socio-economic aspects connected with application;

Communication

12. Clearly report and orally communicate results, the underpinning reasoning, knowledge and assumptions;
13. Actively promote the relevant issues and raise awareness amongst non-specialist audiences;

Learning skills

14. Extend and enhance own knowledge, insight and skills in an autonomous manner;
15. Conduct independent academic research in a subsequent post-graduate (i.e. PhD) programme.

In an annex to the critical reflection, specific learning objectives have been specified for the three specialisations, in addition to the general learning objectives of the Master programme. See appendix 4 for an overview.

1.1.4 Level

The critical reflection states that the Master degree programme in Municipal Water and Infrastructure has a university master's orientation with professional problem solving at academic level and academic research as the corner stones of the programme.

The master programme comprises a taught part (modules) and a research phase, which includes an Master thesis proposal preparation module (6 EC) followed by the master thesis research phase (36 EC). The combined taught and research parts of the master programme are 106 ECTS. During the taught part of the master programme, the students are prepared, stimulated and challenged to think in multidisciplinary dimensions, to carefully study problems, formulate appropriate questions, design research approaches, evaluate alternatives, analyse results critically and propose and defend professional solutions and interventions.

The ability to conduct original, independent academic research is covered in the final master thesis research phase of the master programme. Graduates should be able to conduct research, independently or in a multidisciplinary team, including the formulation of research questions and hypotheses, the selection and application of adequate research methodologies and techniques, the analyses of data and in-depth discussion of research results, and the formulation of well-founded conclusions, recommendations and limitations of their work. In the critical reflection the final qualifications for each of the curriculum components have been related to the Dublin descriptors and the general learning objectives as described in section 1.1.3. The committee finds this a helpful overview and recognises clearly a development towards the more complex learning outcomes during the programme, culminating in the Master research and thesis as the master piece.

1.1.5 Benchmarking

The MWI domain partly falls under the scope of Environmental Engineering, a wide area that includes air-quality control, water supply, wastewater disposal, storm-water management, solid-waste management, and hazardous-waste management. The focus of UNESCO-IHE is on water.

The master programme Municipal Water and Infrastructure provides education that shows similarity in content to that provided by the institutions identified as peers:

- Water Engineering (Technical University of Berlin, Germany)
- Civil Engineering (Delft University of Technology, The Netherlands)
- Environmental Technology (Wageningen University, The Netherlands)
- Environmental Engineering (ETH Zurich, Switzerland, offers a specialisation in Urban Water Management)
- Urban Water Engineering and Management (University of Sheffield, UK)
- Urban Water Systems (University of Exeter, UK)
- Urban Infrastructure and Management (University of Cape Town, SA)
- Water and Waste Water Engineering (University of Cranfield, UK)

With some of the above mentioned universities there is collaboration in the form of guest lecture inputs, joint supervision of master thesis research and shared research projects. However, the master programme in Municipal Water and Infrastructure at UNESCO-IHE is unique in including the requirement for working experience in the admission procedure and focusing on mid-career professionals from developing countries and countries in transition.

1.2 Considerations

The committee fully subscribes to the mission of the programme. The programme is an engineering programme that pays attention to the social interactions and societal aspects that play a role when designing solutions and trying to implement them in multidisciplinary teams.

In the national and international context the niche of the Municipal Water and Infrastructure programme at UNESCO-IHE is clear. The programme's focus on developing countries and mid-career professionals and the cooperation with partners in the global South distinguishes it from other programmes on Municipal Water and Infrastructure. The committee concludes that both aspects can be seen as strengths of the Municipal Water and Infrastructure programme.

The committee compliments the programme management for achieving an appropriate balance between high academic standards and the applicability of the theoretical knowledge. The committee judges the final qualifications and learning objectives to be well-formulated. These objectives provide the needed clarity to both staff and students with regards to what is expected from Municipal Water and Infrastructure graduates in general and for its specialisations. The learning objectives reflect the appropriate master level and are recognisably formulated in terms of the Dublin descriptors. The objectives show the necessary focus on analytical and research skills for an academic master's programme.

1.3 Conclusion

Master programme Municipal Water and Infrastructure: the committee assesses Standard 1 as **satisfactory**.

Standard 2: Teaching-learning environment

The curriculum, staff and programme-specific services and facilities enable the incoming students to achieve the intended learning outcomes.

Explanation:

The contents and structure of the curriculum enable the students admitted to achieve the intended learning outcomes. The quality of the staff and of the programme-specific services and facilities is essential to that end. Curriculum, staff, services and facilities constitute a coherent teaching-learning environment for the students.

2.1 Findings

This section firstly covers the coherence and structure of the curriculum (§2.1.1.). Subsequent paragraphs discuss the didactical concept (§2.1.2.), study load (§2.1.3.) and system of student guidance (§2.1.4.). Finally, the composition of the academic staff (§2.1.5.), the student body (§2.1.6.) and the facilities (§2.1.7.) are dealt with.

2.1.1 The curriculum

The curriculum is designed systematically and is aligned with the learning outcomes of the programme: students are increasingly being challenged to apply the knowledge and theory acquired during the earlier parts of the programme, and integrate this knowledge in the assignments dealt with during the fieldtrip, fieldwork and group work. This is visually illustrated in the tables as provided in the critical reflection which indicate the relationship between the learning objectives and the programme components: the shift to the more complex learning objectives is evident.

The programme offers three specialisations:

- Sanitary Engineering (SE), also as double degree with Univalle, Colombia and KNUST, Ghana (106 EC);
- Water Supply Engineering (WSE), also as double degree with Univalle, Colombia and KNUST, Ghana (106 EC);
- Urban Water Engineering and Management (UWEM), joint degree application with AIT, Bangkok, Thailand (120 EC).

SE and WSE students can follow the whole programme in Delft, but there is also a possibility to start at Universidad del Valle in Colombia and join the programme in Delft after the first three modules. A similar possibility for SE and WSE students is to start at the Kwame Nkrumah University of Science and Technology (KNUST) in Ghana and join the Delft programme after the fifth module. Both groups may return for their thesis work after the group work or do their thesis work at UNESCO-IHE. The students receive a double degree upon graduation.

UWEM has been offered as a double degree, in cooperation with AIT, Thailand, since 2009. It is a 22-months programme (120 EC) where students start in August at AIT in Bangkok and join the Delft programme after the third module. For the elective modules and the work on their research proposal and research project students can return to AIT or continue at UNESCO-IHE. UNESCO-IHE wants to change this double degree into a joint degree with slightly different arrangements. In the joint programme the students will move from AIT to UNESCO-IHE after the third module and all students will return to AIT for their research work, including the thesis writing, after having written the master research proposal at UNESCO-IHE. The application for the accreditation of the joint degree will be submitted to the NVAO with the re-accreditation request for the Master Municipal Water and Infrastructure. UNESCO-IHE has, therefore, requested the committee to assess this

specialisation with a view of it becoming a joint degree. The committee will elaborate on this in a separate section (pp. 30-33).

The programme in Delft follows a modular structure; the duration of each module is three weeks, with a study load of 5 EC. The learning objectives, content and didactical approach are described in module sheets for each module of all specialisations, including the modules offered abroad. The committee found these very helpful not only for the students, but also as a basis for discussions among staff about the coherence and fine-tuning of the programme. In addition, during the site visit the committee studied the learning materials and assignments for a selection of the Municipal Water and Infrastructure modules. These were well-designed and the literature was up-to-date and of an appropriate level. An overview of the curriculum structure is given in Appendix 5.

The programme has four distinct phases:

- general overview and theoretical foundations (modules 1-4, 20 EC)
- specialisation (modules 5-11, 35 EC)
- integration (module 12, 5 EC)
- research (modules 13-15, 46 EC)

The critical reflection states that the first part is focused on the learning objectives related to knowledge and understanding. The first module covers research methodology and Geo-Information Systems (GIS). In modules 2 (Hydrology, water chemistry and modelling), 3 (Microbiology, environmental process technology, demography and public health) and 4 (Integrated urban water management) a 'helicopter view' is given of the main issues covering the urban water cycle and its interaction with nature and the environment in general. Furthermore, the theoretical background of the fields and subjects discussed in the specialisation is given.

The specialisation part consists of seven modules about different aspects of water treatment, and is focused on knowledge application. Six of these modules are taught modules, some of which are obligatory while others are elective courses. Some specialisation modules are modules in more than one specialisation and elective modules can be selected from other Master programmes, provided the students obtain prior approval from their specialisation professor and the relevant module coordinator. The committee thinks this is an efficient way of organising the curriculum and finds it also a useful way to have students of different specialisations interact with each other, thus contributing to the interdisciplinarity of the programme. The seventh module is the international fieldtrip and fieldwork. This module is taken by students of all specialisations together. The fieldtrip demonstrates the technologies applied in the Netherlands and the rest of Europe. In the fieldwork students are involved in quality assessment of treated water and the impacts of its discharge to the environment.

The group work module is aimed at integration of the knowledge, techniques and skills obtained during the taught modules. Students of all the different specialisations work together to solve a complex problem (group work designed as a role play). The key objective of this phase is to learn to make judgments in a wider context by actively communicating the issues within a multidisciplinary team of experts. Furthermore, an important learning objective of this phase is to let students develop presentation and communication skills.

The master research phase consists of a module on research methods and skills and the preparation of the thesis proposal (modules 13 and 14, 3 and 7 EC respectively), followed by the thesis research (module 15, 36 EC). Through the period of six months, students

demonstrate their ability to develop and conduct original, independent research resulting in a manuscript that is presented and defended in public, and assessed by an examination panel consisting of the supervisor, the mentor and an external examiner.

The students with whom the committee met during the site visit were generally satisfied with their choice of Municipal Water and Infrastructure. They expressed their appreciation for the contents of the programme and the expertise of the staff members. The programme covers both traditional and non-traditional methods of water and wastewater treatment and water management. The focus is on municipal/urban water infrastructure, but also touches upon some rural issues and related social aspects. The students find that the two elective modules provide them with a sufficient level of choice. The students find the combination of courses at UNESCO-IHE and AIT enriching, but comment that GIS is not covered in their courses in Thailand.

Subsequently, the committee discussed this issue among others with the Programme Committee, because this committee carries the overall responsibility for the academic quality, content and organisation of the Municipal Water and Infrastructure programme. The Programme Committee consists of the chair person, secretary, four staff members of the MWI programme, a student representative, a staff member external to the programme and a representative of the Education Bureau. The Programme Committee explained that they maintain that the current programme is solid, although improvements are always possible. They opt for an approach of continuous improvement by taking small steps at a time. They confirm the observation of the students that the focus is on the urban poor, but that rural aspects are touched upon in some of the modules. The programme staff tries to find the best balance between teaching about new technologies and about low cost methods that can be used in developing countries.

Changes in the curriculum and the modules must always be done in consultation with the partner institutes in order to guarantee a coherent programme. The Programme Committee described this as a continuous process with much dialogue, which is seen as a worthwhile effort because it forces all involved “to think things through”.

The Programme Committee is working on establishing a hybrid master specialisation in sanitation and sanitary engineering, the taught part of which is offered on-line. This curriculum coincides largely with the specialisation in Sanitary Engineering. The thesis part can be done at UNESCO-IHE or one of its partner institutes (AIT, KNUST or UniValle). This initiative fits the aim of UNESCO-IHE to become a global campus and to use the possibilities of learning through the Internet more fully. The committee considers this a useful effort, building on the strengths of UNESCO-IHE and its network. The committee has not looked into the details of this specific programme or/and its delivery.

2.1.2 Didactical concept

The critical reflection states that the curriculum of the MWI programme is designed using the T-shape model which is generally used by UNESCO-IHE for this purpose. The vertical bar of the letter T represents the in-depth knowledge of the main discipline and the horizontal bar reflects the basic knowledge of adjacent disciplines. The main focus of the MWI programme is on the engineering disciplines, but the intention is to merge this increasingly with social sciences, in order to strengthen the multidisciplinary skills of the students. This is also the focus in the research work of one of the staff members. Students who want to go deeper into social science aspects can do so by selecting specific elective modules given by other UNESCO-IHE master programmes, for example from the Master Water Management.

The didactic methods used in the programme are varied. The critical reflection describes that in the beginning, in the foundation part of the programme, the emphasis is on lectures, large workshops, laboratory courses and self-study. During the specialisation phase the balance shifts towards workshops and computer/design exercises where the students develop more hands-on experience. Working in smaller groups leads to mutual exchange of knowledge and ideas between students and lecturers as well as among the students from different specialisations. A number of fieldtrips in the Netherlands and abroad are organised to provide state of the art knowledge related to particular expertise of current and future relevance for developing countries and countries in transition. The group work module is done in small groups of around five students who act as experts and work independently, with only occasional consultations with their mentors. They have to find a solution to a problem that is based on a real-life situation. Each year a new problem is presented. At the end of the group work module the students have to present and defend the outcomes of their group. Hence, this contributes to the development of presentation and communication skills. The work during the research phase is done independently on an individual basis, guided by a mentor and supervised by a professor.

The work on the master thesis is the ‘masterpiece’ of the curriculum: it starts with the formulation of a good research question. The thesis study is, wherever possible, related to research interests of the supervising staff member and/or related to on-going PhD studies. The majority of students selects a topic from a list of master topics and some adjust this to their own interest. It is also possible for students to define their own topic. The thesis work includes the development of an appropriate and feasible methodology, and the collection and analysis of data. Students are also expected to place the results into a context of current knowledge and to write a thesis that meets a professional standard. The knowledge generated by the research project must be summarised into clear conclusions and recommendations for further research. All this requires the integration of knowledge of Municipal Water and Infrastructure with general academic skills.

2.1.3 Study load

The critical reflection indicates that the curriculum has a study load of 106 EC and has to be completed within 18 months. The specialisation with AIT has a study load of 120 EC. Most students succeed in completing the programme within this time period although almost all of them told the committee that it is a very full and intensive programme.

Neither the students nor the alumni were of the opinion that the programme should be made longer but they suggest that modules should be distributed better. The students complained that the workload was spread unevenly, especially because of the overload in some of the specialisation modules. Some of the experienced overload is caused by a lack of background knowledge that is expected from students. Extra materials are provided by staff to help students to bridge this gap, but the students often do not have time to study them. The alumni commented that the foundation courses are useful but in their view take too much time. Since the different foundation modules are difficult or too easy for different students, depending on their background, the alumni suggest that they should not be scheduled in blocks but parallel to each other, so that the workload is spread more evenly over the semester.

The Programme Committee acknowledges that the programme is heavy, and the complaints about the uneven distribution of the work load have therefore been addressed by changes in the 2012-2014 programme. The introductory period will be shorter and two new specialised

modules have been developed. The staff states that 18 months or 106 EC should be sufficient for a postgraduate programme. Participating students have work experience and have had professional exposure. In most master programmes for younger students these elements are added, for example through an internship. This also explains the difference with the UWEM specialisation that has a study load of 120 EC: this programme has a different target group of younger and inexperienced candidates. The Programme Committee agrees that although a longer programme with more content should allow reduced workload and will provide time for improving certain modules, especially where additional experience in lab-based research work is of concern, in practice this is not feasible. Main reasons are financial, such as the fellowship requirements, and the reluctance of employers to grant longer study leaves. The committee agrees with the Programme Committee that under the circumstances they have found the best balance. The committee suggests to look into the possibility of offering a programme of 120 EC for all students and granting credits to incoming students with good working experience, comparable with an internship of 6 months.

Although time pressure remains a concern, the committee established that students do not generally perceive the study load as impossible. The curriculum may be demanding and leave little room for reflection, but it does not lead to students dropping out of the programme. According to the lecturers, students are able to cope with the demands because they are highly motivated and strongly interested in the issues dealt with in the courses.

2.1.4 Tutoring and guidance

Because students at UNESCO-IHE come from different countries and cultures and mostly have no home base in the Netherlands, much attention is paid to the tutoring and guidance of the students.

In advance of their arrival they receive a Preparation Guide with practical information on travelling to and living in the Netherlands. Upon arrival they are given a Practical Guide about the services provided by UNESCO-IHE, about formal issues such as housing, immigration and health care, and about everyday life in the Netherlands. Information about the programme, its contents, rules and regulations and study-related facilities is provided in the Handbook that students receive at the start of the programme.

