



NVAO • NETHERLANDS

ADVISORY REPORT

Stichting IHE Delft

INSTITUTIONAL QUALITY ASSURANCE
ASSESSMENT

15 JANUARY 2020



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Contents

1	Summary advisory report	4
2	Introduction and justification	6
2.1	Purpose of the institutional audit	6
2.2	Composition of the audit panel	6
2.3	Procedure observed by the panel.....	7
2.3.1	General procedure observed by the panel	7
2.3.2	Procedure observed by the panel with regard to the audit trails	7
2.4	Structure of the advisory report and the chapters	8
3	Profile of the institution	9
3.1	General data	9
3.2	Profile of the institution.....	9
3.3	Key figures as from 1-1-2019.....	9
4	Assessment.....	10
4.1	Standard 1: Philosophy and policy.....	10
4.2	Standard 2: Implementation.....	14
4.3	Standard 3: Evaluation and monitoring	18
4.4	Standard 4: Development.....	22
4.5	Final conclusion	26
5	Recommendations	27
	Appendix 1: Accreditation portrait.....	29
	Appendix 2: Schedules of the site visits	32
	Appendix 3: Overview of the documents perused	36
	Appendix 4: List of abbreviations	38

1 Summary advisory report

The panel has established that IHE Delft has developed an explicit and broadly supported vision and a strategy to achieve this vision. This vision and strategy are laid down in a recent document: Strategy 2018-2023, Synergies and Partnerships to Address Water Challenges. The vision on education of IHE Delft is closely connected with the institute's mission. Education is one of the three pillars at IHE Delft to achieve its mission (the others being research and water projects). In the IHE Delft's vision on education document, six key values are laid down and explained as well. The panel furthermore has observed that the vision has been developed, discussed and shared with different groups of stakeholders. All stakeholders have had sufficient opportunity to make their views on the institute's vision heard.

As far as the strategy is concerned, the panel noticed that different programmes have varying views. The differences are most prominent between the more technical programmes and the more 'social science' programmes: the programmes have a different view on interdisciplinarity and the intended change in duration of the programmes from 18 months to a one-year and two-year programme. The panel found that the strategy is still being elaborated on and that there may be variations in its implementation. Furthermore, the panel believes that the way the strategy is explained and shared may need clarification. The panel therefore advises to explain and share the story behind the strategy in a more convincing and systematic way. The students could be involved in a more substantial way in further developing the strategy.

The panel has established that IHE Delft has an efficient governance structure on educational quality assurance. The two main governance bodies cover the entire range, from policy development down to implementation and operational monitoring. The Rectorate has direct access to the concerns and developments at programme level, and vice versa. The governance structure allows for both top-down and bottom-up development, monitoring and learning. The panel furthermore noted that quality assurance is a concern at all levels and that programmes are committed to assuring their own quality. Most important issues are covered by policy documents. Furthermore, the panel saw that policies are adapted and developed to accommodate the challenges the institute is facing.

Although interdisciplinarity is an important issue in the development of education within IHE, a clear policy in this respect is not yet developed. The panel accepts that programmes move at a different pace when it comes to interdisciplinarity. However, the panel believes that a strategy at the institutional level could help to develop the current good practices on interdisciplinarity to be accepted across programmes.

The panel has ascertained that the institute has a mature system in place for the quality assurance of all educational programmes. Evaluations are regularly held on all relevant levels and with the involvement of all relevant stakeholders. The evaluation programme is substantial, but it is not experienced as a burden, as a lot of paperwork is taken care of by the Education Bureau. Moreover, the panel has seen that evaluation at IHE Delft is a living system that is adapted when necessary. Evaluation at IHE Delft has a number of challenges, but the panel has seen that IHE Delft is well aware of these challenges and finds appropriate means of countering them.

The panel noticed that development of education is very much a part of IHE's educational agenda. This is shown both in the regular improvement of its existing educational programmes and in the development of new directions. The regular improvement of modules and programmes is based on evaluations by students, staff and external stakeholders and is carried out in a systematic way.

The panel saw that the discussions about shortening the programme duration are being held at all levels of the institute; the panel is positive about the openness with which the various options are discussed. The panel understands the strategy of the institute and believes that a more professionally oriented programme would be a good preparation for the labour market. The panel believes that IHE Delft should continue along the current path of gradual development and discussion, and ensuring the commitment of all parties involved. The panel advises to align the further development with the philosophy, the

strategy and the budget of IHE. This is true for e-learning and blended learning as well: although the panel is impressed by the initiatives in this field, future development of e-learning should be properly aligned with the strategy and the philosophy of IHE.

In sum, the panel concludes that IHE Delft meets each of the four standards of the assessment framework. Its overall judgement on the institutional audit of IHE Delft is therefore positive. Given this outcome, the panel advises NVAO to take a positive decision.

The Hague, 15 January 2020

On behalf of the assessment panel charged with assessing IHE Delft

Ir. Peter Struik
(Chair)

drs. Erik van der Spek
(Secretary)

2 Introduction and justification

2.1 Purpose of the institutional audit

The institutional audit assesses whether an institution harbours a quality culture and a system of quality assurance which guarantees that the education offered by the institution meets (inter)nationally accepted standards and demands. The institutional audit takes the ambitions, vision and choices formulated by the institution as a point of departure, but requests the institution to account for the realisation of these ambitions. The audit is centred around four questions:

1. Are the vision and policies of the institution regarding the quality of education sufficiently supported and coordinated, both internally and externally?
2. How does the institution realise its vision on quality?
3. How does the institution monitor that its vision on quality is realised?
4. How does the institution work on improvement?

Participation in the institutional audit is not compulsory for institutions. The audit functions alongside the assessment and accreditation of individual study programmes. Passing the institutional audit gives institutions the right to have their programmes assessed on the basis of the framework for the Limited Programme Assessment. When an institution fails the institutional audit, its programmes need to be assessed according to the standards for the Extensive Programme Assessment.

In the first round of institutional audits (2011 to 2016), 35 institutions passed the audit. These institutions cover around 80% of the total number of degree programmes in Dutch higher education.

NVAO appoints a panel of experts ('peers') for conducting the institutional audit. These experts have no ties with the institution under review or any other conflict of interest. The panel comprises leading expertise on the management of institutions, educational expertise in higher education, and audit expertise and/or expertise in the design and efficiency of systems of quality assurance. Students and the work field are also represented in the panel.

A qualified and independent secretary assists the panel and writes the advisory report based on the discussions in the panel. NVAO offers a training and/or briefing to all panel members and the secretary prior to the audit. An NVAO staff member coordinates the audit and acts as a liaison officer between the institution and the expert panel.

Full details of the institutional audit process can be found in the framework posted on the NVAO website: Assessment Framework for the Higher Education Accreditation System of the Netherlands 2016.

2.2 Composition of the audit panel

The audit is composed of:

- Ir. Peter Struik (chair), chief engineer and director at Rijkswaterstaat;
- Prof. dr. Harry Martens (member), emeritus (Chemistry) at University of Hasselt. Until recently, he was chair of the Flemish Education Council and president of the VITO (Flemish Institute for Technological Research). He was also a panel member of the previous ITK of the IHE Foundation;
- Wim Drossaert (member), is general manager of Dunea (a drinking water company). He has many years of experience in the fields of environment, water and energy;
- Prof. dr. Isa Baud (member), worked at the Faculty of Social and Behavioural Sciences at the Programme Group: Governance and Inclusive Development, University of Amsterdam;
- Aincré Evans (student-member), was a MA African Studies student at Leiden University and was a member of the programme board;
- Drs. Erik van der Spek, director of Hendrikx Van der Spek, secretary;
- Drs. Irma Franssen, NVAO process coordinator.

2.3 Procedure observed by the panel

2.3.1 General procedure observed by the panel

The panel received the institute's self-evaluation report (SER) on 15 July 2019. On 9 May 2019, the NVAO chairman and the NVAO process coordinator met with the representatives of IHE Delft to discuss the programme of the site visit.

The members of the panel exchanged their initial impressions on the self-evaluation reports by e-mail and met for a preparatory meeting in Delft on 16 September 2019. At this meeting, the panel listed the key issues that would require clarification during the site visit. This visit took place on 17 and 18 September 2019. At the end of this visit, the audit trails were defined and discussed with the representative of IHE Delft.

The second visit was held from 11 until 13 November 2019. During this visit, the panel met with more than 60 staff members, management and stakeholders, such as the Executive Board, the Supervisory Board, the educational management, lecturers, students, quality assurance staff, university services staff, alumni and representatives from the professional field. A detailed overview of the site visit is provided in Appendix 2.

2.3.2 Procedure observed by the panel with regard to the audit trails

The panel carried out the following audit trails:

1. Past performance of two MSc programmes;
2. Innovation and education;
3. Interdisciplinarity.

Trail 1 is part of the regular institutional audit. The past performance trail took place on 11 and 12 November, during the panel visit to IHE Delft. The main aim of this past performance trail is to establish whether the quality of education is ensured at the level of programmes. To do this, the panel compared two MSc programmes: Urban Water and Sanitation, and Water Management and Governance. In four sessions for each programme, the following questions were discussed:

1. Session 1: How does the programme maintain the quality and relevance at the programme level?
2. Session 2: How is the programme delivered and quality realized in practice? (perspective of staff)
3. Session 3: How is the programme delivered and quality realized in practice? (student perspectives)
4. Session 4: How does the programme ensure that it stays relevant and ensures its impact?

The second trail, discussed in the afternoon of 12 November, was dedicated to innovation in education. The motive behind this trail was the ambition of IHE Delft to transform a substantial part of their modules into online versions, both to increase the flexibility in the programme and to enlarge the reach of the institute. In three sessions, the following questions were explored:

1. Session 1: Vision and integration: What is the vision on innovation/eLearning? How is eLearning integrated in the QA system? What is the eLearning educational concept/eLearning course development workshop series? Examples of innovations and eLearning at IHE Delft?
2. Session 2: Instruments: How is innovation integrated in policies? What instruments does IHE Delft use to stimulate innovations? How is innovation facilitated? What means are allocated to innovation?
3. Session 3: How do stakeholders perceive opportunities for eLearning at IHE Delft? Are IHE Delft's vision and ambitions realistic?

The third trail was held in the morning of 13 November. In this trail the focus was on interdisciplinarity, both within programmes (combinations of perspectives and methodologies from technical and social sciences) and between programmes (synergy between programmes). The central question was: How

does IHE Delft create synergies between the programmes, building on each other's strengths, creating interdisciplinarity, and consistent quality? This question was explored in two sessions:

1. Session 1: What are examples of interdisciplinarity in the current curricula?
2. Session 2: How can the MSc research phase be used to encourage interdisciplinarity?

2.4 Structure of the advisory report and the chapters

Chapter 3 contains general information regarding IHE Delft plus a number of key figures. Subsequently, in chapter 4 the panel presents its judgement regarding the institution's quality assurance in relation to each standard of the assessment framework. For each standard, the panel's findings are listed, followed by its considerations. In each case, the findings based on the audit trails serve as casuistic evidence for the manner in which the quality assurance system as a whole functions within IHE Delft. The findings, therefore, do not comprise an assessment of the programmes or curricula involved in the audit trails but rather certain aspects of them on the basis of which the panel has been able to find answers to the central questions. Chapter 5 provides recommendations for improving the quality assurance system. The report concludes with a summary table of the judgements regarding the institution's quality assurance.

In addition, the report comprises four appendices with:

- An accreditation portrait
- The schedule for the site visits
- An overview of the documents perused
- A list of abbreviations.

3 Profile of the institution

3.1 General data

Country	Netherlands
Institution	IHE Delft Institute for Water Education
Locations	Delft
Status of the institution	Foundation under Dutch Law

3.2 Profile of the institution

IHE Delft Institute for Water Education, according to the institute's website, is the largest international graduate water education facility in the world and is based in Delft, the Netherlands. The Institute confers fully accredited MSc degrees, and PhD degrees in collaboration with partner universities.

In 1957 the first postgraduate diploma course in hydraulic engineering was offered to practicing professionals from developing countries. In 1976 the name International Institute for Hydraulic and Environmental Engineering (IHE) was introduced. In 1995 IHE was recognized as an Institute for Technology by the Dutch Ministry of Education, Cultural Affairs and Science and the Ministry of Foreign Affairs. In 2003, IHE Delft joined the UNESCO Water family and changed its name to UNESCO-IHE Institute for Water Education. More recently it was decided to change from a 'Category 1' to a 'Category 2' institute and from 2017 the institute changed its name to IHE Delft Institute for Water Education. Since that time, the Institute operates as a Foundation under Dutch law under the auspices of UNESCO. However, the institute remains a flagship institute in the UNESCO Water Family.

Today, IHE Delft has trained more than 23,000 water professionals from 190 countries, almost all from developing countries and countries in transition. It has also graduated more than 130 PhD candidates in collaboration with leading universities, and executed numerous research and capacity building projects throughout the world. IHE Delft offers four 18-month Master of Science programmes, with a total of 16 specializations. Recently the Institute launched a fifth, 12-month Master of Science programme, which focuses on non-sewered sanitation. IHE Delft's campus is located in the center of Delft.