Non-academic support is given by the Student Affairs office. A student counsellor tries to help students in case of emotional problems such as homesickness or the effects of previous traumas. Students with study problems are in principle referred back to their Programme Coordinator or the Specialisation Coordinator, although in some cases the study counsellor is also involved. For academic support, all lecturers can be approached with questions. For the thesis research a staff member supervises the work of the student. In addition, during the thesis writing, each student has a mentor, a member of the academic staff of the chosen specialisation. The students are, generally speaking, satisfied with the role of the mentor. They note that the students are expected to take the initiative to contact the mentor if they need help. The committee concludes that the arrangements and facilities to support the students during their stay in the Netherlands are extensive and work properly. The committee recommends to establish for each incoming student a 'portfolio' with his/her initial motivation and career plan, which should be discussed and updated as needed, preferably with a personal mentor from the start.

2.1.5 Academic staff

The master programme in Municipal Water and Infrastructure is developed and delivered by a team of 20 UNESCO-IHE staff members and 46 guest lecturers. For UNESCO-IHE staff

members the staff/student ratio is 1:10.3 for the taught part and 1:21.4 for the master supervision. The core of the programme is taught by UNESCO-IHE staff. For those topics that cannot be covered adequately by in-house staff, the Programme Committee engages guest lecturers from universities, public or private institutions. The students told the committee that the guest lecturers are experts and that their input is much appreciated.

The UNESCO-IHE staff is well qualified academically: all full professors have appointments at universities in the Netherlands, which testifies to their academic standing. All associate professors and senior lecturers hold PhD degrees. Results of their research are used directly in the modules. In addition, all staff members and the guest lecturers have extensive and relevant professional experience in developing countries and in countries in transition. This experience ensures that the educational programme is tailored to the professional and institutional context of the countries of origin of the students. Finally, the teaching qualities of the staff members are evaluated positively by the students in the regular module evaluations. In their meeting with the committee during the site visit students described their relationship with staff members as open and that they appreciate the interaction with staff members throughout the programme.

The committee considers the broad team of educational staff a strong point of the master programme. The input of guest lecturers provides additional input in a very efficient and effective manner.

2.1.6 Student body

The Municipal Water and Infrastructure programme attracts 35 to 45 students per year. The enrolment in the various specialisations fluctuates over the years and is influenced by the availability of fellowships. The programme targets mid-career professionals with at least three years of working experience. This is reflected in the average age of the students: the largest group is 25-40 years old. Most of the students come from Africa and Asia.

The students are very motivated and committed and work hard. For most of them a full time study requires quite an adjustment from the life they were used to. Their employer has allowed them a study leave and they are expected back with a degree after 18 months. The dropout rate is very low (0-3 students over the last six years) and the success rate is on average over 95%.

During the meeting with the Programme Committee the committee discussed how students can best be prepared for the master study and during the programme be prepared for the research phase. Most students (80%) have a background in engineering and are weak in chemistry, microbiology and process technology. In order to bring all students to a similar level of knowledge at the beginning of the programme the first modules are essential. The time for these must, however, be as short as possible to allow enough time for in-depth studies. Sending preparatory materials in advance is an option, but it is difficult to check if students make use of it. This cannot be enforced unless an entrance exam is introduced. Providing remedial materials during the programme is another option, but adds to the study load for students who are weaker and are, therefore, already struggling. The committee stresses the importance of the selection procedure of applicants and recommends the development of on-line preparation of selected candidates. UNESCO-IHE is currently investigating whether pre-courses that are available from other sources could be useful for prospective students, for example on-line training.

2.1.7 Facilities

The facilities of the UNESCO-IHE institute are geared to the multidisciplinary nature of the programmes. Well-equipped and well-staffed laboratories are used during the modules that focus on chemical analysis in the foundation modules and in the Water Quality Management specialisation. For group work and role-plays the necessary classrooms and places where students can work in small groups are available. The classrooms and work spaces have recently been renovated. The videoconferencing room is an indispensable facility to allow for direct communication with partners overseas.

IT-facilities and the necessary software packages are available. Students receive a laptop at the start of the academic year and can purchase it for a reasonable price at the end of the programme. Wireless internet is available throughout the building. The library is used intensively by students throughout the programme and possesses a large amount of books and journals. The number of electronic journals has increased during the last years. In 2011 the e-campus project was launched, using the Moodle-software (Modular Object-Oriented Dynamic Learning Environment or Course Management System). Students and staff are supported by a Moodle-coordinator.

The committee is of the opinion that the UNESCO-IHE building offers very good facilities for the academic education of the students in an atmosphere that makes their stay in the Netherlands fruitful and enjoyable.

2.2 Considerations

After studying the various aspects of the programme's teaching and learning environment, the committee established that the contents and structure of the curriculum enable students to achieve the intended learning outcomes. The programme provides a good basis in the natural sciences and some socio-economic concepts that are related to urban water management, before specializing in focused courses on a large number of topics and methods related to municipal water and infrastructure, especially for the urban poor in developing countries. The specialisations provide the necessary depth. The elective modules, the fieldtrip and fieldwork, and the group work introduce interaction among students from the different specialisations and thus contribute to the horizontal bar of the T-shape model of the curriculum. The double degrees based on complementary academic strengths and long-standing cooperation with international partners have an added value both for students and for UNESCO-IHE. The double degrees lower the threshold for new participants because part of the programme can be followed in their own region. In addition, the double degrees increase the visibility and impact of UNESCO-IHE. By the use of existing modules and an intelligent combination of these with the input of partner institutes, the risk of fragmentation is as much as possible avoided.

The division of the curriculum into four distinct phases of foundation, specialisation, integration and research is logical. The combination of courses and the interaction among students during the field work and group work allow proper attention to both bars of the T-shape model of education: the vertical bar of deepening and the horizontal bar of broadening. The timely selection of a research topic, the module in research methodology and the development of the research proposal prepares students for conducting their individual thesis research. The learning objectives per specialisation and the module descriptions are clear and provide insight into the contributions of curriculum components to the achievement of the intended learning outcomes of the master programme. Overall, the committee is satisfied with the content of the curriculum. The courses are academic in orientation but at the same time never lose sight of the intrinsically applied nature of Municipal Water and Infrastructure.

Whenever possible, the results of the research activities and other projects of staff members are integrated in the courses. Furthermore, the literature that is used is appropriate and up-to-date.

The main challenge of the curriculum is its density and the high level of intensity that follows from it. The programme sets out to present a comprehensive 18-months training programme to a very heterogeneous body of students. The committee maintains that, within the limitations of this set-up, the programme management is doing well. In order to address the widely different levels of knowledge and skills with which the students enter the programme, the management has developed a set of foundation modules. The committee advises the staff to investigate alternative or additional possibilities, for example by expecting self-learning from the students before they commence their studies in Delft and testing the students' basic knowledge upon arrival in Delft. The e-Campus development can be a useful tool for this purpose. Time should also be set aside for debate on general issues with staff and students from all specialisations, for example in seminars or evening lectures. Supporting students' adjustment is addressed by an extensive system of student monitoring, in which both the Programme Coordinator and the Specialisation Coordinator and the student counsellor play a role. This mechanism assures that potential problems are identified at an early stage. Because of the dedication of both staff and students, the programme in practice seems to work out well.

Staff members are highly motivated and involved, well qualified academically and seem to possess excellent teaching qualities. The core staff is strongly connected to the professional field in the Netherlands and abroad and brings extensive experience with applied research into the classrooms. This is clearly appreciated by the students. Guest lecturers are called in for additional specific expertise and as a link with the professional field. Students praise the additional input they provide.

Traditionally, the student population of UNESCO-IHE is very diverse, in both academic qualifications and geographical background. As mid-career professionals on study leave they have, on the one hand, some difficulties at the start of the programme to adjust to being back in class but, on the other hand, they are highly committed and motivated to succeed. The committee appreciates the efforts of the programme staff to help students before and during the programme to achieve the required level to follow the programme fruitfully.

2.3 Conclusion

Master programme Municipal Water and Infrastructure: the committee assesses Standard 2 as **satisfactory**.

Standard 3: Assessment and achieved learning outcomes

The programme has an adequate assessment system in place and demonstrates that the intended learning outcomes are achieved.

Explanation:

The level achieved is demonstrated by interim and final tests, final projects and the performance of graduates in actual practice or in post-graduate programmes. The tests and assessments are valid, reliable and transparent to the students.

3.1 Findings

This section firstly deals with the assessment system and quality monitoring of the thesis (§3.1.1.) and with the achieved learning outcomes on the basis of the quality of the theses and the position of alumni on the labour market (§3.1.2.).

3.1.1 Assessment system

The Education and Examination Regulations provide a detailed overview of the nature, frequency and marking of assessments as well as the possibilities for re-examination and appeal procedures. They are safeguarded by the Examination Board. All students are informed about the rules in the Handbook they receive at the start of the programme.

The assessments of the modules include written exams, assignments, oral exams, oral presentations and lab reports. Some assessments are carried out by small groups to facilitate team working skills. Most modules include two or more methods of assessment to reflect the multiple intended learning outcomes of the modules.

Students are informed about the assessment methods and their relative weight for each module in various ways. They are listed in the module sheets and are explained in more detail by the module coordinator at the beginning of a module, including the evaluation criteria that will be used for marking the various assessments. Written hand-outs with instructions are provided for assignments. Example exam questions are usually available for students of the module and tutorials are organised to practice the application of the knowledge in preparation for the exams.

Written exams are compiled by the module coordinator and peer-reviewed by the programme coordinator. Marking is done anonymously based on student registration numbers. Oral exams are always conducted by at least two staff members to ensure impartiality. After each assessment students are given feedback on their performance and are given the chance to inspect their exams. Students are asked to evaluate the quality of the assessments in the module evaluations. Re-examinations normally take place during the next examination period indicated in the academic calendar. Students will not be allowed to sit for further re-examinations or –assignments if they failed more than three re-examinations for the first thirteen modules of the programme. An appeal procedure is in place and fraud or cheating is taken very seriously.

The assessment of the final thesis follows a procedure of four steps. First, the final version of the thesis is checked with modern software to minimise the chances of plagiarism. Second, for each thesis assessment an exam committee is established, consisting of the supervisor (professor), the mentor and an external member from another department within UNESCO-IHE or from outside the institute. The composition of the exam committee has to be approved by the Examination Board. Third, the student presents and defends his/her thesis in an oral public defence. Fourth, the exam committee uses a list of evaluation criteria to grade the performance of the student, including the content, academic attitude and editorial

aspects of the presented work. These criteria are listed in the Handbook and therefore known to the students. They are not yet cross-linked with the learning objectives of the programme. The Examination Board intends to do this next year. The committee considers this to be an important step. There is no rule for the relative weight of the different criteria in the final mark of the thesis. This has been discussed among the staff but was viewed as a mechanistic approach that may be risky. Also, it was felt that this would not give sufficient freedom for the different roles in the exam committee, such as the mentor being focused on the process and the external examiner on the product. Although the committee agrees with this line of reasoning, additional mechanisms could add great value to the assessment of thesis. The committee recommends a rubric for assessment of master theses. The thesis evaluation form should include a relative weight for the different criteria for assessing the final mark, which will enable a more objective assessment of the master theses. Relative weights for thesis assessment is used in many universities in the Netherlands as well as other universities in Europe and other parts of the world.

The Examination Board safeguards the compliance with the rules set for the thesis assessments. The deadline for submission of the thesis in early April is clear to students and upheld quite strictly. Requests for extensions are handled by the Examination Board. The staff is responsible for the marks but the Examination Board supervises the outcomes on the basis of statistics and extreme grades. Decisions on distinctions are taken by the Examination Board and are based on the module marks and the thesis mark. Module marks and thesis marks differ quite often, and reflect that different skills are expected. Usually module marks are higher than the thesis marks. The use of an external examiner provides another reference point for addressing potential inflation of thesis marks and the granting of distinctions. The Examination Board also regulates assessment marks by comparing the outcomes of the different master's programmes and by benchmarking the average thesis marks with the Delft University of Technology, Wageningen University and the VU University of Amsterdam. To date, the grades allocated by the programme were at the same level.

The committee has studied the information provided on the assessment system and discussed the assessment system with the Examination Board. The committee also noted that the students commented on the group mark for the group work, and expressed that they would prefer to see their individual input reflected in their grade. The Programme Committee responded that lecturers are usually well aware of the individual input during the group work but that they prefer to see students assess each other to avoid the potential for 'free riding' behaviour during the group work. Marking of group work is often a compromise. For next year they intend to have students mark each other in addition to the lecturer's assessment. Overall, the procedures as set and safeguarded by the Examination Board apparently ascertain a fair and transparent system. The various checks and balances see to it that the assessments are valid and reliable. The committee considers this to be a strong point. The link between the learning objectives of the programme and the marking of the thesis, to be made explicit in the near future, will further improve the assessment procedures.

The committee investigated the diploma and diploma supplement that are issued after graduation. The diploma supplement contains the relevant information about the degree and the degree level, and includes the learning objectives of the chosen specialisation, the names of the modules and the marks that were earned, and the title and mark of the final thesis. The committee concludes that this is a valuable and clear document that will help students in their future careers. Students who fail to meet the programme examination requirements will be issued a certificate stating the result achieved including the EC for each successfully completed component of the programme as well as the period of registration. Students who

fail to meet the programme examination requirements and have accumulated a minimum of 45 EC will be awarded a 'certificate of post-graduate study'.

3.1.2. Achieved learning outcomes

The committee studied a representative sample of the Municipal Water and Infrastructure theses. In most cases the committee agreed with the mark given by the programme staff, but in a number of cases the committee would have marked higher. In general, the theses had clear objectives and problem formulation, an adequate selection and application of research methods, showed proper operationalisation and logical reasoning and followed the criteria for academic reporting. All of them were at least sufficient in these respects and some were at a much higher level. On this basis the committee concludes that the Master Municipal Water and Infrastructure graduates have achieved the intended learning outcomes of an academic master.

The critical reflection describes that in 2010-2011 a tracer survey was held among 6,500 UNESCO-IHE alumni, to which 1,149 alumni responded. The respondents included 69 Municipal Water and Infrastructure alumni who graduated between 2005 and 2010. The survey shows that most students (72%) returned to their former employer where 68% of them was promoted to a new job post. About 10% of the alumni find a PhD position. In their employment almost all alumni contribute to the development of their country or region and most of them agree that their working environment was conducive for using the knowledge and skills they had acquired during their study at UNESCO-IHE. The alumni officer informed the committee that each year a number of refresher courses is organised for the alumni.

These positive outcomes were confirmed by the feedback the committee received from a limited number of alumni. Their main asset after completing their UNESCO-IHE degree was that they felt prepared to work around the world with very different people and on different topics. They found the interdisciplinary approach useful and were able to apply their knowledge across various sectors. UNESCO-IHE taught them to be critical and took them to a higher level, which helped them to make further career moves. The programme builds up team work among the students and combines a practical approach with theoretical knowledge. The alumni described this as "the beauty of the institute". They admit that there may be engineering or scientific programmes with a stronger disciplinary reputation, but that the combination offered by UNESCO-IHE is unique and a better combination for developing countries. When asked for suggestions for improvement the alumni mentioned that the programmes should embrace new issues, such as interdisciplinary modelling. They also suggested that there should be more synchronisation among the Master programmes regarding the grading criteria for the theses. The committee agrees that UNESCO-IHE should always be alert for new developments to be addressed in its programmes, but regards the new initiatives with partners as an indication that this awareness is present. The committee advises the Examination Board to keep monitoring the grading criteria and grades for the master theses.

3.2. Considerations

The committee established that the assessment system of the UNESCO-IHE functions very well. Good control mechanisms are ensuring that work is systematically and consistently graded. The committee further found the variety of assessment methods to be sufficiently large. The examination structure has clearly been tailored to the intended learning outcomes of the programme. The committee especially appreciates the system of blind marking and the

involvement of external assessors. The assessment system has strong checks and balances and the assessments are transparent, valid and reliable.

After studying examination results as well as a sample of recent theses, the committee established that graduates of the Municipal Water and Infrastructure programme meet the end qualifications as specified under Standard 1. From the committee's conversations with alumni, it became sufficiently clear that graduates of the programme are truly able to function as capable municipal water managers.

3.3. Conclusion

Master programme Municipal Water and Infrastructure: the committee assesses Standard 3 as **satisfactory**.

General conclusion

The committee has assessed all three standards as satisfactory. The committee judges the programme to be a stimulating academic master's programme. The profile of the programme, its position within the field, the clearly formulated intended learning outcomes, the coherent structure and interdisciplinary contents of the curriculum, the well-kept facilities, and the overall enthusiasm displayed by both staff members and students all contribute to a fitting teaching-learning environment. The assessment of the learning outcomes in tests, assignments and, above all, the master thesis meets the required quality standards. Both the quality of the theses and the experiences of the alumni show that the intended learning outcomes are achieved.

The committee assesses the *Master programme Municipal Water and Infrastructure* as **satisfactory**.