3.3 Key figures as from 1-1-2019

Student numbers	Total number of students (2019)	1,215
	Bachelor's students (2019)	0
	PhD fellows	120
	Short Course participants (2019)	875
	Master's students (2019)	220
	of which international students (2019)	220
Programmes	Total number of programmes	5
	Bachelor's programmes (2019)	0
	Master's programmes (2019)	5
	English-language programmes (2019)	5
Degrees rewarded	Bachelor's (2019)	0
	Master's (in 2019)	167
Staff	Total (2019)	225
	of which academic staff (2019)	144
Financial data	Total budget (2019)	38 million

4 Assessment

4.1 Standard 1: Philosophy and policy

Standard 1: The institution has a broadly supported educational philosophy and pursues a corresponding policy focused on the internal quality assurance of its education.

A. Findings

The IHE Delft Foundation (further 'IHE Delft'), offers expertise across the full spectrum of water and related disciplines, working with long-term partners in the Global South and countries in transition. IHE Delft started in 1957 when it first offered a postgraduate diploma course in Hydraulic Engineering. The institute offers five MSc and numerous PhD programmes as well as non-degree programmes. IHE Delft is a 'Category 2 Institute under the auspices of UNESCO, which means that the institute is funded by member states (in this case the Dutch government) to contribute to the achievement of UNESCO's objectives.

During the previous institutional audit, IHE Delft was recommended to make its vision more explicit and more widely accessible for partner organizations. Since then, the institute has developed an explicit and broadly supported vision and strategy to achieve it. In 2018 a new vision and strategy document was presented: Strategy 2018-2023, Synergies and Partnerships to Address Water Challenges. In June 2019 an updated Vision on Education document was presented.

The vision on education of IHE Delft is closely connected with the institute's mission: to work in partnership to strengthen capacity in the water sector to achieve global sustainable development. The focus of the MSc programmes, according to the self-evaluation, is on creating impact and facilitating transformative change towards achieving sustainable development. Education aims to be relevant for local development contexts. Furthermore IHE Delft aims to forge international networks which remain active after graduation, for instance through an active alumni network.

Education is one of the three pillars at IHE Delft to achieve its mission (the others being research and water projects). The education programmes aim at addressing water challenges and contributing to global sustainable development. The students generally are early to mid-career professionals; these students require a range of knowledge, skills and attitudes to be optimally prepared for future water challenges and to contribute effectively to the development of integrated solutions. Graduates are expected to be critical, creative and independent thinkers and effective water professionals. They should be able to engage with a range of disciplines such as natural sciences, social sciences and engineering. To achieve these learning outcomes, education at IHE Delft is characterized by the following key values:

- **International and interdisciplinary:** Both students and staff are very diverse in nationality, academic discipline and cultural background. Our programmes foster the international character and aim to make optimal use of the diverse experience that our students bring.
- **Science-based but anchored in professional practice:** the Master programmes embed research and scientific thinking in education. Students are exposed to state-of-the-art knowledge, ideas, methods, approaches and technologies;
- **Student-centered, on the basis of aligned teaching and active learning:** IHE Delft's education adheres to the principles of constructive alignment (learning by doing). Students are stimulated to actively participate during lectures, group work, lab and fieldwork, excursions et cetera;
- **Relevant, geared towards creating impact on the ground:** creating impact and facilitating transformative change towards achieving sustainable development is the focus of the IHE Delft programmes. Education is solution-orientated with case studies from various countries;
- **Open, transparent and accessible:** IHE Delft strives for transparency and communicating openly so that students, staff, employers and other stakeholders know what to expect. Increasingly IHE Delft makes its teaching materials accessible free of charge as open courseware.

- **Combining knowledge and transferrable skills:** to become a change agent, students also need additional skills, for instance skills in the fields of leadership, negotiation, creativity and entrepreneurship.

Vision on interdisciplinarity

The first key value ('International and interdisciplinary') and the last one ('Combining knowledge and transferable skills') both refer to interdisciplinarity. The panel explored this concept in a separate trail, where interdisciplinarity was discussed with staff, students and stakeholders. The panel found that IHE Delft has a clear view on the difference between multidisciplinary and interdisciplinarity; where multidisciplinary is having several disciplines side by side, interdisciplinarity implies combining disciplines within projects, which allows students to cross disciplinary borders. Interdisciplinarity, according to both staff and students, is most prominent in the course projects and often in the final research theses; an example is combining water quality improvement and governance. Staff members state they want their alumni to have an impact in the water world, which is interdisciplinary by nature. Interdisciplinarity makes it possible to create new knowledge that wouldn't have been created if one would have stayed within the boundaries of one discipline.

In most programmes, interdisciplinarity implies the combination of technical knowledge (engineering) and soft skills. Water problems, such as water quality, can for instance be related to hydrology, environmental issues, and governance. However, the panel found that there are differences between programmes, such as the Urban Water and Sanitation (UWS) and the Water Management and Governance (WMG) programmes. In the UWS programme the focus is on engineering, which poses limits to the amount of soft skills that can be integrated into the programme. According to the staff, technology remains at the heart of the programme. A quote: "We still want to have sufficient engineering to be able to call our alumni engineers." Also the wishes of the funding partners are important in this respect: according to the staff, they basically want good technicians.

Vision and strategy

The vision has been developed parallel to the new (2018) Strategy 2018-2023. In this vision, a number of challenges are connected to strategic decisions of the institute. The most important of these decisions are the following:

- IHE Delft wishes to diversify its educational offering and improve flexibility in educational content and modalities. Blending online learning with face-to-face learning increases flexibility and enables lifelong learning. IHE Delft has the ambition to offer 50% of their modules online or through blended learning by 2023.
- To reduce costs and time for students, IHE Delft is going to offer MSc programmes with a shorter duration: one year instead of the current duration of 18 months. For students interested in pursuing a research career, a two year programme will be developed with a focus on developing academic skills, such as proposal development, research methodology and writing skills. Implementation will start in 2019.

Vision on innovation

The focus on online and blended learning, as stated in the strategy, is closely connected with IHE's vision on innovation. The panel discussed this vision with representatives of the institute during one of the trails. For IHE, innovation is seen as a continuous process of change towards higher quality, with a focus on e-learning, improving flexibility, didactical quality and life-long learning. Innovation is not limited to the didactical approach, innovation of the content of the programmes is part of it as well; the two are intertwined, according to the staff. Content innovation is mainly accomplished by bringing new results of staff research into the programmes. Didactical innovation is not limited to e-learning either; IHE Delft also aims to improve the quality of teaching outside the digital realm. Important motives for innovation are to enhance lifelong learning to support the careers of the alumni, allowing for more flexibility and enlarging the reach of the programme and eventually the impact on the ground. E-learning is an important component of innovation, provided through a number of didactical instruments: 1) Online courses, 2) Blended courses and programmes, 3) Blended classroom, e-campus, and 4) Open education, free content for lifelong learning.

Policies

The panel has established that policies are being developed and policy documents are available. Policies are generally developed in an iterative process by Education Bureau at the request of EDC, ECC, Rectorate. The Rectorate then receives these policy proposals for decision-making purposes. Recently the focus has been on the following policies:

- A policy on plagiarism, comprising training, awareness activities and a penalty system.
- A policy to improve the quality of assessments, including mandatory module answer sheets, and the submission of assignments through ICT-systems that check plagiarism.
- Professionalization of staff, mainly directed towards University Teaching Qualifications (UTQ). A UTQ now is required for promotion, for the appointment of examiners/module coordinators, and for supervisors of MSc research. Since 2017-2019 all module coordinators have (at least) started their UTQ training. In the IHE Delft Strategy document, a target of at least 85% of staff UTQ-certified by 2022 is set (from 42% in 2018). IHE Delft wishes to develop additional training concerning the use and development of e-learning; a proposal to this end has recently been submitted.
- An improved appeal procedure, introducing an external chair of the Academic Appeals Board.
- A GDPR-related policy bringing clarity to storage periods for educational data. The institute recently decided to install a research ethics committee, to advise (among other things) on issues connected to data storage.
- Also a checklist had been developed to stimulate the students to reflect on ethical questions regarding their research.

B. Considerations

The panel has discussed the institute's vision and strategy with IHE's management, staff, students and stakeholders. During these discussions, the panel has established that overall IHE Delft has a well-defined view on education and on the key values of the institute. The panel discussed the way in which the vision has been developed, discussed and shared with different groups of stakeholders. The institute held a number of staff sessions and a session with a group of students about strengths and challenges. Additionally a comparison with other universities was made, focusing on the unique qualities of IHE Delft. A draft of the vision was shared and discussed with all programme coordinators and all teaching staff had a chance to comment. The students were generally involved in an informal way (for instance during lunches), although a number of ideas did 'trickle up' through evaluations and an internal report. To involve external stakeholders, the institute invited 40 different representatives (for instance Dutch ministries, Nuffic and representatives of partner universities) to reflect on and react to the new strategy; some 30 took part. The panel concludes that all stakeholders have had sufficient opportunity to make their views on the institute's vision heard.

The panel has ascertained that most important issues are covered by policy documents. Policies on for instance admission and introduction, assessment quality, professionalization of staff and plagiarism are well established. Policy development is not static and fixed; policies are adapted and developed to accommodate the challenges the institute is facing.

As far as the strategy is concerned, the panel noticed that different programmes have varied views. The differences are most prominent between the more technical programmes (such as Urban Water and Sanitation) and the more 'social science' programmes (such as Water Management and Governance). These programmes have for instance a different view on interdisciplinarity (more prominent in the social science than in the technical programmes) and on the change in duration of the programmes (to be discussed under standard 4, Development). Although the vision of the institute is towards a one-year programme for all, the panel found that the strategy is still work in progress. Discussions are currently being started, and the strategy may still have to be adapted to the circumstances. However, the panel saw that the institute allows for variation in the implementation of the strategy; the panel noticed that IHE Delft takes the dynamics of the institute into account and that implementation of the strategy is not just a top-down exercise. The panel agrees with this approach and advises to take the different views within the institute into account when implementing the strategy.

Finally, during the discussions with the various groups of stakeholders the panel encountered different views and ideas about the strategy. Although in the end the panel reached a clear view on the aims of IHE Delft in this respect, this view was expressed less eloquently in the supporting documents. The panel therefore advises to explain and share the story behind the strategy in a more convincing and systematic way, including the impact issue. The panel believes that it is important to take sufficient time for this important dialogue. In the opinion of the panel, it would also help to translate the key values into this discussion, thereby showing the connection between the (widely shared) vision of the institute and the strategy. Lastly, the students could be involved in a more substantial way in the development of the strategy; so far, this involvement has been restricted largely to the self-payers and the student representatives in the programme committees.

C. Judgement

In the opinion of the panel, IHE Delft meets standard 1, Philosophy and policy.

4.2 Standard 2: Implementation

Standard 2: The institution realizes its educational philosophy in an effective manner, which is demonstrated by appropriate policy actions and processes, particularly relating to staff, student assessment, services and facilities, and students with a functional impairment.

A. Findings

Governance

IHE Delft is a small organization offering five MSc programmes. The management is in the hands of the Rectorate, with a dedicated vice-rector responsible for education (the Vice Rector Academic and Student Affairs). Each master's programme has a Programme Committee that works within the policy framework set by the management, and that reports to the Rectorate. The examination regulations are carried out by the Examination Board, that also reports to the Rectorate. An Academic Board advises the Rectorate on policies and strategies.

The Programme Committees (PCs) are responsible for the delivery and quality of their programme; each PC includes at least one student representative. The PCs define measures for improvement of the programme, based on feedback by students and teaching staff. In June the PCs establish the curriculum for the next academic year. The PCs appoint Module Coordinators for each module. These coordinators prepare module plans for approval by the PC and reflection reports once their module has been evaluated. The PC chairs participate in the EDC, whereas the Programme Coordinators meet once a month in the Education Coordination Committee (ECC).

Two important parties in education governance are the Education Development Committee (EDC) and the Education Coordination Committee (ECC). The panel has spoken to representatives from both bodies. The EDC is a formal advisory body to the Rectorate, chaired by the Vice Rector Academic and Student Affairs. The five chairs of the MSc Programme Committees and two representatives from the Education Bureau are on the committee. Since the Vice Rector chairs this committee, new educational policies that concern IHE Delft as a whole are mostly initiated at this level. When the policies are approved by the Rectorate, they can be implemented by the Programme Committees.

The EDC advises on strategic and education-related policies and takes steps to implement these policies in a uniform and compatible manner. The ECC is chaired by the Head of EB and consists of the five MSc Programme Coordinators and managers of IT and Central Services. It advises on operation and implementation of the educational programmes. Its primary concern is daily problems, for instance in the fields of ICT, staffing and logistics. So where the EDC has a more strategic role, the ECC has a focus on educational operation. The EDC meets every two months, whereas the ECC meets every month.