Committee's judgement regarding the quality of the joint degree programme Urban Water Engineering and Management UWE

UNESCO-IHE intends to submit the UWEM specialisation of the Master programme Municipal Water and Infrastructure for additional accreditation as a joint degree. To substantiate this request UNESCO-IHE has asked the assessment committee to pay separate attention to the quality of this specialisation as a joint degree programme. Specific information on this degree programme was made available in the critical reflection and during the site visit. The committee has also conducted an additional interview with the Joint Management Committee of the international partner involved. On that basis the committee is able to assess this programme on the same standards as the Master programme Municipal Water and Infrastructure.

Standard 1: Intended learning outcomes

UWEM is currently offered as double degree, based on a specialisation of the Municipal Water and Infrastructure programme and will administratively continue to be considered as a specialisation of the Municipal Water and Infrastructure programme. With the joint degree UWEM, UNESCO-IHE and AIT (Asian Institute of Technology, Bangkok, Thailand) wish to take their long-standing cooperation a step further and show the complementarity of their input clearly on the degree certificate. The combination of UNESCO-IHE and AIT provide a good opportunity to gain knowledge and experience from both the Asian and European environment. AIT is a leading post-graduate institution with a focus on technological change and sustainable development, UNESCO-IHE focuses on issues relating to water in a broad sense.

The aim of the programme is to convey to the students the knowledge, insight and skills that are required to function as independent professionals within the field of Urban Water Engineering and Management and to be appropriate candidates for further study towards a research career. The target group consists of young professionals. Applicants must have a first degree in a relevant engineering or science area and some years of relevant working experience. UWEM is an open programme and welcomes applications from all over the world, with an emphasis on students from Asian countries.

The intended learning outcomes for the UWEM programme are formulated as follows:

After successful completion of the programme graduates will be able to:

Subject knowledge and skills

1. understand the urban water cycle and its water system components, their characteristics and functioning within greater urban infrastructure systems;
2. understand urban water management problems including ability to: identify water systems' demand; deal with climatic and hydrologic uncertainties and/or extremes; institutional limitations; and work within a data-constrained environment;
3. make appropriate and critical use of methods, techniques and tools necessary to monitor, analyse and design urban water systems including: water supply infrastructure; drinking water treatment and distribution; wastewater collection, treatment, transport and disposal systems; drainage systems;
4. understand water infrastructure/asset planning, financing and management, and utility management;
5. understand the concept of integrated water resources management (IWRM) and its application to a variety of water management problems at the urban catchment scale;

Core academic skills

6. identify, articulate, analyse and solve problems of the urban water cycle and systems, integrating theory and applications;
7. collect, summarise, analyse and interpret technical data/materials in a structured form to gain knowledge on urban water system design and operation and maintenance;
8. critically recognise and assess the need for continued-education and research on planning, design, maintenance and management of urban water systems;
9. work with a range of information technology tools available for solving urban water management problems and for effectively communicating with fellow water managers, researchers, scientists, planners, and policy-makers;

Personal skills

10. better learn independently;
11. better report and present findings;
12. work with various IT hard- and software;
13. work independently or as part of a team;
14. manage time effectively.

These learning objectives are phrased in a different format than the UNESCO-IHE learning objectives, but cover the same areas and target the same level of academic work. Students are trained to problem solving at an academic level and the ability to conduct independent academic research is an essential element of the programme. The final ten months of UWEM are spent on the Master thesis research project.

The committee fully subscribes to the aims of the programme. The committee judges the final qualifications and learning objectives to be well-formulated, although the formulation of the personal skills (as presented above) seems rather cursory. Nevertheless, they clarify to staff and students what is expected from UWEM graduates. The learning objectives reflect the appropriate master level. They show the necessary focus on analytical and research skills for an academic master's programme. The committee therefore assesses the first standard as **satisfactory**.

Standard 2: Teaching-learning environment

The UWEM programme is a sandwich programme offered jointly by UNESCO-IHE and AIT, Thailand. The 22-month fulltime programme starts in August at Bangkok where the students follow four basic courses. In January of the following year the students travel to Delft for seven specialisation courses. At UNESCO-IHE the students start to prepare their Master thesis proposal. In addition to lectures, exercises, laboratory work, fieldwork and fieldtrips, these modules include a two week European fieldtrip. In August of the second year they return to AIT to do their Master thesis research, co-mentored by UNESCO-IHE staff. See appendix 8 for an overview of the programme and its courses.

To ensure a good coherence and to avoid overlap, the programme has been composed by a Joint Programme Committee. The modules at UNESCO-IHE are also part of the SE and WSE specialisations, which reflects on a very efficient use of available staff time and also allows for interaction between the groups of students of different specialisations. The programme is designed with an aim to minimise overlap and to emphasise the separate focus of each partner institute. The committee views the combination of courses and other educational activities to be very useful in helping the students to achieve the intended learning outcomes.

All modules are evaluated on the basis of a quality control system of the participating responsible institute. Student evaluations are a permanent component of this quality control. Lecturers are working together to reduce overlap and enhance synergy of the contents of their courses. In supervising and assessing the research projects, both partners will be involved. Preferably UNESCO-IHE will be represented by staff members who are physically present at AIT, otherwise and/or additionally through internet-based tools such as Skype. The evaluation criteria have been defined in advance and are clear to staff and students. Grading equivalence is achieved by instituting joint juries as examination committees for each graduation project. On a technical level, conversion tables have been drawn up to compare the grades and grading systems of the partner institutes. Both partners are very positive about the development of this joint programme.

Each institute uses its own didactical approach. Students described the combination as enriching. They experienced AIT as a school environment, while at UNESCO-IHE they felt treated more as adults. The committee does not consider the different teaching cultures a problem. The teaching methods are explained in detail in the module sheets. The committee has checked the module sheets and concludes that they provide clear information on all aspects of each course: the learning objectives, topics to be addressed in the syllabus, didactics, assessment method, lecturing materials and lecturing staff.

The study load is expected to be less intensive for the UWEM students than for their colleagues who have registered for the 18-months Municipal Water and Infrastructure programme.

Regarding tutoring and guidance, the committee assumes that UWEM students will have a mentor as part of their programme in Municipal Water and Infrastructures, but it is not clear to the committee if a transfer is arranged of the mentor's role from one institute to another.

The lecturers involved in the UWEM programme belong to the core staff of the partner institutes. Based on the judgement on the Municipal Water and Infrastructure programme the committee concludes that for UNESCO-IHE this means that they are well-qualified academics with a good teaching record. As for AIT, the committee understood from the Joint Management Committee that all partners bring in experienced staff members to the programme. UNESCO-IHE and AIT have had a long-standing research cooperation and know and trust each other well. Based on these considerations and on the documented evidence provided during the site visit, the committee concludes that the input provided by the partner is delivered by well-qualified staff.

The selection of students is done on the basis of a procedure and criteria that are agreed upon by both partners. Admission decisions are taken jointly, communication takes place by email. Applications are welcomed from all countries, with a focus on Asian countries. In the past year UWEM attracted ten students. The UWEM student body is comparable to that of the other UNESCO-IHE programmes, with a higher percentage of Asian students. The diversity is part of the learning environment. This fits well with the mission of the traditional UNESCO-IHE programmes.

The facilities for the UWEM programme are the same as for the other programmes of the participating institutes. The committee follows the same line of reasoning as for the quality of the academic staff and is convinced that these are in order.

After evaluating the curriculum, cooperation arrangements, quality control mechanisms, study load, staff, student body and facilities, the committee established that the teaching-learning environment of the UWEM programme enables students to achieve the intended learning outcomes. The committee therefore assesses this standard as **satisfactory**.

Standard 3: Assessment and achieved learning outcomes

The Cooperation Agreement describes the regulations concerning exams. The module sheets describe the assessment methods, which include written exams, exercises, assignments and practical activities. All exams are governed by the Assessment Regulations in place at the partner institution where the course is organised.

The master thesis will have to be defended at AIT. The Cooperation Agreement states that the Master examination committee consists of members according to the regulations of AIT, including a member of UNESCO-IHE. Participation of the latter member at the Master thesis examination is preferable but not mandatory. Though not necessarily physically present, the committee member from UNESCO-IHE will comment on the thesis and take part in the deliberations of the committee. A student has successfully completed the programme examination when the AIT examination board takes a decision to that effect and a 'no objection' has been received from the examination boards of UNESCO-IHE. Since UWEM will also continue as a specialisation within the Municipal Water and Infrastructure programme and, therefore, its results and level of grading will be scrutinized by the Examination Board of UNESCO-IHE, the committee is confident that there are good mechanisms in place to guarantee the level of the assessment of courses and theses.

The committee read one thesis of the UWEM specialisation. The committee agreed with the mark given by staff. Considering the fact that the same partners were involved in UWEM as a double degree as will be in UWEM as a joint degree, and that the same quality control mechanisms will apply, the committee expects that the achieved learning outcomes will be at the required academic master level. The committee assesses this standard as **satisfactory**.

The overall conclusion of the committee on the quality of the UWEM programme is **satisfactory**.

APPENDICES

Appendix 1: Curricula vitae of the members of the assessment committee

Prof. dr. André van der Beken (chair) has been an emeritus professor at the Free University Brussels (Vrije Universiteit Brussel) since 2003 after having been a full professor since 1979. In 1969 he obtained his PhD in Agricultural Sciences from the University of Ghent. He has been a visiting professor at the Technical University Delft, Dept. of Hydrology (1981-1982), the University of Dar es Salaam, Dept. of Civil Engineering, Tanzania (1983, 1986), the Institut National d'Agronomie de Tunisie, Tunis (1984-1987), the Faculty of Sciences and Technology, Universidad Mayor San Simon, Cochabamba, Bolivia (1986), WARREDOC, University for Foreigners, Perugia, Italy (1988), the Master programme in Eremology, University Ghent (1990-1996) and the Centre for Environmental Sanitation, University Ghent (1992 -2004). He has been the Director of the Interuniversity Post-graduate programme in Hydrology and a member of the Steering Committee of the Interuniversity Programme in Water Resources Engineering. André van der Beken was a member of the Peer Review Evaluation of the programmes of the Fonds National de la Recherche Luxembourg (2008-2010) and participated in the assessment of the education and training needs of the water resources management services of the Republic of South Africa (1998).

Prof. Ing. Janos Bogardi has been a co-opted professor in Water Resources at the Faculty of Agriculture of the University of Bonn, Germany since 2004. He obtained his PhD (Dr. Ing.) in Water Resources Management from the University of Karlsruhe in 1979. He has been the Executive Officer of the Global Water System Project of ESSP since 2009 and Senior Fellow since 2010, both at the Center of Development Research of the University of Bonn. Previously he was Director of the Institute for Environment and Human Security of the United Nations University (UNU-EHS) (2003-2009), including the vice-rectorship of the UNU in Europe from 2007 until 2009, worked as a Senior Programme Specialist and Chief of Section at UNESCO, Paris (1995-2003), as a professor at the Agricultural University of Wageningen, the Netherlands (1989-1995) and as an Associate Professor at the Asian Institute of Technology (AIT) in Bangkok, Thailand (1985 – 1988). He is a member of the Deutsches Komitee für Katastrophenvorsorge (member of the board 2009-2011), of the International Association of Hydrologic Engineering and Research (IAHR) and of the International Association of Scientific Hydrology (IASH).

Dipak Gyawali is *Pragya* (Academician) of the Nepal Academy of Science and Technology (NAST) since 1992 and chairman of *Interdisciplinary Analysts*, a research and consulting firm. He chairs the newly founded liberal arts college, the Nepâ School of Social Sciences and Humanities. He also directs research at the non-profit Nepal Water Conservation Foundation. By profession, he is a hydroelectric power engineer (Moskovsky Energetichesky Institute, USSR, 1979) as well as a political economist studying resource use (Energy and Resources Group, University of California, Berkeley, 1986). He has served as Nepal's Minister of Water Resources (responsible for power, irrigation and flood control) between November 2002 and May 2003 and was a UNESCO/UNU-IAS Visiting Professor of Water and Cultural Diversity at the United Nations University in Yokohama, Japan in 2010. He was a member of the panel of experts of the Mekong River Commission and he currently serves on the Steering Committee of the Mekong Program on Water Environment and Resilience (MPower). Previously he has been chair or member of numerous national and international committees and programmes on water research and water management. Dipak Gyawali was a member of the assessment committee UNESCO-IHE in 2007.

Prof. dr. Rivka Kfir has been an Extraordinary Professor and advisor at the Water Institute, University of Pretoria, South Africa since 2011. She obtained her doctorate in medical

microbiology in 1981. She also holds a degree in Management, obtained from the Faculty of Economics and Political Science, University of London (1996). From 2001 until 2011 she was Chief Executive Officer of the Water Research Commission (WRC), Pretoria, South Africa. Before that she was Executive Director: Knowledge Management and Strategy, National Research Foundation, (NRF), Pretoria, South Africa (2000-2001) and Technology Manager, Council for Scientific and Industrial Research (CSIR), Pretoria, South Africa (1996-2000). Rivka Kfir's professional activities include being a member of the Academy of Science of South Africa, ASSAf, the Water Institute of Southern Africa. She was a Founding Board member of the Global Water Research Coalition and a Governing Council member of the International Water Association (IWA). She has published numerous papers and articles.

Prof. dr. Grietje Zeeman is professor in New Sanitation at the Sub-department of Environmental Technology (ETE) at Wageningen University and Research Centre (WUR). She obtained her PhD in Agricultural and Environmental Sciences from Wageningen Agricultural University, The Netherlands in 1991. She has acquired funding for various research projects, such as The London School of Hygiene & Tropical Medicine (2011-2013), STW PhD and Post-doc research on Enhanced Enzymatic Anaerobic Fermentation of Organic Residues (EnzyFOR) (2011-2015). Grietje Zeeman has been on the scientific board for international conferences organised by the International Water Association (IWA) and on the organisation board of other international conferences. Her professional activities include chairing the Technical Committee Anaerobic Digestion (TCA) of the Dutch National Association for Water Quality Management (NVA) and her membership of ONS, an advisory body on New Sanitation.

Franca Kramer BSc obtained her bachelor's degree in Life Science and Technology from Delft University of Technology/University Leiden in 2009 and is currently enrolled as a master's student in Water Management, a specialisation programme in Civil Engineering at Delft University of Technology. Part of her master's programme was a research project at the Technical University Bandung, Indonesia. She participated in a study visit to Israel and Palestina on water management and attended the Young Water Professionals Conference in Leuven 2011. She has been a student member of the educational committee Civil Engineering.