Another important body is the Education Bureau (EB). The Education Bureau is represented as a member in the MSc Programme Committees, the EDC and the ECC; it provides the secretariat for the Examination Board, EDC and ECC. The EB acts as a liaison between the different levels and has an important role in agenda setting, communication, didactical training of staff, policy development, logistics, e-learning development and support, and quality assurance. The Education Bureau also supplies the Rectorate with evaluation reports, both of module and programme evaluation (see standard 3).

Policy implementation

In the previous chapter on standard 1, the policy documents have been mentioned. However, since policy is not only a matter of documents but also of implementation, in this chapter a number of policies central to the IHE Delft are covered in more detail.

Admission is generally not a topic covered during an ITK. However, since the admission and application process has a special relevance for IHE Delft and moreover concerns all programmes, this topic has been discussed during the panel's visit as well. An additional reason to discuss the admission procedure here

is the connection to blended learning (since students may have to follow introductory modules at home, before the start of their programme) and to the planned shortening of the programme duration (since a shorter programme implies more preparation).

Admission procedure

According to the IHE Delft Education and Training Guide 2020, students can apply for a master's programme if they meet the following requirements:

- A bachelor's degree in a related field of study;
- Command of English as shown by one of the following tests: (IELTS: 6.0 / TOEFL iBT: 87 overall or PBT: 502/TWE 4.5).
- Two or more years of work experience in a relevant field.
- A letter of motivation and a resume.

The panel has learned during the preparatory visit that each year around 1,400 students apply for all MSc programmes, excluding the Erasmus Mundus programme. For the Erasmus Mundus programme the number of applications is even much higher. From all applications some 10% are accepted. Acceptance to the programmes is done in two stages. Firstly, the responsible staff at IHE Delft have to decide whether the students meet the formal requirements. If the minimum criteria are met, the second stage is needed to see if financial support can be found. This is a matching process with the fellowship organizations.

For language testing, costs can be an impediment. The students have to upload their tests, according to the requirements that are mentioned on the institute's website. If students for any reason are not able to upload their tests, they are conditionally admitted. At IHE Delft students are tested again; depending on their level of English, they may have to do additional training.

For incoming students the programme offers a number of preparatory courses, for instance in mathematics and chemistry; these courses are largely available online. For the master's programme in Sanitation, students have to do an introductory exam, because they have to start at a high level. Students can fall back on the study support staff for help with planning and personal problems. Students are also helped in finding housing, and in developing their social networks. In the introduction period, the focus is on intercultural collaboration and intercultural diversity. The energy invested in support is reflected in the low fall-out percentage, generally 5-10%.

The students to whom the panel spoke, generally appreciate both the application process and the amount of assistance they receive upon arrival. The information on the website is perceived to be clear and straightforward and the students report that they receive a quick answer to their questions. They especially appreciate the accommodation that is arranged for them. Students feel quite privileged to get the opportunity to study at IHE Delft.

Blended learning

Since the IHE Delft strategy aims to enhance flexibilization and customization, the development of blended learning and e-learning receives quite a lot of attention. According to the IHE Delft Strategy, by 2023 at least 50% of the modules should be offered as a blended option. In 2019, online preparatory courses should be available; the first MOOC has to be implemented by 2020. To finance the development of e-learning, IHE Delft has received a grant from the Dutch government as well as funding from the Bill and Melinda Gates Foundation. The intention is also to develop e-learning in partnerships with other educational institutions. So far, six partner universities have been selected.

In the current situation, about fifteen modules (of the approximately one hundred and twenty modules offered in total) are available online. So the process of converting existing modules into a blended format has just started. Under standard 4, Development, we will further elaborate on this topic.

Interdisciplinarity

Although interdisciplinarity is a key value of IHE Delft (as mentioned under standard 1), a clear policy on this topic seems to be lacking. The institute claims to promote and encourage interdisciplinarity, but in practice the degree of interdisciplinarity is left largely to the discretion of individual programmes. A quote from the management: “This is a very collaborative institute, we shouldn’t impose interdisciplinarity, we should provoke it.” Most programmes, in their turn, leave the choice to the students: the students decide whether or not to do interdisciplinary research. The staff also see a personality issue here; students need to have sufficient confidence to cross disciplinary borders. Often students first have to build up disciplinary strength, and a certain maturity, to be open to the challenges of interdisciplinarity. However, in some programmes the guidelines on interdisciplinarity are stricter. In the Water Management and Governance programme, for instance, students are required to do interdisciplinary research during their thesis trajectory.

That being said, interdisciplinary topics have a place in all programmes. All programmes share an introductory week 1, in which interdisciplinarity and cultural diversity is a central feature. This module involves looking at water from all available perspectives, also to show that each approach and methodology has its limits. During the discussions with the staff, the idea was mentioned to have students write a reflection at week 1 and then again at the end; the panel believes this would be an interesting exercise to monitor the development of the students’ knowledge and interdisciplinary focus.

The summer courses are organized across the five programmes as well, providing for different perspectives; the same goes for the shared module 11. In the thesis trajectory, a number of programmes use specific rubrics to assess interdisciplinary theses, and reward students that base their thesis on interdisciplinary research. In this respect the panel encountered large differences between programmes with a focus on engineering and programmes with a focus on social sciences. In the latter, soft skills play a larger part and an interdisciplinary approach is encouraged more strongly.

B. Considerations

The panel has established that IHE Delft has a functioning governance structure on educational quality assurance. The two main governance bodies, the Education Development Committee and the Education Coordination Committee, cover the entire range from policy development down to operation and implementation, and monitoring. The presence of the Vice Rector and the Programme Chairs in one committee (the EDC) guarantees that the Rectorate has direct access to the concerns and developments at programme level, and vice versa. The Education Bureau, which is represented in both committees, helps to unify the way policies are developed and implemented. The governance structure allows for both top-down and bottom-up development. The panel has furthermore established that quality assurance is a concern at all levels and that programmes are committed to their own quality.

The panel has noticed that policies do not remain static documents at IHE, but are being developed and adapted to fit both the strategy at IHE Delft and the changing circumstances. The application and admission procedure is well developed and widely appreciated by the students; this procedure can be easily adapted if necessary, for instance when the programmes will be shortened to one year. The policy concerning blended learning is being implemented currently, with the aid of a grant from the Dutch government. Although this process is not completed, the panel has seen that the staff is working hard on employing e-learning and blended learning where possible.

Interdisciplinarity is an important issue in the development of education within IHE; however, the panel has seen that a clear policy in this respect is lacking. Students are stimulated to take the broader view, and the panel agrees that interdisciplinarity should not be forced on the students. There is a recognition of the necessity to have multiple perspectives, but the panel found that only in the Water Management and Governance programme interdisciplinarity is present at an integrated level. In research there is a substantial effort to work together and to stimulate students to integrate different approaches. In the WMG-programme theses the interdisciplinary aspect is monitored; in these cases there should be clarity about the thesis assessment criteria.