Appendix 2: Programme of the site visit

Time	Subject	Panel
Monday 17 September		
08.45	<i>Welcome day 1</i>	Prof. Andras Szollosi-Nagy, rector Jan Herman Koster, Education Bureau
09:00 – 10:30	Preparatory meeting of the committee: discussing the NVAO framework for limited assessments and joint degrees	
10:30 - 11:30	Inventory and reading of information on programmes and joint degrees, supplied by UNESCO-IHE	
11:30 - 12:15	Discussing the critical reflections and theses of all four programmes	
12:15 – 13:00	<i>Lunch</i>	
13:00 – 14:00	Introductory meeting with the management	Prof. Andras Szollosi-Nagy, rector Prof. Stefan Uhlenbrook, vice-rector Academic Affairs Prof. Maria Kennedy, Chair programme committee MWI Prof. Dano Roelvink, Chair programme committee WSE Prof. Pieter van der Zaag, Chair programme committee WM Greet Vink, Business Director Jan Herman Koster, Education Bureau
14:00 – 14:45	Meeting with students of the master Water Management (students of all different tracks)	Claudia Zamora, WQM, Peru Bunthida Plengsaeng, WCM, Thailand Tobias Angula, WRM, Namibia Joseph Nartey, WRM, Ghana Risch Tratschin, WSM, Switzerland Kurniati Widyastuti, WSM, Indonesia
14:45 – 15:30	Meeting with the programme committee (teachers + student member 'educational committee') of the master Water Management	Prof. Pieter van der Zaag, Chair Jeltsje Kemerink, Programme Coordinator Schalk-Jan van Andel Prof. Meine Pieter van Dijk Safa Fanaian Student member Peter Kelderman Marloes Mul Maria Rusca Klaas Schwartz Jan Herman Koster, Education Bureau
15:30 – 16:00	<i>Break</i>	
16:00 – 16:20	Alumni officer	Maria Laura Sorrentino
16:20 – 17:05	Meeting with students of the master Water Science and Engineering (students of all different tracks)	Fátima Mussá, HWR, Mozambique Alex José Kaune Schmidt, LWD, Germany Eunice Rodrigues da Silva, HECEPD, Portugal Hesam Sanaee, HECEPD, Iran Ricardo González Flores, HERBD, Bolivia Alifta Ariestiwí, HI, Indonesia Zhao Yi, HI, China

17:05 – 17:50	Meeting with the programme committee (teachers + student member 'educational committee') of the master Water Science and Engineering	Prof. Dano Roelvink, Chair Erik de Ruyter, Programme Coordinator Schalk Jan van Andel Karen Anguizola, Student member Luigia Brandimarte Prof. Charlotte de Fraiture Shreedhar Maskey Prof. Michael McClain Prof. Arthur Mynett Prof. Dimitri Solomatine Suryadi Prof. Stefan Uhlenbrook Mick van der Wegen Jan Herman Koster, Education Bureau
17:50 – 18:30	Rounding up	
18:30 – 19:00	<i>Travelling time</i>	
19:00 – 21:00	<i>Dinner</i>	
Tuesday 18 September		
08.45	<i>Welcome day 2</i>	
09:00 – 09:45	Meeting with students of the master Environmental Science	Ndayisaba Cyprie, EST, Rwanda Frewyni Tammene, EST, Eritrea Brenda Chimombe, EPM, Zimbabwe Mark Ayertey, WQM, Ghana Perdana Nugroheni, IMETE, Indonesia
09:45 – 10:30	Meeting with the programme committee (teachers + student member 'educational committee') of the master Environmental Science	Prof. Piet Lens, Chair Henk Lubberding, Programme Coordinator Hans van Bruggen Bipin Dangol, Student member Edwin Hes Tineke Hooijmans Prof. Ken Irvine Peter Kelderman Jeltsje Kemerink Prof. Jan Leentvaar Jan Herman Koster, Education Bureau
10:30 – 10:45	<i>Break</i>	
10:45-11:15	Skype conversation with the management committee including representative from AIT Bangkok about the ES Joint Degree programme Environmental Technology for Sustainable Development (ETSuD)	Prof. Piet Lens, UNESCO-IHE Peter van der Steen, UNESCO-IHE Prof. Ajit Annachhatre, AIT Dr. Thammarat, AIT Jan Herman Koster, Education Bureau
11:15 – 11:30	<i>Break</i>	
11:30 – 12:00	Skype conversation with the management committee including representatives from the BOKU university in Austria and the Egerton University in Kenya about the ES Joint Degree programme Limnology and Wetland Management	Edwin Hes, UNESCO-IHE Prof. Ken Irvine, UNESCO-IHE Dr. Kitaka, Egerton University Prof. Owido, Egerton University Dr. Stefan Schmutz, BOKU University Dr. Gerald Winkler, BOKU University Jan Herman Koster, Education Bureau
12:00-12:15	<i>Break</i>	

12:15 – 12:45	Skype conversation with management committee and representatives from the Ghent University and the Institute of Chemical Technology Prague about the ES Joint Degree programme Environmental Technology and Engineering	Prof. Piet Lens, UNESCO-IHE Peter van der Steen, UNESCO-IHE Jan Bartacek, ICT Prague Prof. Gijs du Laing, Ghent University Prof. Filip Tack, Ghent University Jan Herman Koster, Education Bureau
12:45 – 13:30	<i>Lunch</i>	
13:30 – 14:15	Guided tour / Consultation hour (if there are applications for the consultation hour the committee will split on the basis of expertise)	
14:15 – 15:00	Board of Examiners	Prof. Arthur Mynett, Chair Erick de Jong, Secretary Peter Kelderman Jan Nonner Prof. Dimitri Solomatine Nemanja Trifunovic
15:00 – 15:15	<i>Break</i>	
15:15 – 16:00	Real-life and skype meeting with alumni of all programmes from different countries	Aline Okello, Mozambique, PhD student Nirajan Dhakal, Nepal, PhD student Ali Dastgheib, Iran, UNESCO-IHE staff member Raquel dos Santos, Brazil, UNESCO-IHE staff member Benly Ramirez, Mexico, researcher María Pascual, Spain, Evides International Lukas Kwezi, Tanzania (through Skype), National Coordinator Global Water Initiative Julius Kipkemboi, Kenya (through Skype), Egerton University
16:00 – 16:20	Student counsellor <i>NB. For study advise and problems students go to the mentor of the programme committee. With other problems they go to the student counsellor. Because of the international character of UNESCO-IHE there is a short meeting with the student counsellor</i>	Sylvia van Opdorp-Stijlen
16:20 – 18:00	Looking at Joint Degree information and discussion	
18:00 – 18:30	<i>Rounding up</i>	
18:30 – 19:00	<i>Travelling time</i>	
19:00 – 21:00	<i>Dinner</i>	
Wednesday 19 September		
08.45	<i>Welcome day 3</i>	
09:00 – 09:45	Meeting with the students of the master Municipal Water and Infrastructure (students of all different tracks)	Leonard Msenyele, WSE, Tanzania Mira Yuliawati, WSE, Indonesia Angela Salinas, SE, Bolivia Zeeshan Bilal, SE, Pakistan Mohanad Abunada, UWEM, Palestine Sergio Muñoz Vazquez, UWEM, Mexico

09:45 – 10:30	Meeting with the programme committee (teachers + student member ‘educational committee’) of the master master Municipal Water and Infrastructure	Prof. Maria Kennedy, Chair Tineke Hooijmans, Programme Coordinator Prof. Damir Brdjanovic Jan Herman Koster, Education Bureau Maria Rusca Francesco Rubio, Student member Zoran Vojinovic
10:30 – 10:45	<i>Break</i>	
10:45 – 11:15	Skype conversation with the management committee including representative from AIT Bangkok about the MWI Joint Degree programme Urban Water Engineering and Management [NB. Local time in Bangkok: 15:45 – 16:45]	Prof. Damir Brdjanovic, UNESCO-IHE Zoran Vojinovic, UNESCO-IHE Prof. Maria Kennedy, UNESCO-IHE Tineke Hooijmans, UNESCO-IHE Prof. Visvanathan, AIT Dr. Babel, AIT Jan Herman Koster, Education Bureau
11:15 – 12:00	Internal committee meeting: preparation for concluding meeting with management	
12:00 – 12:30	<i>Lunch</i>	
12:30-13:15	Concluding meeting with management	Prof. Stefan Uhlenbrook, vice-rector Academic Affairs Prof. Maria Kennedy, Chair programme committee MWI Prof. Piet Lens, Chair programme committee ES Prof. Dano Roelvink, Chair programme committee WSE Prof. Pieter van der Zaag, Chair programme committee WM Jan Herman Koster, Education Bureau
13:15 – 14:45	Internal committee meeting preparing draft of preliminary results	
14:45-15:15	Preparing public presentation of the chairman	
15:15-15:30	Public presentation of preliminary results by the chairman	
15:30-16:00	Reception	

Appendix 3: Domain-specific framework

Academic field

The Municipal Water and Infrastructure (MWI) programme concerns water supply and sanitation in urban areas. Recent decades have witnessed an increasing rate of urbanisation, particularly in developing regions and in countries in transition. About 80% of the world's mega-cities can be found in the developing world. During the next two decades the world's population is expected to double. The high concentration of people in urban areas will place enormous pressure on the local environment and on available resources. It will also generate ever higher, sometimes conflicting demands on services such as water supply and sanitation. At the same time, under decentralisation policies, the responsibility for delivering such services will be increasingly delegated to lower levels of government that are often ill equipped for this challenge in terms of financial and human resources. Municipal Water and Infrastructure aims to educate professionals in the fields of water and waste water engineering and management, particularly in urban areas. It falls under the domain of Environmental, Civil and Chemical Engineering. The MWI Master programme focusses on issues of relevance to developing countries and countries in transition.

The MWI Master Programme is directed predominantly at civil, environmental and (bio)chemical engineers working in water supply and wastewater companies, municipal authorities, government ministries and consulting companies dealing with water supply, sanitation and integrated urban water cycle management.

The programme offers the following three specialisations covering three sub-domains:

- Water Supply Engineering (WSE): this specialisation emphasises water quality and the design and operational aspects of drinking water treatment, transport and distribution.
- Sanitary Engineering (SE): this specialisation deals with sanitation with special emphasis on the urban poor, and with wastewater and sludge treatment process design, operation and engineering of related infrastructure including urban drainage and sewerage, centralised and decentralised systems and land-based and engineered treatment plants.
- Urban Water Engineering and Management (UWEM): this specialisation deals with various aspects of the urban water environment and addresses the challenges of design, engineering and delivery of essential water and wastewater infrastructure, services and management.

Depending on their choice of specialisation, students should have a Bachelors or equivalent degree in civil engineering, sanitary engineering, chemical engineering, hydraulic engineering, environmental engineering or related fields. Prospective candidates would also benefit greatly from having had at least 2-4 years of experience as a professional engineer, in line with the specific mandate of UNESCO-IHE to train mid-career water professionals from developing countries and countries in transition.

Appendix 4: Intended learning outcomes

Intended learning outcomes per specialisation

Water Supply Engineering (WSE)

After successful completion of the Water Supply Engineering (WSE) specialisation within the Municipal Water and Infrastructure (MWI) Programme, graduates will be able to:

Knowledge and understanding

1. describe the structure of drinking water supply systems, including water transport, treatment and distribution;
2. understand occurring physical, chemical and biological phenomena and their mutual relationships, within water supply systems;
3. name water quality criteria and standards, and explain their relation to public health, environment and urban water cycle;
4. distinguish between various water quality concepts and predict their effect on treatment process;
5. understand hydraulic concepts and their relationship to water transport in treatment plants, pipelines and distribution networks;
6. understand the principles of mathematical modelling applied in water supply;

Applying knowledge and understanding

7. design and to rehabilitate raw water abstraction, transport, treatment and distribution processes and systems;
8. propose methods for operation and maintenance of water supply systems;
9. evaluate options for centralised and urban systems versus decentralised and rural systems;
10. use statistical and modelling tools for simulating, prediction of performance and operation of water supply system components;
11. understand water supply engineering within a watershed context.

Sanitary Engineering (SE)

After successful completion of the Sanitary Engineering (SE) specialisation within the Municipal Water and Infrastructure (MWI) Programme, graduates will be able to:

Knowledge and understanding

1. explain the role of sanitation in urban water cycle and its relation to public health and environment;
2. understand relevant physical, chemical and biological processes and their mutual relationships within various sanitation components;
3. name wastewater quality criteria and standards, and explain their relation to public health, environment and urban water cycle;
4. classify various categories of wastewater and predict their effect on treatment process;
5. understand hydraulic concepts and their relationship to urban drainage and sewerage networks;
6. understand the principles of mathematical modelling applied in the field of sanitation;

Applying knowledge and understanding

7. develop rational approaches towards sustainable waste(water) management via pollution prevention, appropriate treatment, resources recovery and re-use on both centralised and decentralised level;
8. prepare conceptual engineering and process design of sanitation components;

9. apply modern tools for technology selection and carry out modelling of sanitation components;
10. define and critically analyse, assess and evaluate various urban drainage and sewerage schemes, and wastewater, sludge and solid waste treatment process technologies;
11. develop innovative approaches to the provision of adequate and sustainable sanitation services in developing countries and countries in transition.

Urban Water Engineering and Management (UWEM)

After successful completion of the Urban Water Engineering and Management (UWEM) specialisation within the Municipal Water and Infrastructure (MWI) Programme, graduates will be able to:

Knowledge and understanding

1. describe the urban water cycle and its water system components, their characteristics and functioning within greater urban infrastructure systems;
2. understand urban water management problems including climatic and hydrologic uncertainties and/or extremes, work within a data-constrained environment and institutional limitations;
3. understand water infrastructure/asset planning, financing and management, and utility management;
4. understand the principles of mathematical modelling applied in the field of urban water management;
5. familiarise with the concept of integrated water resources management (IWRM) and its application to a variety of water management problems at the urban catchment scale.

Applying knowledge and understanding

6. make appropriate and critical use of methods, techniques and tools necessary to monitor, analyse and design urban water systems including: water supply infrastructure; drinking water treatment and distribution; wastewater collection, treatment, transport and disposal systems and drainage systems;
7. identify, articulate, analyse and solve problems of the urban water cycle and systems, integrating theory and applications;
8. collect, summarise, analyse and interpret technical data/materials in a structured form to gain knowledge on urban water system design and operation and maintenance;
9. critically assess the need for continued-education and research on planning, design, maintenance and management of urban water systems;
10. apply a range of information technology tools available for solving urban water management problems and for effectively communicating with fellow water managers, researchers, scientists, planners, and policy-makers.

Appendix 5: Overview of the curriculum of the programme

Figure 1. Overview of the content of the three specialisations of the MWI programme.

Module number	ECTS	Municipal Water and Infrastructure 2011-2013				
		Water Supply Engineering	Sanitary Engineering	Urban Water Engineering & Management		
1	5	Research methodology and GIS		Watershed hydrology, Drinking water treatment, Waste water treatment and Integrated water resource management (AIT)		
2	5	Hydrology, water chemistry and modelling				
3	5	Microbiology, EPT, demography and public health				
4	5	Integrated urban water management				
5	5	Conventional water treatment	Urban drainage and sewerage			
6	5	Groundwater treatment & resources	Biological waste water treatment	Institutional analysis		
7	5	Advanced water treatment	Resource oriented sanitation	Integrated asset management systems		
8	5	Water transport and distribution I	Modeling of treatment processes and plants	Water transport and distribution I		
9	5	International fieldtrip and fieldwork				
10	5	Water treatment processes & plants	Industrial effluents treatment and residuals management	Water treatment processes and plants or Industrial effluents treatment and residuals management	Elective topics and Master work (AIT)	
11	5	Decentralised water supply and sanitation or Modelling urban drainage and sewerage or Water transport and distribution II				
12	5	Groupwork				
13	3	Research methodologies and skills				
14	7	Summer course / Master research proposal development				
15	36	Master thesis				

Appendix 6: Quantitative data regarding the programme

Table 1. Student numbers in the Municipal Water and Infrastructure programme per cohort over the last six years.

Cohort	Students	Failed/Stopped	Master degree	Completion rate
2005-2007	29	0	29	100%
2006-2008	42	0	42	100%
2007-2009	38	0	38	100%
2008-2010	35	0	35	100%
2009-2011	42	1	41	97.6%
2010-2012	35	3	26*	74.3%

*as of end of May 2012

Table 2. Staff input and teacher-student ratio achieved in Master degree programme Municipal Water and Infrastructure

Academic year	Programme part	FTE input	Student/FTE
2010-2012	Taught part UNESCO-IHE staff	3.5	10.3
2010-2012	Master supervision	1.4	21.4

Table 3. Average contact hours within the Master degree programme Municipal Water and Infrastructure

Programme part	Contact hours
Average contact hours during the taught part	673 hours
Average contact hours per week	22 hours
Average contact hours per module	67 hours

Appendix 7: Documents studied by the committee during the visit

In addition to the information provided in the critical reflection and its annexes the committee investigated the following documents that were made available during the site visit:

- Overview of the curriculum, in relation to other Master programmes at UNESCO-IHE;
- Outline description of two modules [stating learning outcomes, teaching method(s), attainment targets, assessment methods, literature (mandatory/recommended), teacher and credits];
- Minutes of the Programme Committee 2011 and 2012;
- Examination Board meeting minutes 2011 and 2012;
- Staff satisfaction survey 2012;
- Information about the joint degree programme UWEM including cooperation agreement, management structure, joint education and examination regulations and the programme structure;
- Reports of audit visits to double and joint degree partners, including their accreditation status, CVs of academic staff teaching in the joint programme, facilities and quality assurance:
 - Asian Institute of Technology, Bangkok
 - Kwame Nkrumah University of Science and Technology, Ghana
 - Universidad del Valle, Colombia;
- Teaching and examination regulations;
- Programme Handbook 2011-2013;
- Preparation Guide and Practical Guide for students;
- Sample of Diploma and Diploma Supplement;
- Alumni Tracer Survey 2011.

The committee studied eight theses, which were selected at random by the project leader and the chair of the committee.

Integrated Urban Engineering (IUE) *	30852
Sanitary Engineering (SE)	146
	31321
	34118
Water Supply Engineering (WSE)	26120
	28675
	32366
Urban Water Engineering and Management (UWEM)	31236

*For this specialisation the last students were enrolled in the 2009-2011 academic year.

Appendix 8: Programme structure UWEM

Composition of the Joint Master programme in Urban Water Engineering and Management

AIT	
Watershed Hydrology	7.5 EC
Drinking Water Treatment	7.5 EC
Wastewater Treatment	7.5 EC
Integrated Water Resources Management	7.5 EC
UNESCO-IHE	
Urban Drainage and Sewerage	5 EC
Water Sector and Utility Management	5 EC
Asset Management	5 EC
Water Transport and Distribution	5 EC
Urban Flood Management and Disaster Risk Mitigation	5 EC
International Fieldtrip and Fieldwork	5 EC
Elective	5 EC
Master's thesis proposal preparation	7 EC
AIT	
Master's thesis work	48 EC
Total	120 EC

Appendix 9: Declarations of independence



DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY

TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME

THE UNDERSIGNED A. VAN DER BEKEN
F. Laurentplein 45
9000 GENT

NAME _____

HOME ADDRESS: _____

HAS BEEN ASKED TO ASSESS THE FOLLOWING PROGRAMME AS AN EXPERT / SECRETARY:

UNESCO - IHE

APPLICATION SUBMITTED BY THE FOLLOWING INSTITUTION:

HEREBY CERTIFIES TO NOT MAINTAINING ANY (FAMILY) CONNECTIONS OR TIES OF A PERSONAL NATURE OR AS A RESEARCHER / TEACHER, PROFESSIONAL OR CONSULTANT WITH THE ABOVE INSTITUTION, WHICH COULD AFFECT A FULLY INDEPENDENT JUDGEMENT REGARDING THE QUALITY OF THE PROGRAMME IN EITHER A POSITIVE OR A NEGATIVE SENSE;



HEREBY CERTIFIES TO NOT HAVING MAINTAINED SUCH CONNECTIONS OR TIES WITH THE INSTITUTION DURING THE PAST FIVE YEARS;

CERTIFIES TO OBSERVING STRICT CONFIDENTIALITY WITH REGARD TO ALL THAT HAS COME AND WILL COME TO HIS/HER NOTICE IN CONNECTION WITH THE ASSESSMENT, INSOFAR AS SUCH CONFIDENTIALITY CAN REASONABLY BE CLAIMED BY THE PROGRAMME, THE INSTITUTION OR NVAIO.

HEREBY CERTIFIES TO BEING ACQUAINTED WITH THE NVAIO CODE OF CONDUCT.

PLACE: GENT DATE: 26 APRIL 2012

SIGNATURE: [Signature]
A. VAN DER BEKEN
F. Laurentplein 45
9000 GENT



DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY

TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME

THE UNDERSIGNED
 NAME: Richa Kfir

HOME ADDRESS: 97 Verbenia dr
Lynwood Lodge, Helenia coast
South Africa

HAS BEEN ASKED TO ASSESS THE FOLLOWING PROGRAMME AS AN EXPERT / SECRETARY:

Four Master degree programmes at UNESCO-IHE
Institute for Water Education

APPLICATION SUBMITTED BY THE FOLLOWING INSTITUTION:

QANU - Quality Assurance Netherlands Unversite

HEREBY CERTIFIES TO NOT MAINTAINING ANY (FAMILY) CONNECTIONS OR TIES OF A PERSONAL NATURE OR AS A RESEARCHER / TEACHER, PROFESSIONAL OR CONSULTANT WITH THE ABOVE INSTITUTION, WHICH COULD AFFECT A FULLY INDEPENDENT JUDGEMENT REGARDING THE QUALITY OF THE PROGRAMME IN EITHER A POSITIVE OR A NEGATIVE SENSE;



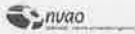
HEREBY CERTIFIES TO NOT HAVING MAINTAINED SUCH CONNECTIONS OR TIES WITH THE INSTITUTION DURING THE PAST FIVE YEARS;

CERTIFIES TO OBSERVING STRICT CONFIDENTIALITY WITH REGARD TO ALL THAT HAS COME AND WILL COME TO HIS/HER NOTICE IN CONNECTION WITH THE ASSESSMENT, INSOFAR AS SUCH CONFIDENTIALITY CAN REASONABLY BE CLAIMED BY THE PROGRAMME, THE INSTITUTION OR NVAIO.

HEREBY CERTIFIES TO BEING ACQUAINTED WITH THE NVAIO CODE OF CONDUCT.

PLACE: Pretoria, South Africa DATE: 26-04-2012

SIGNATURE: [Signature]



DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY
TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME

THE UNDERSIGNED

NAME: Prof. Dr. Janos BOGARDI

HOME ADDRESS: Boeg Str. 14, 52474 Bad Nauahr,
Aachen, Germany.

HAS BEEN ASKED TO ASSESS THE FOLLOWING PROGRAMME AS AN EXPERT / SECRETARY:

Dayre Programmes of UNESCO-IHE Institute for
Water Education, Delft, the Netherlands

APPLICATION SUBMITTED BY THE FOLLOWING INSTITUTION:

QANU

HEREBY CERTIFIES TO NOT MAINTAINING ANY (FAMILY) CONNECTIONS OR TIES OF A PERSONAL NATURE OR AS A RESEARCHER / TEACHER, PROFESSIONAL OR CONSULTANT WITH THE ABOVE INSTITUTION, WHICH COULD AFFECT A FULLY INDEPENDENT JUDGEMENT REGARDING THE QUALITY OF THE PROGRAMME IN EITHER A POSITIVE OR A NEGATIVE SENSE;



HEREBY CERTIFIES TO NOT HAVING MAINTAINED SUCH CONNECTIONS OR TIES WITH THE INSTITUTION DURING THE PAST FIVE YEARS.

CERTIFIES TO OBSERVING STRICT CONFIDENTIALITY WITH REGARD TO ALL THAT HAS COME AND WILL COME TO HIS/HER NOTICE IN CONNECTION WITH THE ASSESSMENT, INsofar AS SUCH CONFIDENTIALITY CAN REASONABLY BE CLAIMED BY THE PROGRAMME, THE INSTITUTION OR NVAO.

HEREBY CERTIFIES TO BEING ACQUAINTED WITH THE NVAO CODE OF CONDUCT.

PLACE: Bad Nauahr DATE: 26 April 2012

SIGNATURE: [Signature]

Q 387



DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY
TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME

THE UNDERSIGNED

NAME: DIPAK GYAWALI

HOME ADDRESS: 1 KOTHULACHHI, PATAN DHOKA,
LALITPUR-21, GPO Box 3371, KATHMANDU
NEPAL

HAS BEEN ASKED TO ASSESS THE FOLLOWING PROGRAMME AS AN EXPERT / SECRETARY:

UNESCO-IHE INSTITUTE FOR WATER
EDUCATION

APPLICATION SUBMITTED BY THE FOLLOWING INSTITUTION:

QANU

HEREBY CERTIFIES TO NOT MAINTAINING ANY (FAMILY) CONNECTIONS OR TIES OF A PERSONAL NATURE OR AS A RESEARCHER / TEACHER, PROFESSIONAL OR CONSULTANT WITH THE ABOVE INSTITUTION, WHICH COULD AFFECT A FULLY INDEPENDENT JUDGEMENT REGARDING THE QUALITY OF THE PROGRAMME IN EITHER A POSITIVE OR A NEGATIVE SENSE;



HEREBY CERTIFIES TO NOT HAVING MAINTAINED SUCH CONNECTIONS OR TIES WITH THE INSTITUTION DURING THE PAST FIVE YEARS.

CERTIFIES TO OBSERVING STRICT CONFIDENTIALITY WITH REGARD TO ALL THAT HAS COME AND WILL COME TO HIS/HER NOTICE IN CONNECTION WITH THE ASSESSMENT, INsofar AS SUCH CONFIDENTIALITY CAN REASONABLY BE CLAIMED BY THE PROGRAMME, THE INSTITUTION OR NVAO.

HEREBY CERTIFIES TO BEING ACQUAINTED WITH THE NVAO CODE OF CONDUCT.

PLACE: KATHMANDU DATE: 14 Sept. 2012

SIGNATURE: Dipak Gyawali



DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY
TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME
THE UNDERSIGNED

NAME: Grietje Zeeman

HOME ADDRESS: Geerjesweg 108, 6706EE Wageningen, The Netherlands

HAS BEEN ASKED TO ASSESS THE FOLLOWING PROGRAMME AS AN EXPERT /
The four MSc programmes of UNESCO-IHE

APPLICATION SUBMITTED BY THE FOLLOWING INSTITUTION:
QANU

HEREBY CERTIFIES TO NOT MAINTAINING ANY (FAMILY) CONNECTIONS OR TIES
OF A PERSONAL NATURE OR AS A RESEARCHER / TEACHER, PROFESSIONAL OR
CONSULTANT WITH THE ABOVE INSTITUTION, WHICH COULD AFFECT A FULLY
INDEPENDENT JUDGEMENT REGARDING THE QUALITY OF THE PROGRAMME IN
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WITH THE INSTITUTION DURING THE PAST FIVE YEARS.

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THAT HAS COME AND WILL COME TO HIS/HER NOTICE IN CONNECTION WITH
THE ASSESSMENT, INsofar AS SUCH CONFIDENTIALITY CAN REASONABLY BE
CLAIMED BY THE PROGRAMME, THE INSTITUTION OR NVAO.

HEREBY CERTIFIES TO BEING ACQUAINTED WITH THE NVAO CODE OF
CONDUCT

PLACE: Wageningen

DATE: 13-11-2012

SIGNATURE:

00369



DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY
TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME

THE UNDERSIGNED

NAME:
Franco Erasse

HOME ADDRESS:
L. V. de Koning
7411 RD Delft

HAS BEEN ASKED TO ASSESS THE FOLLOWING PROGRAMME AS AN EXPERT /
SECRETARY:

4 MSc's Unesco-IHE

APPLICATION SUBMITTED BY THE FOLLOWING INSTITUTION:

Unesco-IHE

HEREBY CERTIFIES TO NOT MAINTAINING ANY (FAMILY) CONNECTIONS OR TIES
OF A PERSONAL NATURE OR AS A RESEARCHER / TEACHER, PROFESSIONAL OR
CONSULTANT WITH THE ABOVE INSTITUTION, WHICH COULD AFFECT A FULLY
INDEPENDENT JUDGEMENT REGARDING THE QUALITY OF THE PROGRAMME IN
EITHER A POSITIVE OR A NEGATIVE SENSE.



HEREBY CERTIFIES TO NOT HAVING MAINTAINED SUCH CONNECTIONS OR TIES
WITH THE INSTITUTION DURING THE PAST FIVE YEARS.

CERTIFIES TO OBSERVING STRICT CONFIDENTIALITY WITH REGARD TO ALL
THAT HAS COME AND WILL COME TO HIS/HER NOTICE IN CONNECTION WITH
THE ASSESSMENT, INsofar AS SUCH CONFIDENTIALITY CAN REASONABLY BE
CLAIMED BY THE PROGRAMME, THE INSTITUTION OR NVAO.

HEREBY CERTIFIES TO BEING ACQUAINTED WITH THE NVAO CODE OF
CONDUCT

PLACE:

DATE:

SIGNATURE:

Q307



ONAFHANKELIJKHEIDS- EN GEHEIMHOUDINGSVERKLARING
INDIENEN VOORAFGAAND AAN DE OPLEIDINGSBEOORDELING

ONDERGETEKENDE

NAAM Marianne van der Vlist

PRIVÉ ADRES: Honderdalen 6a
3581 TJ Utrecht

IS ALS DESKUNDIGE / SECRETARIS GEVRAAGD VOOR HET BEOORDELEN VAN DE OPLEIDING:

UNESCO-IHE

AANGEVRAAGD DOOR DE INSTELLING

QANU

VERKLAART HIERBIJ GEEN (FAMILIE)RELATIES OF BANDEN MET BOVENGENOEMDE INSTELLING TE ONDERHOUDEN, ALS PRIVÉPERSOON, ONDERZOEKER / DOCENT, BEROEPSBEOEFENAAR OF ALS ADVISEUR, DIE EEN VOLSTREKT ONAFHANKELIJKE OORDEELSVORMING OVER DE KWALITEIT VAN DE OPLEIDING TEN POSITIEVE OF TEN NEGATIEVE Zouden KUNNEN BEÏNVLOEDEN;



VERKLAART HIERBIJ ZODANIGE RELATIES OF BANDEN MET DE INSTELLING DE AFGELOPEN VIJF JAAR NIET GEHAD TE HEBBEN;

VERKLAART STRIKTE GEHEIMHOUDING TE BETRACHTEN VAN AL HETGEEN IN VERBAND MET DE BEOORDELING AAN HEM/HAAR BEKEND IS GEWORDEN EN WORDT, VOOR ZOVER DE OPLEIDING, DE INSTELLING OF DE NVAO HIER REDELIJKERWIJS AANSPRAAK OP KUNNEN MAKEN

VERKLAART HIERBIJ OP DE HOOGTE TE ZIJN VAN DE NVAO GEDRAGSCODE

PLAATS: Utrecht DATUM: 14-9-2012

HANDTEKENING:



ONAFHANKELIJKHEIDS- EN GEHEIMHOUDINGSVERKLARING
INDIENEN VOORAFGAAND AAN DE OPLEIDINGSBEOORDELING

ONDERGETEKENDE

NAAM Adrienne Krijdsma-van Huijzer

PRIVÉ ADRES: Lupiter 116
1188 GJ Amstelveen

IS ALS DESKUNDIGE / SECRETARIS GEVRAAGD VOOR HET BEOORDELEN VAN DE OPLEIDING:

4 monderopleidingen UNESCO-IHE

AANGEVRAAGD DOOR DE INSTELLING

UNESCO-IHE

VERKLAART HIERBIJ GEEN (FAMILIE)RELATIES OF BANDEN MET BOVENGENOEMDE INSTELLING TE ONDERHOUDEN ALS PRIVÉPERSOON, ONDERZOEKER / DOCENT, BEROEPSBEOEFENAAR OF ALS ADVISEUR, DIE EEN VOLSTREKT ONAFHANKELIJKE OORDEELSVORMING OVER DE KWALITEIT VAN DE OPLEIDING TEN POSITIEVE OF TEN NEGATIEVE Zouden KUNNEN BEÏNVLOEDEN



VERKLAART HIERBIJ ZODANIGE RELATIES OF BANDEN MET DE INSTELLING DE AFGELOPEN VIJF JAAR NIET GEHAD TE HEBBEN;

VERKLAART STRIKTE GEHEIMHOUDING TE BETRACHTEN VAN AL HETGEEN IN VERBAND MET DE BEOORDELING AAN HEM/HAAR BEKEND IS GEWORDEN EN WORDT, VOOR ZOVER DE OPLEIDING, DE INSTELLING OF DE NVAO HIER REDELIJKERWIJS AANSPRAAK OP KUNNEN MAKEN

VERKLAART HIERBIJ OP DE HOOGTE TE ZIJN VAN DE NVAO GEDRAGSCODE

PLAATS Amstelveen DATUM 2-9-2012

HANDTEKENING:

Appendix 10: List of abbreviations

AIT	Asian Institute of Technology, Bangkok
BOKU	Universität für Bodenkultur, Austria
EC	European Credit
EPM	Environmental Planning & Management
ES	Environmental Science
EST	Environmental Science and Technology
ETSuD	Environmental Technologies for Sustainable Development
FRM	Flood Risk Management
fte	full-time equivalent
HECEPD	Hydraulic Engineering Coastal Engineering and Port Development
HELWD	Hydraulic Engineering Land and Water Development
HERBD	Hydraulic Engineering River Basin Development
HI	Hydroinformatics
HWR	Hydrology and Water Resources
ICT Prague	Institute of Chemical Technology Prague
IMETE	International Masters in Environmental Technology and Engineering
IWRM	Integrated Water Resources Management
KNUST	Kwame Nkrumah University of Science and Technology, Ghana
LWE	Limnology and Wetland Ecosystems
LWM	Limnology and Wetland Management
Master	Master of Science
MWI	Municipal Water and Infrastructure
NVAO	Nederlands-Vlaamse Accreditatie Organisatie (Accreditation Organisation of the Netherlands and Flanders)
QANU	Quality Assurance Netherlands Universities
SE	Sanitary Engineering
UniValle	Universidad del Valle, Colombia
UWEM	Urban Water Engineering and Management
WCM	Water Conflict Management
WM	Water Management
WQM	Water Quality Management
WRM	Water Resources Management
WSE	Water Science and Engineering
WSE	Water Supply Engineering

Annex to UNESCO-IHE letter with reference EB-009-BFA dated 20 December 2012.