The panel agrees with the fact that programmes move at a different pace when it comes to interdisciplinarity. Some monitoring at the programme level might be useful, in a qualitative way. An option would be to add an item on interdisciplinarity in the programme review, if only to be able to compare programmes. However, the panel believes that a strategy at the institutional level could help to develop the current good practices on interdisciplinarity to be implemented and accepted across programmes. In the future IHE Delft could be more explicit, and give interdisciplinarity a place in the learning outcomes to safeguard its place in the development of the shorter one-year programmes.

C. Judgement

In the opinion of the panel, IHE Delft meets standard 2, Implementation.

4.3 Standard 3: Evaluation and monitoring

Standard 3: The institution systematically evaluates whether the intended policy objectives relating to educational quality are achieved. Relevant stakeholders are involved in this process.

A. Findings

At IHE Delft, educational quality is monitored and evaluated in three cycles:

1. A module cycle: each module is evaluated at the end (usually three weeks);
2. A programme cycle: each programme is evaluated twice, at the end of the taught programme (i.e. after one year) and again at the formal end (after 18 months);
3. At the institute level, every six years.

In all cases the Plan-Do-Check-Act (PDCA) cycle is the basis for quality assurance.

Module cycle:

The module coordinator (MC) is responsible for the evaluation of his or her module. Evaluation is based on the Module Plan, in which the learning objectives, activities and assessment methods are set out. The EB organizes the evaluation of one third of all modules; every evaluation consists of an online survey and a face-to-face session with students. The Educational Bureau (EB) sends a report to the MC, who writes a reflection report, which is discussed in the PC. If necessary, recommendations and follow-up actions are formulated.

Programme cycle:

The Programme Coordinator PC is responsible for the quality, delivery and evaluation of his or her programme. After the taught part (at the end of the first year) students receive an online survey. At the end of the research part (after 18 months), the 'end-of- programme' evaluation is carried out. Both are organized by the EB. Results are circulated to the PCs. The PCs combine the evaluation results (module evaluations, programme evaluations, own observations and other feedback) to write a qualitative report for the Rectorate. Added to this is a consolidated report for all MSc programmes by the EB. The Rectorate discusses these reports and issues instructions back to the PCs.

Accreditation cycle:

At this six-year cycle, the alignment of IHE Delft's education with the Institute strategy is essential. This cycle aims to guarantee that the programmes remain relevant, state-of-the-art, and effective. Every six years the vision on education is refreshed and the final qualifications of all programmes are revised. This is done in the year preceding the re-accreditation of all programmes. The Rectorate is the responsible body in this cycle.

Stakeholders

Different stakeholders are involved at various stages. The students are involved in the module and programme cycle, since in both cases their views and opinions form an important part of the evaluation. In addition, in 2018 a group of ten students wrote a 'Students' Critical Reflection' on the IHE Delft Master's Programmes 2016-2018, giving feedback and recommendations. Staff is involved formally as far as the Module Coordinators and Programme Coordinators are involved; since these coordinators are in direct contact with the lecturers, their views are taken into account as well. All staff is formally involved through the annual work plan cycle and performance interviews (three each year). In 2019, a teaching staff satisfaction survey was carried out.

External stakeholders are mainly involved during the six-year accreditation cycle. As mentioned above, IHE Delft organizes a stakeholder meeting to discuss the new strategy. And finally, the self-evaluation reports of all MSc programmes are peer-reviewed by a team of external experts as well. However, the panel learned that the informal influence of external stakeholders is much more substantial. For instance, some external stakeholders are present in a number of modules, where they give lectures. A

lot more external stakeholders are involved in the research phase, which provides ample opportunity to discuss modules and programmes.

Reports

The institute produces a substantial number of reports and documents; some of the reports on evaluation have been mentioned above. The documents can be grouped into three categories:

1. Planning: for instance the IHE Delft Strategy, the work-plan and budget, the examination regulations, the module plans and the study guide;
2. Evaluation: for instance the module evaluations, programme evaluations, Institutional Audit, different surveys;
3. Monitoring: quantitative and qualitative programme reports, annual reports.

Impact on education

The panel discussed the impact of the evaluation and monitoring system on education with several representatives of the programme. The representatives mentioned a number of instances where student input has led to concrete changes in education. For instance, if all students complain about the length of an exam, feedback is collected and steps are taken to make the exam length more compatible with student expectations. Another problem mentioned are the modules taught in collaboration with other universities, where IHE Delft found that a number of students from these universities did not have the desired academic level. In this case, these partner universities were approached and asked to cover the relevant topics before their students come to IHE Delft. Another issue is alignment. Some modules are followed by both short course students (who come to IHE Delft for a short course), together with regular master students, which sometimes causes friction. This issue was discussed with the Education Bureau to ensure that incoming students have the proper academic background. This means that in a number of cases the Module Plans have to be adapted, to give sufficient attention to the preparatory teaching. The panel feels that these (and other) examples show that the evaluation cycle is working properly on both module and programme level.

The panel has also established that the evaluation system is adapted when necessary. An example is the way modules are evaluated, which has been changed recently. Where previously all modules were evaluated using an online survey, now the choice has been made to evaluate a limited number (one third of the total), but to add a face-to-face discussion to the online evaluation. So whereas the number is lower, the quality of evaluation is higher, according to the programme representatives. The discussions are organized by the Education Bureau without the Module Coordinator, which allow the students to express themselves freely. Furthermore the panel has learned that both the response rate and the quality of response are quite good. The response rate is 75-80% and the online surveys contain a number of open questions as well, which are used for serious comments. The panel approves of the way in which the module evaluations are set up.

Challenges

The panel has seen that the cycle of evaluation is adhered to within IHE Delft and improvements are being made continuously. However, a number of issues are difficult to solve, mainly due to the specific character of IHE. In general, the representatives of the programme find it challenging to keep everybody happy in a situation where students come from very different backgrounds. Also the large number of modules, many of which are used in short courses as well as in master's programmes, poses a challenge. The panel learned that the systems used for evaluation and monitoring at IHE Delft are rather rigid, which is felt as rather cumbersome as the educational system is moving towards more flexibility. The panel realizes this challenge and advises to make sure that the quality assurance systems are prepared for these transitions.

Electives and other shared modules can be a challenge as well. IHE Delft offers a number of modules that are shared between two or more programmes. The Module Coordinators need to produce a Module Plan, whereas the Programme Coordinator is responsible for the Programme Plan. It is up to the Programme Coordinator to see if a module from another programme contributes to the learning objectives for a programme. But electives don't always have to contribute to the learning objectives,

since they tend to be more about general skills. For instance, general research skills are taught across the institute.