Information in support of the application for the conversion of

URBAN WATER ENGINEERING AND MANAGEMENT (UWEM)

**into a joint degree under the UNESCO-IHE Municipal Water and Infrastructure
Programme**

Administrative data

Institutions

Dutch institution name	UNESCO-IHE Institute for Water Education
Location	Delft, The Netherlands
Foreign institution name	Asian Institute of Technology (AIT)
Location	Bangkok, Thailand
Outcome of the institutional quality assurance assessment	Not yet available, institutional accreditation planned for 2013

Programme

Name of the programme in CROHO	Municipal Water and Infrastructure
CROHO registration number	75009
New name of the programme	Urban Water and Sanitation
Orientation of the programme	Academic orientation
Level of the programme	Master of Science
Number of credits	120 ECTS
Joint specialization name	Urban Water Engineering and Management (UWEM)
Current status	Double degree specialization
Conversion to	Joint degree specialization
Location	Delft, The Netherlands and Bangkok, Thailand
Mode of study	Full time

Foreign partners and accreditation decisions

UWEM is delivered together with the Asian Institute of Technology (AIT), Bangkok, Thailand. AIT is international organisation established in 1959 whose Charter (annex1), which has been signed by 12 national governments gives it the right to award higher degrees. As international organisation AIT is not subject to the Thai higher education regime.

Cooperation agreement

The UWEM consortium agreement is given in annex 2

Exam regulations

The UWEM joint degree exam regulations are given in annex 3.

ANNEX 1

Charter of the Asian Institute of Technology

Preamble

The Contracting Parties to this Charter,

Recognizing that international cooperation in Asia on human resource development and research and development in such areas as science and technology as well as development assistance has made a major contribution to promoting the close and friendly relations, economic and social development and stabilization in Asia;

Recalling that the Asian Institute of Technology, which was originally founded in 1959 as the Graduate School of Engineering and obtained its name in 1966, has contributed substantially to the international cooperation mentioned above through provision of excellent international postgraduate education, professional training and research; and

Desiring to promote international cooperation and academic achievements in the above-mentioned areas;

Have agreed as follows:

Article 1 ESTABLISHMENT

1. The Asian Institute of Technology (hereinafter referred to as "the AIT"), is hereby established as an international organization, which shall be non-profit making, autonomous and non-political in character.
2. The Headquarters of the AIT shall be located in the Kingdom of Thailand (hereinafter referred to as "Thailand").
3. The AIT may establish campuses and centers outside Thailand as may be appropriate for the implementation of its objectives and activities.
4. The main working language for the purposes of instruction, administration and business records of the AIT shall be English; however, all relevant languages may be used, as practicable for the purposes of communication and dissemination of information to the public.



Article 2
MEMBERSHIP

Membership in the AIT shall be open to all States and international organizations which associate themselves with the objectives of the AIT.

Article 3
OBJECTIVES AND ACTIVITIES

1. The objectives and activities of the AIT shall be:

- (i) to administer institutes of higher learning in engineering, science, management, development and related fields, including colleges, schools, departments, and research organizations affiliated therewith;
- (ii) to educate and nurture qualified individuals in order for them to become regional and global leaders;
- (iii) to create and advance intellectual capital through research and development in correspondence with the changing needs of academic, technological, social and economic development;
- (iv) to develop, gather and disseminate competitive knowledge in response to regional needs, as driven by the knowledge-based economy;
- (v) to conduct outreach activities and provide professional training and continuing education;
- (vi) to award certificates, diplomas and degrees;
- (vii) to engage and participate in consultancy projects;
- (viii) to collaborate with other national, regional and international partners in order to implement the objectives and activities of the AIT;
- (ix) to participate in other activities as deemed necessary for higher learning, development and outreach activities; and
- (x) to carry out other activities to be mutually agreed upon among Members.

2. The activities of the AIT may be conducted worldwide as may be appropriate for the implementation of its objectives.

Article 4
RECOGNITION OF ACADEMIC PROGRAMS

The AIT may request Members to facilitate, to the extent consistent with their respective national laws and regulations, the recognition of the AIT's academic programs by universities or other institutions for higher learning.



Article 5
ORGANIZATION

The principal organs of the AIT shall consist of a Council, an Executive Committee and a Secretariat.

Article 6
COUNCIL

1. The Council shall be composed of a representative from each Member. The President of the AIT, or a deputy designated by him/her, shall participate, without the right to vote, in all meetings of the Council. Representatives of non-Members and any other interested persons may be invited, where the Council deems it appropriate, to participate in meetings of the Council in the capacity of observers without the right to vote.

2. The Council shall be the supreme organ of the AIT and exercise, in addition to the powers and functions specified in other provisions of this Charter, the powers and functions:

- (i) to approve the strategic plan of the AIT and to monitor progress on its implementation;
- (ii) to approve the annual operational plan of the AIT and to monitor progress on its implementation;
- (iii) to approve the annual budget of the AIT and to monitor progress on its implementation;
- (iv) to approve the annual report on the operation of the AIT;
- (v) to appoint the President of the AIT;
- (vi) to approve the rules and regulations of trust funds and other funds;
- (vii) to adopt, and amend as necessary, the Bye-Laws;
- (viii) to approve the Headquarters Agreement and other agreements referred to in Article 10;
- (ix) to consider and adopt amendments to this Charter; and
- (x) to approve or decide on other matters necessary for the implementation of the objectives and activities of the AIT.

3. At its annual meeting, the Council shall designate its Chairperson and Vice-Chairperson among the representatives of the Members, who shall hold office until the designation of the next Chairperson and Vice-Chairperson at the next annual meeting.

4. The Bye-Laws shall be adopted and the President of the AIT shall be appointed at the first meeting of the Council.

5. The Council shall hold an annual meeting and such other meetings as may be decided by the Council or called by the Chairperson of the Council whenever requested by one-third of the Members.

6. At meetings of the Council, two-thirds of the representatives of the Members shall constitute a quorum. Decisions of the Council shall be taken by a simple majority of those representatives of the Members voting except that a three-fourths majority of those representatives of the Members voting shall be required for action in pursuance of subparagraphs 2 (i) to (ix). Further details of rules and procedures for the decision-making of the Council shall be stipulated in the Bye-Laws.



Article 7
EXECUTIVE COMMITTEE

The Council shall appoint an Executive Committee which shall exercise those powers and functions delegated to it by the Council as specified in the Bye-Laws.

Article 8
PRESIDENT, SECRETARIAT, OFFICER, FACULTY AND STAFF

1. The term of office of the President of the AIT shall be four years and the President may be reappointed for only one further term. The detailed procedure of appointment of the President shall be stipulated in the Bye-Laws.
2. The President of the AIT, as the chief executive of the AIT, who is responsible to the Council, shall:
 - (i) represent the AIT;
 - (ii) ensure that the AIT implements its objectives and activities specified in paragraph 1 of Article 3; and
 - (iii) act as the head of the Secretariat.
3. The Secretariat shall:
 - (i) consist of the President, officers, faculty and staff;
 - (ii) carry out the general affairs of the AIT, under the direction of the Council as the case may be, in accordance with this Charter and the Bye-Laws;
 - (iii) implement the decisions of the Council; and
 - (iv) prepare the meetings of the Council and the Executive Committee.
4. Senior officers shall be appointed by the Council on the recommendation of the President of the AIT. The detailed procedures of the appointment of senior officers shall be stipulated in the Bye-Laws. Other officers, faculty and staff shall be appointed by the President of the AIT unless the Council decides otherwise.
5. In appointing the officers and staff, the President of the AIT shall, with a view to securing the highest standards of efficiency and technical competences, pay due regard to the recruitment of personnel on as wide a geographical basis as possible.
6. The terms and conditions of employment of officers, faculty and staff shall be set out in the Bye-Laws.
7. For the purposes of this Charter:
 - (i) "Officer" means an employee of the AIT involved in its administration;
 - (ii) "Faculty" means an employee of the AIT involved in teaching, research and other assigned work related to the activities of the AIT; and
 - (iii) "Staff" means an employee of the AIT involved in secretarial work, supportive work, services or other similar assigned work.



Article 9
STATUS AND POWERS

In its host countries, the AIT shall have legal personality and shall, in particular, have the capacity, in accordance with the respective national laws and regulations of the host countries:

- (i) to acquire and dispose of immovable and movable property;
- (ii) to contract; and
- (iii) to institute legal proceedings.

Article 10
RIGHTS, PRIVILEGES, AND IMMUNITIES

1. The AIT and its Secretariat members shall enjoy in the territory of Thailand such rights, privileges and immunities as shall be stipulated in a Headquarters Agreement, in so far as necessary for the implementation of the objectives and activities of the AIT. In concluding the Headquarters Agreement, Thailand shall not be obliged to accord all the rights, privileges and immunities referred to in the preceding sentence to Thai nationals or permanent residents residing in Thailand.
2. Other host countries of the AIT campuses and centers may grant comparable rights, privileges and immunities to the extent necessary in support of the AIT's activities in such countries. These rights, privileges and immunities may be defined in the agreements between the AIT and the countries concerned or through other measures taken by these countries.

Article 11
FINANCE

1. Members of the AIT shall make every effort to provide support in money, kind and services, for further development of the AIT, on a voluntary basis, in accordance with their respective national laws and regulations and within the limits of their respective budgetary appropriation.
2. Trust funds and other funds may be established as necessary. Such trust funds and other funds, if established, shall be administered by the Secretariat.
3. The financial operations of the AIT shall be governed by internationally acceptable accounting standards to be adopted by the Council. The detailed regulations shall be stipulated in the Bye-Laws.
4. Each Member shall have the right to inspect the books and accounts of the AIT. The Council may specify the time and manner in which the books and accounts may be inspected by the Members.



5. A full financial audit of the operations of the AIT shall be conducted on an annual basis by an independent auditing firm appointed by the Council. Such audit reports shall be submitted to the Council for its approval.

Article 12
SETTLEMENT OF DISPUTE

Any dispute between Members arising out of the interpretation or application of this Charter shall be settled amicably through consultation or negotiation between them.

Article 13
AMENDMENT

1. Any Member may propose amendments to this Charter. A proposed amendment shall be communicated to the Chairperson of the Council who shall communicate it to the other Members at least six months in advance of the consideration by the Council.

2. Each amendment to this Charter adopted by the Council shall come into force for all Members on the date on which it is accepted by three-fourths of the Members, provided that those amendments which involve fundamental alterations in the objective and character of the AIT or create new obligations for the Members shall require subsequent acceptance of all Members before those amendments shall enter into force. Acceptance by the Members of amendments to this Charter shall be effected by the deposit of instruments of acceptance with the Government of Thailand as Depositary of this Charter.

Article 14
ENTRY INTO FORCE

1. This Charter shall be open for signature until one year after the date of the adoption and shall be subject to acceptance or approval by signatories.

2. This Charter shall enter into force six months after the date of deposit of the fifth instrument of acceptance or approval.

3. For each State and international organization that accepts or approves this Charter or accedes thereto after the deposit of the fifth instrument of acceptance or approval, its instrument of acceptance, approval or accession shall take effect: (a) if it is deposited during the six months period referred to in paragraph 2, on the date of entry into force of this Charter; and (b) if it is deposited thereafter, on the thirtieth day of its deposit.



Article 15
DEPOSITARY

1. The original of this Charter shall be deposited with the Government of Thailand, which shall send duly certified copies of this Charter to the signatories and acceding States and international organizations.
2. The Government of Thailand as Depositary of this Charter shall receive the instruments of acceptance, approval or accession, and shall promptly inform all signatories and acceding States and international organizations as well as the President of the AIT, of the date of deposit of each instrument of acceptance, approval or accession.

Article 16
WITHDRAWAL

1. Any Member may withdraw from this Charter by giving written notification of withdrawal to the Government of Thailand as Depositary of this Charter.
2. The Government of Thailand shall promptly inform all other Members and the President of the AIT of the receipt of the notification.
3. The withdrawal shall take effect six months after the date of receipt of the notification by the Government of Thailand.

Article 17
DISSOLUTION

1. Upon the initiative of more than a half of the representatives of the Members to the Council, the dissolution of the AIT may be proposed to the Council. The decision on dissolution of the AIT shall be taken by consensus at the Council.
2. On the basis of the decision of the Council, the necessary steps shall be taken by the Council for the dissolution of the AIT. These steps shall include establishment of a committee by the Council to advise the Council on the manner in which the assets and obligations of the AIT should be liquidated prior to the dissolution of the AIT.
3. The Council shall, at the appropriate stage, adopt a final declaration stating that on a specific date the AIT shall be deemed dissolved. The declaration shall be communicated by the Chairperson of the Council to the Members and to the Government of Thailand as Depositary of this Charter.



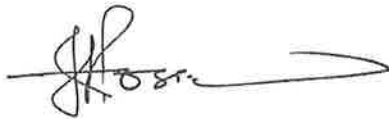
Article 18
TRANSITIONAL PROVISION

All rights and obligations which have been in effect on the AIT before the entry into force of this Charter, shall, to the extent that they are not inconsistent with the provisions of this Charter, remain valid.

IN WITNESS WHEREOF, the undersigned, being duly authorized thereto, have signed the present Charter.

Done at Bangkok, on this 25th day of August 2010 in a single original in the English language.

For the Government of the People's Republic of Bangladesh :



KAZI IMTIAZ HOSSAIN
Ambassador Extraordinary and Plenipotentiary
of the People's Republic of Bangladesh

For the Government of the Kingdom of Cambodia :



OUK SOPHOIN
Chargé d' Affaires a.i.
of the Royal Embassy of Cambodia



For the Government of the Republic of India :



PINAK RANJAN CHAKRAVARTY
Ambassador Extraordinary and Plenipotentiary
of the Republic of India

For the Government of Japan :



KYOJI KOMACHI
Ambassador Extraordinary and Plenipotentiary
of Japan

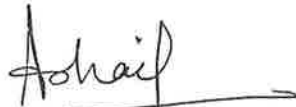
For the Government of the Federal Democratic Republic of Nepal :



NAVEEN PRAKASH JUNG SHAH
Ambassador Extraordinary and Plenipotentiary
of the Federal Democratic Republic of Nepal



For the Government of the Islamic Republic of Pakistan :



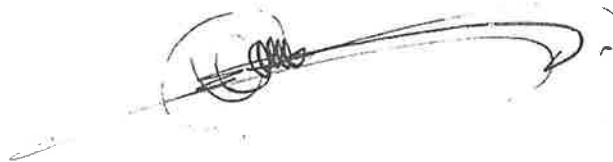
SOHAIL MAHMOOD
Ambassador Extraordinary and Plenipotentiary
of the Islamic Republic of Pakistan

For the Government of the Republic of the Philippines :



LINGLINGAY F. LACANLALE
Ambassador Extraordinary and Plenipotentiary
of the Republic of the Philippines

For the Government of the Republic of Seychelles :



PHILIPPE LE GALL
Ambassador Extraordinary and Plenipotentiary
of the Republic of Seychelles



For the Government of the Democratic Socialist Republic of Sri Lanka:



JAYARATNA BANDA DISANAYAKA
Ambassador Extraordinary and Plenipotentiary
of the Democratic Socialist Republic of Sri Lanka

For the Government of Sweden :



SVEN MALMBERG
Chargé d'Affaires a.i.
of the Embassy of Sweden

For the Government of the Democratic Republic of Timor-Leste :



JOAO FREITAS CAMARA
Ambassador Extraordinary and Plenipotentiary
of the Democratic Republic of Timor-Leste



For the Government of the Kingdom of Thailand :



KASIT PIROMYA

Minister of Foreign Affairs of the Kingdom of Thailand

For the United Nations Development Fund for Women (UNIFEM) East and Southeast Asia:



MONI PIZANI

Representative in Thailand and Regional Programme Director
of the United Nations Development Fund for Women (UNIFEM) East and Southeast Asia



Charter of the Asian Institute of Technology

Preamble

The Contracting Parties to this Charter,

Recognizing that international cooperation in Asia on human resource development and research and development in such areas as science and technology as well as development assistance has made a major contribution to promoting the close and friendly relations, economic and social development and stabilization in Asia;

Recalling that the Asian Institute of Technology, which was originally founded in 1959 as the Graduate School of Engineering and obtained its name in 1966, has contributed substantially to the international cooperation mentioned above through provision of excellent international postgraduate education, professional training and research; and

Desiring to promote international cooperation and academic achievements in the above-mentioned areas;

Have agreed as follows:

Article 1 ESTABLISHMENT

1. The Asian Institute of Technology (hereinafter referred to as "the AIT"), is hereby established as an international organization, which shall be non-profit making, autonomous and non-political in character.
2. The Headquarters of the AIT shall be located in the Kingdom of Thailand (hereinafter referred to as "Thailand").
3. The AIT may establish campuses and centers outside Thailand as may be appropriate for the implementation of its objectives and activities.
4. The main working language for the purposes of instruction, administration and business records of the AIT shall be English; however, all relevant languages may be used, as practicable for the purposes of communication and dissemination of information to the public.



Article 2
MEMBERSHIP

Membership in the AIT shall be open to all States and international organizations which associate themselves with the objectives of the AIT.

Article 3
OBJECTIVES AND ACTIVITIES

1. The objectives and activities of the AIT shall be:

- (i) to administer institutes of higher learning in engineering, science, management, development and related fields, including colleges, schools, departments, and research organizations affiliated therewith;
- (ii) to educate and nurture qualified individuals in order for them to become regional and global leaders;
- (iii) to create and advance intellectual capital through research and development in correspondence with the changing needs of academic, technological, social and economic development;
- (iv) to develop, gather and disseminate competitive knowledge in response to regional needs, as driven by the knowledge-based economy;
- (v) to conduct outreach activities and provide professional training and continuing education;
- (vi) to award certificates, diplomas and degrees;
- (vii) to engage and participate in consultancy projects;
- (viii) to collaborate with other national, regional and international partners in order to implement the objectives and activities of the AIT;
- (ix) to participate in other activities as deemed necessary for higher learning, development and outreach activities; and
- (x) to carry out other activities to be mutually agreed upon among Members.

2. The activities of the AIT may be conducted worldwide as may be appropriate for the implementation of its objectives.

Article 4
RECOGNITION OF ACADEMIC PROGRAMS

The AIT may request Members to facilitate, to the extent consistent with their respective national laws and regulations, the recognition of the AIT's academic programs by universities or other institutions for higher learning.



Article 5
ORGANIZATION

The principal organs of the AIT shall consist of a Council, an Executive Committee and a Secretariat.

Article 6
COUNCIL

1. The Council shall be composed of a representative from each Member. The President of the AIT, or a deputy designated by him/her, shall participate, without the right to vote, in all meetings of the Council. Representatives of non-Members and any other interested persons may be invited, where the Council deems it appropriate, to participate in meetings of the Council in the capacity of observers without the right to vote.

2. The Council shall be the supreme organ of the AIT and exercise, in addition to the powers and functions specified in other provisions of this Charter, the powers and functions:

- (i) to approve the strategic plan of the AIT and to monitor progress on its implementation;
- (ii) to approve the annual operational plan of the AIT and to monitor progress on its implementation;
- (iii) to approve the annual budget of the AIT and to monitor progress on its implementation;
- (iv) to approve the annual report on the operation of the AIT;
- (v) to appoint the President of the AIT;
- (vi) to approve the rules and regulations of trust funds and other funds;
- (vii) to adopt, and amend as necessary, the Bye-Laws;
- (viii) to approve the Headquarters Agreement and other agreements referred to in Article 10;
- (ix) to consider and adopt amendments to this Charter; and
- (x) to approve or decide on other matters necessary for the implementation of the objectives and activities of the AIT.

3. At its annual meeting, the Council shall designate its Chairperson and Vice-Chairperson among the representatives of the Members, who shall hold office until the designation of the next Chairperson and Vice-Chairperson at the next annual meeting.

4. The Bye-Laws shall be adopted and the President of the AIT shall be appointed at the first meeting of the Council.

5. The Council shall hold an annual meeting and such other meetings as may be decided by the Council or called by the Chairperson of the Council whenever requested by one-third of the Members.

6. At meetings of the Council, two-thirds of the representatives of the Members shall constitute a quorum. Decisions of the Council shall be taken by a simple majority of those representatives of the Members voting except that a three-fourths majority of those representatives of the Members voting shall be required for action in pursuance of subparagraphs 2 (i) to (ix). Further details of rules and procedures for the decision-making of the Council shall be stipulated in the Bye-Laws.



Article 7
EXECUTIVE COMMITTEE

The Council shall appoint an Executive Committee which shall exercise those powers and functions delegated to it by the Council as specified in the Bye-Laws.

Article 8
PRESIDENT, SECRETARIAT, OFFICER, FACULTY AND STAFF

1. The term of office of the President of the AIT shall be four years and the President may be reappointed for only one further term. The detailed procedure of appointment of the President shall be stipulated in the Bye-Laws.
2. The President of the AIT, as the chief executive of the AIT, who is responsible to the Council, shall:
 - (i) represent the AIT;
 - (ii) ensure that the AIT implements its objectives and activities specified in paragraph 1 of Article 3; and
 - (iii) act as the head of the Secretariat.
3. The Secretariat shall:
 - (i) consist of the President, officers, faculty and staff;
 - (ii) carry out the general affairs of the AIT, under the direction of the Council as the case may be, in accordance with this Charter and the Bye-Laws;
 - (iii) implement the decisions of the Council; and
 - (iv) prepare the meetings of the Council and the Executive Committee.
4. Senior officers shall be appointed by the Council on the recommendation of the President of the AIT. The detailed procedures of the appointment of senior officers shall be stipulated in the Bye-Laws. Other officers, faculty and staff shall be appointed by the President of the AIT unless the Council decides otherwise.
5. In appointing the officers and staff, the President of the AIT shall, with a view to securing the highest standards of efficiency and technical competences, pay due regard to the recruitment of personnel on as wide a geographical basis as possible.
6. The terms and conditions of employment of officers, faculty and staff shall be set out in the Bye-Laws.
7. For the purposes of this Charter:
 - (i) "Officer" means an employee of the AIT involved in its administration;
 - (ii) "Faculty" means an employee of the AIT involved in teaching, research and other assigned work related to the activities of the AIT; and
 - (iii) "Staff" means an employee of the AIT involved in secretarial work, supportive work, services or other similar assigned work.



Article 9
STATUS AND POWERS

In its host countries, the AIT shall have legal personality and shall, in particular, have the capacity, in accordance with the respective national laws and regulations of the host countries:

- (i) to acquire and dispose of immovable and movable property;
- (ii) to contract; and
- (iii) to institute legal proceedings.

Article 10
RIGHTS, PRIVILEGES, AND IMMUNITIES

1. The AIT and its Secretariat members shall enjoy in the territory of Thailand such rights, privileges and immunities as shall be stipulated in a Headquarters Agreement, in so far as necessary for the implementation of the objectives and activities of the AIT. In concluding the Headquarters Agreement, Thailand shall not be obliged to accord all the rights, privileges and immunities referred to in the preceding sentence to Thai nationals or permanent residents residing in Thailand.

2. Other host countries of the AIT campuses and centers may grant comparable rights, privileges and immunities to the extent necessary in support of the AIT's activities in such countries. These rights, privileges and immunities may be defined in the agreements between the AIT and the countries concerned or through other measures taken by these countries.

Article 11
FINANCE

1. Members of the AIT shall make every effort to provide support in money, kind and services, for further development of the AIT, on a voluntary basis, in accordance with their respective national laws and regulations and within the limits of their respective budgetary appropriation.

2. Trust funds and other funds may be established as necessary. Such trust funds and other funds, if established, shall be administered by the Secretariat.

3. The financial operations of the AIT shall be governed by internationally acceptable accounting standards to be adopted by the Council. The detailed regulations shall be stipulated in the Bye-Laws.

4. Each Member shall have the right to inspect the books and accounts of the AIT. The Council may specify the time and manner in which the books and accounts may be inspected by the Members.



5. A full financial audit of the operations of the AIT shall be conducted on an annual basis by an independent auditing firm appointed by the Council. Such audit reports shall be submitted to the Council for its approval.

Article 12
SETTLEMENT OF DISPUTE

Any dispute between Members arising out of the interpretation or application of this Charter shall be settled amicably through consultation or negotiation between them.

Article 13
AMENDMENT

1. Any Member may propose amendments to this Charter. A proposed amendment shall be communicated to the Chairperson of the Council who shall communicate it to the other Members at least six months in advance of the consideration by the Council.

2. Each amendment to this Charter adopted by the Council shall come into force for all Members on the date on which it is accepted by three-fourths of the Members, provided that those amendments which involve fundamental alterations in the objective and character of the AIT or create new obligations for the Members shall require subsequent acceptance of all Members before those amendments shall enter into force. Acceptance by the Members of amendments to this Charter shall be effected by the deposit of instruments of acceptance with the Government of Thailand as Depository of this Charter.

Article 14
ENTRY INTO FORCE

1. This Charter shall be open for signature until one year after the date of the adoption and shall be subject to acceptance or approval by signatories.

2. This Charter shall enter into force six months after the date of deposit of the fifth instrument of acceptance or approval.

3. For each State and international organization that accepts or approves this Charter or accedes thereto after the deposit of the fifth instrument of acceptance or approval, its instrument of acceptance, approval or accession shall take effect: (a) if it is deposited during the six months period referred to in paragraph 2, on the date of entry into force of this Charter; and (b) if it is deposited thereafter, on the thirtieth day of its deposit.



Article 15
DEPOSITARY

1. The original of this Charter shall be deposited with the Government of Thailand, which shall send duly certified copies of this Charter to the signatories and acceding States and international organizations.
2. The Government of Thailand as Depositary of this Charter shall receive the instruments of acceptance, approval or accession, and shall promptly inform all signatories and acceding States and international organizations as well as the President of the AIT, of the date of deposit of each instrument of acceptance, approval or accession.

Article 16
WITHDRAWAL

1. Any Member may withdraw from this Charter by giving written notification of withdrawal to the Government of Thailand as Depositary of this Charter.
2. The Government of Thailand shall promptly inform all other Members and the President of the AIT of the receipt of the notification.
3. The withdrawal shall take effect six months after the date of receipt of the notification by the Government of Thailand.

Article 17
DISSOLUTION

1. Upon the initiative of more than a half of the representatives of the Members to the Council, the dissolution of the AIT may be proposed to the Council. The decision on dissolution of the AIT shall be taken by consensus at the Council.
2. On the basis of the decision of the Council, the necessary steps shall be taken by the Council for the dissolution of the AIT. These steps shall include establishment of a committee by the Council to advise the Council on the manner in which the assets and obligations of the AIT should be liquidated prior to the dissolution of the AIT.
3. The Council shall, at the appropriate stage, adopt a final declaration stating that on a specific date the AIT shall be deemed dissolved. The declaration shall be communicated by the Chairperson of the Council to the Members and to the Government of Thailand as Depositary of this Charter.



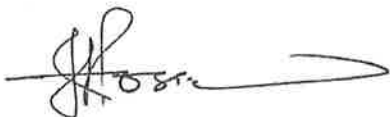
Article 18
TRANSITIONAL PROVISION

All rights and obligations which have been in effect on the AIT before the entry into force of this Charter, shall, to the extent that they are not inconsistent with the provisions of this Charter, remain valid.

IN WITNESS WHEREOF, the undersigned, being duly authorized thereto, have signed the present Charter.


Done at Bangkok, on this 25th day of August 2010 in a single original in the English language.

For the Government of the People's Republic of Bangladesh :



KAZI IMTIAZ HOSSAIN
Ambassador Extraordinary and Plenipotentiary
of the People's Republic of Bangladesh

For the Government of the Kingdom of Cambodia :



OUK SOPHOIN
Chargé d' Affaires a.i.
of the Royal Embassy of Cambodia



For the Government of the Republic of India :



PINAK RANJAN CHAKRAVARTY
Ambassador Extraordinary and Plenipotentiary
of the Republic of India

For the Government of Japan :



KYOJI KOMACHI
Ambassador Extraordinary and Plenipotentiary
of Japan

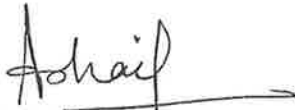
For the Government of the Federal Democratic Republic of Nepal :



NAVEEN PRAKASH JUNG SHAH
Ambassador Extraordinary and Plenipotentiary
of the Federal Democratic Republic of Nepal



For the Government of the Islamic Republic of Pakistan :



SOHAIL MAHMOOD

Ambassador Extraordinary and Plenipotentiary
of the Islamic Republic of Pakistan

For the Government of the Republic of the Philippines :



LINGLINGAY F. LACANLALE

Ambassador Extraordinary and Plenipotentiary
of the Republic of the Philippines

For the Government of the Republic of Seychelles :



PHILIPPE LE GALL

Ambassador Extraordinary and Plenipotentiary
of the Republic of Seychelles

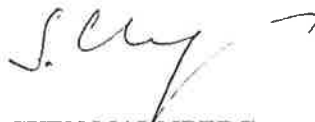


For the Government of the Democratic Socialist Republic of Sri Lanka:



JAYARATNA BANDA DISANAYAKA
Ambassador Extraordinary and Plenipotentiary
of the Democratic Socialist Republic of Sri Lanka

For the Government of Sweden :



SVEN MALMBERG
Chargé d'Affaires a.i.
of the Embassy of Sweden

For the Government of the Democratic Republic of Timor-Leste :



JOAO FREITAS CAMARA
Ambassador Extraordinary and Plenipotentiary
of the Democratic Republic of Timor-Leste



For the Government of the Kingdom of Thailand :



KASIT PIROMYA

Minister of Foreign Affairs of the Kingdom of Thailand

For the United Nations Development Fund for Women (UNIFEM) East and Southeast Asia:



MONI PIZANI

Representative in Thailand and Regional Programme Director
of the United Nations Development Fund for Women (UNIFEM) East and Southeast Asia



ANNEX 2

UNESCO-IHE
Institute for Water Education



AIT
Asian Institute of Technology

MEMORANDUM OF AGREEMENT

Urban Water Engineering and Management

URBAN WATER ENGINEERING AND MANAGEMENT

JOINT DEGREE COOPERATION AGREEMENT AIT - UNESCO-IHE

This Memorandum of Agreement is made on the 28th of November 2012.

BETWEEN UNESCO-IHE Institute for Water Education, located at Westvest 7, 2601 Delft, The Netherlands (hereinafter referred to as **UNESCO-IHE**)

AND The Asian Institute of Technology, located at Km 42, Paholyothin Highway, Klong Luang, Pathumthani 12120, Thailand (hereinafter referred to as **AIT**)

in order to implement part of the activities outlined in the Memorandum of Understanding (MoU) signed between UNESCO-IHE and AIT on 15 June 2007.

considering that **UNESCO-IHE** is an institute for education, training and research with a mission to strengthen capacities of people and institutions in developing countries and countries in transition for the sustainable management of their water and environmental resources,

considering that **AIT** is an international institute of higher learning. It is Asia's pioneer institution established in 1959 to help meet the region's growing needs for advanced learning in engineering, science, technology and management, research and capacity building. AIT's mission is to develop highly qualified and committed professionals who will play a leading role in the sustainable development of the region and its integration into the global economy. AIT is based in Thailand and has affiliated centers in other parts of the world. AIT is distinguished for having achieved the unique status of an International Organization.

considering that **AIT** and **UNESCO-IHE** have successfully delivered the double degree programme in Urban Water Engineering and Management since 2009

RECITALS

- A. The parties wish to transform their running double degree programme in Urban Water Engineering and Management (UWEM) into a joint degree programme of the same name. The program is to be delivered jointly by UNESCO-IHE and AIT.
- B. The Parties have agreed that this program will be conducted in accordance with the terms and conditions set out in this MoA.
- C. This MoA replaces the MoA signed on 14 December 2009, which expires on 13 December 2012.



The Parties agree as follows:

1. Definition and Interpretation

1.1 In this MoA, unless the context and subject matter otherwise require:

‘Memorandum of Understanding (MoU)’ means the general agreement document signed between UNESCO-IHE and AIT on 15 June 2007.

‘Memorandum of Agreement (MoA)’ means this document, the Technical and Academic Agreement for a Joint Master’s Degree Program in Urban Water Engineering and Management, to which the agreement to the terms and conditions is expressed by the signatories representing both Parties:

‘Party’ means either the UNESCO-IHE or AIT and **‘Parties’** means both UNESCO-IHE and AIT.

‘Prescribed Authority’ means the President of AIT or, for UNESCO-IHE, its Rector.

2 Duration, Termination and Amendment

2.1 This MoA will be effective from the date of signing by both parties up to a period of three (3) years up to the validity of the MoU whichever is earlier. It may be subject to extensions by mutual consent of the parties in writing within the validity of the MoU.

2.2 This MoA may be terminated by mutual consent or by either Party giving a written notice six (6) months in advance to the other Party.

2.3 Either Party may immediately terminate this MoA in the event the other Party is the subject of any of the following: bankruptcy, insolvency, appointment of receiver, winding up whether voluntary or compulsory (other than for the purpose of reconstruction).

2.4 The provisions of this MoA may be amended at any time with the mutual consent of the Parties in writing.

2.5 The amendment, termination and expiration of this MoA will not affect the terms of activities ongoing at the time of notification of amendment, termination, and expiration unless otherwise agreed upon between the parties.

A handwritten signature in black ink, appearing to be 'SIR', is located at the bottom right of the page.