A recurrent problem is the way group work is organized. The panel discussed this topic with both the staff and the students of several programmes. On the one hand, the panel found that group work is an essential part of the educational setup, since in their professional practice students will have to work in (interdisciplinary) groups as well. Group work allows the students to confront issues of diversity and interculturality, and to explore the dynamics of working in groups. The students are well aware of these educational benefits. On the other hand, the students feel that not every student puts in the same amount of effort. The staff are aware of this risk and are present to intervene when the group process goes wrong. In some cases, student evaluations have led to a revision of the group work, for instance in fieldwork, where group work has been replaced by working in couples. In all cases, an individual component is part of the assessment as well. The staff assured the panel that free-riders get lower marks. The panel believes that the advantages and disadvantages of group work are well balanced within IHE.

A complication in group work may be the attendance of Short Course students, students that only follow a single module. The panel found that the majority of the modules is closed to Short Course students, and in some modules they form separate groups. However, in other modules the presence of Short Course students is experienced as disruptive by the regular students. According to the regular students, short-term students don't have the same commitment to the programmes. They told the panel that they sometimes have to (re)do the work of the Short Course students. The panel advises the staff to monitor the combination of regular and Short Course and see to it that the latter group doesn't pose a burden for the first one.

A last topic that the panel discussed with the staff is the monitoring and evaluation of e-learning. Two questions should be distinguished here. The first one is how to monitor the results of the e-learning: how can you judge whether your educational goals are reached? According to the staff, this is monitored in the same way as classroom teaching. In e-learning the principles of constructive alignment are used, that are also part of the training new staff members receive. In addition, e-learning is not a stand-alone application; the staff indicate they spend on average ten hours per course per student on face-to-face and skype discussions and student feedback.

The second question is how to evaluate the e-learning modules once they are in place. For this part, the same system is used as while evaluating traditional modules. The modules are evaluated by students and by colleagues; the same quality circle applies. In addition, part of the e-learning is being developed as part of subsidized programs, and is therefore evaluated by the sponsors as well. The panel is satisfied that the evaluation and monitoring of e-learning is set-up in a proper way.

B. Considerations

The panel has established that the institute has a mature system in place for the quality assurance of all educational programmes. Evaluations are regularly held on all relevant levels – modules, programmes and the institute as a whole – and with the involvement of all relevant stakeholders – staff, students, alumni and working field. The evaluation programme is substantial and seems cumbersome to the outsider, but it is not experienced as such. The system helps the staff to adjust and improve their modules regularly. The panel has also seen that a lot of paperwork is taken care of by the Education Bureau, which helps to reduce the burden on the staff. The responsible committees and the Rectorate receive reports on the evaluation outcomes, which allow them to take action when necessary.

The panel has seen that evaluation at IHE Delft is a living system. Every module is reviewed by the students, sometimes quite extensively. The evaluation response is high and the face-to-face evaluations are seen to be valuable. This system guarantees that modules and programmes are adapted when deemed necessary by evaluation outcomes. The panel has seen several examples of these adaptations; the students are aware of the fact that their feedback is taken seriously. The panel has also established

that the evaluation and monitoring system is adapted when necessary; for instance the way modules are evaluated has been changed recently.

Evaluation at IHE Delft has a number of challenges, such as the evaluation of group work and the evaluation of new blended forms of teaching. However, the panel is of the opinion that IHE Delft is well aware of these challenges and finds the appropriate means of countering them.

C. Judgement

In the opinion of the panel, IHE Delft meets standard 3, Evaluation and monitoring.

4.4 Standard 4: Development

Standard 4: The institution has a focus on development and works systematically on the improvement of its education.

A. Findings

IHE Delft faces a number of challenges, that are touched upon in both the self-evaluation and the Strategy 2018-2023. These challenges are both financial and educational. According to the Strategy document, the scope of scholarships and other funding from the Dutch government remains an uncertain factor. An increasing number of participants are self-funded or supported by their employers, charities, or own governments. To remain attractive and affordable, IHE Delft needs to continuously improve its educational and cost efficiencies.

An important educational challenge is the need for flexibility and customization. The current MSc programmes are more or less 'one size fits all': however, an 18 month programme is too long for some students and too short for others. IHE Delft aims to diversify its educational offerings and modalities with an emphasis on skills development and lifelong learning. This requires flexibility in educational content and modalities, with a substantial place for blended learning.

To answer these challenges, IHE Delft is currently in the process of redesigning the content, duration and modalities of its MSc programmes. The most important developments are the following two:

1. Introducing two varieties of each MSc programme: a one year programme for professionals and a two year programme for researchers. These two varieties will replace the current 18 months programmes;
2. Developing blended learning for all MSc programmes with a target of a 50% blended offering for each programme in 2023.

To realize these ambitions, partnerships with partner universities from the Global South are essential. IHE Delft aims to increase the number of short and online courses co-created and implemented jointly with partner universities in the Global South by 20% in 2019.

Task forces

To align the educational development with both the IHE Delft Strategy and the challenges the institute is facing, 18 taskforces have been appointed at the end of 2018. It is their task to develop implementation plans for a large number of issues, varying from 'Timely completion of PhD theses' to 'Greening IHE'. During the preparatory visit, the panel learned that the focus is on two central issues. The first is the development of the new curricula for the master's programmes in two versions: a professional one year master and a research-oriented two year master. The second is the development of e-learning and blended learning, both as preparatory courses and as part of the new master's programmes. We will focus on these two central developments in the following paragraphs.

Professional and research-oriented master's programmes

In 2018 IHE Delft launched its first one-year MSc programme (Sanitation); according to the institute, this programme confirms the academic and practical feasibility of shorter duration MSc programmes. This programme balances skills development with knowledge transfer and reduces costs and time for students. In the coming years, IHE Delft will develop one-year MSc programmes for professionals and two-year programmes for researchers; this last option is aimed at the student population that have ambitions in pursuing a research career. The one-year professional programmes will require students to do a number of online preparatory courses in advance. Admission will include entry exams and interviews.

The panel discussed the plans for this substantial transformation with management, staff and students from IHE. The panel learned that these plans are still in a preliminary stage; the first meetings to discuss this transformation were being held at the time of the panel's visit. In the last year, the focus has been on consultation, for instance with the professional field, the sponsors of the institute and the alumni. IHE Delft organized several sessions, both in The Netherlands and abroad (with the alumni).