3 Joint Degree Master's programme

- 3.1 Parties will jointly establish and deliver the joint Master's degree programme in Urban Water Engineering and Management ('Programme'). The Programme components are listed in the Programme's Education and Examination regulations (Annex A). This joint degree programme will replace the current double degree programme of the same name.
- 3.2 Changes to a programme need the approval of the parties, as appropriate.

4 Education and examination regulations

- 4.1 The Programme's Education and Examination regulations (Annex A) form an integral part of this agreement
- 4.2 Any changes to these regulations need the approval of the parties.

5 Programme start

- 5.1 The programme will commence annually, for the first time from August 2012.

6 Admission and registration

- 6.1 The admission criteria are an integral part of the Education and Examination Regulations of the programme.
- 6.2 Admission is granted to prospective students who meet the admission criteria and who can meet the full cost of the programme.
- 6.3 Students in the programme will be registered at each of the parties for the full duration of their studies.

7 Programme management

- 7.1 The programme will be managed by the Joint Management Committee ("JMC").
- 7.2 The JMC shall be established within one month after this agreement will have become operational
- 7.3 The JMC shall consist of four members, two from each party, and be chaired by the parties on a two-year rotational basis.

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- 7.4 Parties may replace their member(s) of the JMC at their discretion
- 7.5 JMC decisions shall be reached by consensus
- 7.6 The JMC shall set the overall direction of the programme and oversee its implementation. In particular, the JMC will:
- Oversee and coordinate the execution of the programme;
 - Annually discuss potential thesis research topics with individual students and facilitate the selection of appropriate topics;
 - Monitor students' progress
 - Monitor the quality of the programme, based on QA mechanisms, and propose quality improvement measures when appropriate
 - Ensure that the operational rules (see item 13) are established, and updated annually;
 - Ensure the marketing of the programme
 - Monitor the benefits of the Programme with a view to ensure that it meets the long term needs of the parties;
- 7.7 The JMC shall submit a programme report to the Parties within three months after completion of each programme.

8 MSc thesis research

- 8.1 Students will conduct their research, and sit for their thesis examination at AIT.
- 8.2 Students will be co-mentored by a UNESCO-IHE mentor.
- 8.3 UNESCO-IHE will be represented in the thesis examination committee of individual students.
- 8.4 Examined MSc theses shall carry the logo of each of the parties, and electronic copies of approved theses shall be forwarded to UNESCO-IHE.

9 Degrees

- 9.1 The parties will jointly confer the Master of Science degree on students certified to have met all the requirements for the degree.
- 9.2 The degree certificate and supplement thereto shall be issued to individual students by AIT upon successful completion of the programme and after receipt of a 'no objection' from the Examination Board of UNESCO-IHE.
- 9.3 The lay-out and text of the degree certificate and supplement thereto shall be agreed separately between the parties.



10 Quality assurance

10.1 Individual parties are responsible for the quality of the elements delivered by them.

11 Tuition fees

11.1 Each party will charge a percentage of its tuition fees to individual students, relative to its contribution to the programme as expressed in credits, being 55% for AIT and 45% for UNESCO-IHE.

12 Resources commitment

12.1 Each party will meet all costs associated with its share in teaching, guidance and research supervision.

12.2 Each party will provide adequate resources for the proper execution of the programme, and assist students in finding suitable accommodation and in obtaining the necessary visa/residence permits.

13 Operational rules

13.1 The operational arrangements of this joint programme, including but not limited to application and admission procedures, total cost estimates for students/sponsors, student mobility and fellowship administration, and the exchange of information on results/credits obtained by students, will be agreed between the parties separately. These arrangements will be evaluated and updated annually.

14 Marketing

14.1 Both AIT and UNESCO-IHE will market and promote this joint degree program.

15 Confidential Information

15.1 All information relating to this MoA and furnished by one Party to the other and marked 'Confidential' will be kept confidential by the receiving Party, and will not be disclosed to any third party except in carrying out the provisions of this MoA, and unless agreed in writing between the Parties.

15.2 The intellectual property rights of any teaching or research material jointly developed by the two parties will be jointly shared between the two parties and each party may use such material without asking the other party. However, the intellectual property of any teaching or research material developed for the program solely by one party will remain with that party, and the other party may use it only for the program. Should the other party want to use it for another purpose, it can only do so with prior consent of the first party.

16 Other Provisions

16.1 In as far as such rights will be granted to them by the authors, parties shall have equal rights to the dissemination and use of the Master theses produced by students in the joint degree programme, as well as of the information contained therein.

16.2 This MoA shall be governed and construed under the laws of the Kingdom of Thailand or The Netherlands, depending upon where parts of the program take place.

17 Disputes

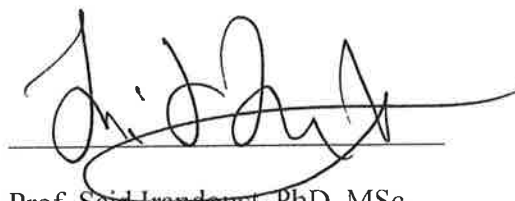
The parties will consult with each other and attempt to resolve disputes or misunderstandings that arise in the administration of this MoA informally.

This MoA is prepared in two identical copies. Each party holds one original copy duly signed by the President of AIT and the Rector of UNESCO – IHE.

Signed for and on behalf of:

UNESCO-IHE:

Asian Institute of Technology:



Prof. András Szöllösi-Nagy, DSc, PhD
Rector

Prof. Said Irandoust, PhD, MSc
President

ANNEX 3



Education and Examination Regulations 2012-2013

For the joint degree Master programme in

Urban Water Engineering and Management (UWEM)

Approved by
the Academic Board of UNESCO-IHE
Asian Institute of Technology

Table of Contents

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1 General Information

Article 1 Scope of the regulations

- 1.1 The present regulations apply to the education and examinations within the above mentioned master programme referred to hereafter as 'the programme'. The programme is executed by:
- UNESCO-IHE Institute for Water Education, Delft, the Netherlands,
 - Asian Institute of Technology
- Referred to hereafter as 'the parties'

Article 2 Definition of terms

2.1 The following terms are defined in the context of these regulations:

Module / course	a self-contained programme unit with specified learning objectives;
ECTS:	the European Credit Transfer and Accumulation System;
Examination:	an interim study performance assessment for a component of the programme;
Programme examination:	the formal evaluation of the student performance before graduation;
Student:	a person who is registered in the study programme and sits in the examinations.

2 Academic Admission Requirements

Article 3 Admission to the programme

- 3.1 Academic admission to the programme may be granted to applicants who provide evidence of having:
- a. a university level Bachelor's degree in relevant engineering or science area, and which has been awarded by a university of recognised standing.
a good command of the English language, if this is not the first language. This is measured by a minimum IELTS score of 6.0, a minimum paper-based TOEFL score of 550, a minimum computer-based (CBT) TOEFL score of 213 or a minimum internet test score (IBT) of 79. For other tests, the results will be interpreted to show alignment with the Council of Europe's Common European Framework (CEF) levels C1 or C2.
 - b. Some years of relevant working experience.

3 Content of the Programme

Article 4 Programme character

- 4.1 The programme is characterised as master programme in scientific education.

Article 5 Full-time/part-time

- 5.1 The programme is executed on a full-time basis.

Article 6 Study load of the programme

6.1 The studyload of the programme is 120 ECTS or 48 AIT credits

The two credit point systems will be equated as follows:
1 credit at AIT= 2.5 ECTS.

Article 7 Aim of the programme

7.1 The aim of the programmes is to convey to the students the knowledge, insight and skills that are required to function as independent professionals within the field of Urban Water Engineering and Management and to be appropriate candidates for further study towards a research career.

7.2 The qualifications of the programme graduates are listed in Appendix A.

Article 8 Composition of the programme

8.1 The composition of the programme is defined in Appendix B.

4 Examinations

Article 9 General Regulations

9.1 For individual curriculum elements (modules, courses, Master's thesis) of the programme offered by the parties the local education and examination regulations apply.

9.2 Examinations take place at the party where the module / course is offered.

9.3 Re-examinations can take place at the other party according to the exam regulations of the party responsible for the provision of the module/course.

9.4 The nature of the examinations for each module/ course is indicated in Appendix B, and is described separately in the module sheets.

Article 10 Assessment grading scales

10.1 The grading scheme used by the partners is presented in appendix C

Article 11 Study progress and study advice

11.1 All study results that are required for evaluating the performance of the students, are recorded by the parties.

5 Thesis Examination

Article 12 Location

12.1 The Master's thesis examination takes place at AIT.

12.2 The Master's thesis examination committee consist of members according to the regulations of AIT, including a member of UNESCO-IHE. Participation of the latter member

at the Master's thesis examination is preferable but not mandatory. Though not necessarily physically present, the committee member from UNESCO-IHE will comment on the thesis and will take part in the deliberations of the committee.

6 Academic degree

Article 13 Assessment of the programme examination

- 13.1 A student has fulfilled the requirements for the programme examination if (s)he has:
- . obtained a minimum of 48 AIT credits/120 ECTS credits, and
 - . obtained a minimum cumulative GPA of 2.75 for courses taken at AIT, and
 - . passed all examinations of modules taken at UNESCO-IHE, and
 - . has obtained a grade 'fair' or higher for his/her Master's thesis.
- 13.2 A student has successfully completed the programme examination when the AIT examination board takes a decision to that effect and a 'no objection' has been received from the examination board of UNESCO-IHE.

Article 14 Degree awarding

- 14.1 Students who have successfully completed the programme examination will be awarded the Master of Science degree in Urban Water Engineering and Management.

Article 15 Diploma and supplement

- 15.1 As evidence of successful completion of the programme examination, students will receive a degree certificate and supplement.
- 15.2 Apart from the name of the programme, the degree certificate and the degree supplement bear the logos and names of both parties.
- 15.3 The degree certificate is signed by the legal representatives of both parties awarding the degree.

Article 16 Programme certificate

- 17.1 Students who fail to meet the programme examination requirements, or who suspend or terminate their registration, will be issued a certificate stating the result achieved and credit points for each successfully completed component of the programme, and the period of registration.

7 Appeals

Article 17 Local regulations

- 17.1 Students can appeal to examination decisions (modules, courses, thesis) according to the regulations of the party where the alleged irregularity occurred.

8 Final Articles

Article 18 Amendments

18.1 Amendments to these regulations need to be approved by the competent bodies within each party.

18.2 No amendments shall be made in relation to the current academic year, unless there is reasonable expectation that the amendment will not work to the disadvantage of the students.

Article 19 Unforeseen situations

19.1 Situations which are not foreseen by the present regulations will be decided upon by the competent bodies of the parties.

Article 21 Period of application

21.1 These regulations take effect for the academic year 2012-2013.

Appendix a Qualifications of Graduates

Learning objectives Urban Water Engineering and Management

After successful completion of the programme graduates will be able to:

Subject knowledge and skills

1. understand the urban water cycle and its water system components, their characteristics and functioning within greater urban infrastructure systems;
2. understand urban water management problems including ability to: identify water systems' demand; deal with climatic and hydrologic uncertainties and/or extremes; institutional limitations; and work within a data-constrained environment;
3. make appropriate and critical use of methods, techniques and tools necessary to monitor, analyze and design urban water systems including: water supply infrastructure; drinking water treatment and distribution; wastewater collection, treatment, transport and disposal systems; drainage systems;
4. understand water infrastructure/asset planning, financing and management, and utility management;
5. understand the concept of integrated water resources management (IWRM) and its application to a variety of water management problems at the urban catchment scale;

Core academic skills

6. identify, articulate, analyse and solve problems of the urban water cycle and systems, integrating theory and applications;
7. collect, summarise, analyse and interpret technical data/materials in a structured form to gain knowledge on urban water system design and operation and maintenance;
8. critically recognize and assess the need for continued-education and research on planning, design, maintenance and management of urban water systems;
9. work with a range of information technology tools available for solving urban water management problems and for effectively communicating with fellow water managers, researchers, scientists, planners, and policy-makers;

Personal skills

10. better learn independently;
11. better report and present findings;
12. work with various IT hard- and software;
13. work independently or as part of a team;
14. manage time effectively.

Appendix B Composition of the Programmes

Location	Course/ Module	Course/Module Title	Credit (ECTS)	Assessment
AIT		Watershed Hydrology	3 (7.5)	Written exam, assignments
		Drinking Water Treatment	3 (7.5)	Written exam, assignments
		Wastewater Treatment	3 (7.5)	Written exam, assignments
		Integrated Water Resources Management	3 (7.5)	Written exam, assignments
U-IHE	4	Urban Drainage and Sewerage	2 (5.0)	Written exam, assignments
	5	Water Sector and Utility Management	2 (5.0)	Written exam, assignments
	6	Asset Management	2 (5.0)	Written exam, assignments
	7	Water Transport and Distribution	2 (5.0)	Written exam, assignments
	8	Urban Flood Management and Disaster Risk Mitigation	2 (5.0)	Written exam, assignments
	9	International Fieldtrip and Fieldwork	2 (5.0)	Active participation, written report
	10	Elective	2 (5.0)	Written exam, assignments
			Total Coursework	26 (65)
	Master's thesis proposal preparation		2.8 (7.0)	Written report, presentation
AIT	Master's thesis work		19.2 (48)	Written thesis report , oral examination
Grand total (coursework + thesis)			48 (120)	

Appendix C Grading schemes in the consortium

At AIT, the grade assigned to a student in each course, which he/she takes for credit, is based on a letter system. The letters, which are used, have the following definition and grade points for the calculation of grade point average (GPA):

Grade	Definition	Grade Points
A	<i>Excellent.</i> Thorough knowledge and mastery of concepts and/or techniques together with a high degree of skill and/or great originality in satisfying the requirements of a piece of work or course	4.00
B+	<i>Very Good.</i> Thorough knowledge and mastery of concepts and/or techniques together with a fairly high degree of skill in the use of those concepts and techniques in satisfying the requirements of a piece of work or course	3.50
B	<i>Good.</i> Good level of knowledge or mastery of concepts and/or techniques with a considerable skill in using them in satisfying the requirements of a piece of work or course	3.00
C+	<i>Near Competent.</i> Level of knowledge or mastery of concepts and/or techniques requires more efforts to satisfy the requirements of a piece of work or course.	2.50
C	<i>Deficient.</i> Level of knowledge or mastery of concepts and/or techniques requires intensive efforts to satisfy the requirements of a piece of work or course.	2.00
D	<i>Highly Deficient.</i> Knowledge or mastery of concepts and /or techniques and understanding of the subject matter unacceptably low.	1.00
F	<i>Failing.</i> Very poor with very limited knowledge or limited mastery and understanding of concepts and/or techniques; comprehension of the subject matter is very limited.	0
I	<i>Incomplete.</i> Course may be completed at a later time without prejudice.	-
Pass/ Fail	A "passing" grade refers to any grade above "1" and a "failing" grade refers to grade equal to "1" or below.	

A thesis, research study or project which is judged to be satisfactory shall be accorded one of the following grades:

Grade	Definition
Excellent	An excellent grade marks an exceptionally skillful and innovative piece of research. The work clearly and explicitly has significance in the respective field on a national and international level. The knowledge of previous research and theoretical discussion is comprehensive, the concepts relevant and derived skillfully from prior discourse in the respective field. Due to scientific or practical merits, the work could be published as such or as an abridged version in a scientific or - in case of a project - practitioner's journal or a similar reviewed publication in the field.

Very Good	Overall, the work indicates the author's independent, critical and innovative research method, ability to analyze theoretically substantial bodies of knowledge and problems or the skill to implement solutions to significant practical assignments. The research goals, concepts and terminology and research problems are well-determined and skillfully combined into a theoretical framework. The research methodology is well chosen and argued, and the gathering and analysis of material has been done with insight.
Good	The work demonstrates, while not on a high level, the author's ability to accurately conduct research or – in case of a project - prepare solutions to practical problems. The topic and approach chosen may be conventional. The methodical choices have been accounted for, if only narrowly. Theories and research results related to the research subject have been discussed, but on the whole the approach may be mechanical, merely listing the relevant research bases. The language range used may be limited.
Fair	The research work is acceptable but there are shortcomings on several aspects. Research goal and the terminology used may be unclear. The scientific or practical background may be either too narrow or badly delimited. Analysis of the material may be incomplete and the presentation of the results not fully convincing.

At UNESCO-IHE examination assessment results are represented on a scale of 1.0 to 10.0, with one decimal of accuracy. Marks 6.0 and higher indicate a successful result.

The following grading scale is used:

9.1-10	outstanding
8.6-9.0	very excellent
8.1-8.5	excellent
7.5-8.0	very good
7.0-7.4	good
6.0-6.9	sufficient
5.9- and below	insufficient – fail