The basic driver for this intended change is to allow the institute to cater to different target groups and to allow students to do a professional master at lower costs, thereby shortening the stay abroad (often without their families) for these students. Since the institute can only accommodate a limited number of students (about 300), shorter programmes would also mean that IHE could reach a larger number of students. Although the intention is to develop a one-year programme for all existing 18 months programmes, some express the concern that this may be more difficult for the 'technical' programmes.

One of the bottlenecks in designing a one-year programme is the research leading up to the master's thesis. The staff recognizes that some types of research are quite time consuming, so smart thinking is needed to redesign the thesis trajectory; this also requires the necessary academic skills on the part of the students. The staff stresses the fact that the transformation implies walking into unknown territory, where they have to find their own way.

In discussions with the students, the panel encountered converging views. A part of the students (of the Water Management and Governance programme) stated that the first half year of the programme was really effective, but in the second half (when the electives start) there was room for economizing the programme. So in their view, a one-year programme would be feasible. However, the students of the Urban Water and Sanitation programme presented a different view: these students claimed that a shift towards a 12-month programme would be difficult, since all modules are relevant and the programme is already quite intensive and the students need time to absorb the information. These students stated that reducing the time to 12 months might be risky, since some modules are already quite rushed. The option to do some modules in advance, for instance Chemistry and Microbiology, would be hard for students without the relevant background, in the opinion of these students.

Blended learning

Since the one-year programme implies doing a number of online courses in advance, the shortening of the programme duration is closely connected to the introduction of online and blended learning. IHE Delft has formulated as a KPI that online and blended learning should be available with at least 50% of all modules offered as a blended option by 2023 and online preparatory courses by 2019. The development is to be financed partly from external funding (both from the Dutch Ministry of Foreign Affairs and the Bill and Melinda Gates Foundation) and partly from IHE Delft's own sources. The newly developed one-year MSc programme in Sanitation serves as a proof-of-concept for this new approach. In this programme, all materials will be open access and every course will have a parallel in an online course. Moreover, the programme will be available for use by 40 other universities. With this approach, IHE Delft aims for a maximum in flexibility and accessibility.

During the preparatory visit, the panel among other things discussed the investment in time, money and staff and the business model behind e-learning. The panel learned that although all materials are open access, additional services have to be paid for. If students want to have support or do an exam, they have to pay for it. According to the representatives of the institute, it is a strategic decision to invest in blended learning. The institute can in this way reach a larger target group, which is also important since the physical capacities in Delft are limited and the institute can only accommodate a certain number of students. But online courses are also seen as a marketing tool that advertise the expertise of IHE Delft; some students that do an online short course, might enrol in a master's programme later.

In developing e-learning, the basic idea is to develop materials that can be used both in online and offline modules. The intention is to make the e-learning as mainstream as possible. In developing e-

learning IHE Delft is supported by TU Delft, that has already invested millions into its e-learning system. For quality assurance, the existing system can be used.

An important feature of IHE Delft is the international and intercultural classroom. This poses the question how the institute deals with interculturality and diversity in online and in short courses. The institute realizes this challenge, but argues that in e-learning assignments are given as well, and students from different continents still have to cooperate and discuss the assignment. So online learning provides opportunities to learn from each other as well. However, the institute stresses that the focus remains on blended learning, and that personal contact and studying together remain key.

During the trails, the panel further discussed the possibilities of e-learning and blended learning with management, staff and students of IHE. The main advantage of enlarging the scope of e-learning, the panel learned, is the additional reach; this is also the main reason for the Dutch Ministry of Foreign Affairs to fund this project with 6 million euro's. E-learning, in the words of the IHE Delft management, bridges geographical space. The institute has over 20,000 alumni who can become agents to engage other students. Another motive is that by developing online courses IHE Delft may become less dependent on outside funding; it provides for a more sustainable business model. E-learning can also be developed with partners: IHE Delft has selected six partner universities to deliver e-learning at high speed, reaching 450 students. To summarize: online learning allows IHE Delft to reach a higher number of students and to increase the impact on the ground.

The students remain somewhat sceptical about the possibilities of e-learning. They very much appreciate the intercultural environment IHE Delft offers, and find it hard to imagine how such an environment could be replaced by an online alternative. They recognize the benefits that additional online modules might have in preparation and in supplying background information. On the other hand, they believe that many skills need to be practiced in a face-to-face setting. Governance issues require discussions and group work, in their view. The panel believes this is one of the most complex issues to solve when implementing blended learning. However, the panel saw that IHE Delft is working on options for group work and group discussions; together with SURF, IHE Delft is developing collaboration platforms for online and offline students, to collaborate with students all over the world.

B. Considerations

The panel has established that development of education is very much a part of IHE's educational agenda. This is both shown in the regular improvement of its existing educational programmes and in the development of new directions, in line with IHE's vision and strategy. The regular improvement of modules and programmes is based on evaluations by students, staff and external stakeholders and is executed in a systematic way. The panel has seen that the Programme Committees 'own' their programmes, while shared modules and activities allow programmes to learn from each other.

The panel has seen that the discussions about shortening the programme duration are being held at all levels of the institute and that all groups of stakeholders are involved. At the time of writing this report the outcomes are as yet uncertain, but the panel is positive about the openness with which the various options are discussed. The panel understands the strategy of the institute and believes that a more professional programme would imply a good preparation for the labour market. The panel has seen that the institute allows for room for diversity between programmes; the panel agrees with this approach. The panel has also seen that the transformation is a huge operation with a substantial outcome for the students. The panel believes that IHE Delft should continue along the current path of gradual development and discussion; commitment of all parties involved is essential. The panel advises IHE Delft to keep explaining in which direction it is going and why, and involve the alumni and stakeholders. The development has to be aligned with the philosophy, the strategy and the budget of IHE Delft. The students and alumni to whom the panel spoke, are somewhat reluctant about the change from a 18-months to a 12-months programme. This reluctance makes it especially important to involve these

groups in the transformation process. The panel has, among other things, discussed the option that a 12-months programme might attract another target group at a later stage in their career; a number of the current 'young professionals' indicated that such a programme would be less accessible and attractive for them. The panel has considered the option that a one-year programme might be more attractive for mid-career professionals, and reduce the opportunities for the current group of young technical professionals, who generally have a smaller range of international programmes available to them. The panel advises IHE Delft to carefully consider whether a change in programme duration might cause a change in the target audience – and whether this change is desirable.

Finally, the panel is impressed by the initiatives in the range of e-learning and blended learning. The panel found that IHE Delft has established a well-funded programme to develop e-learning and blended learning, providing a solid base for further educational development. The panel agrees with the idea of reaching a larger number of students and enlarging the impact on the ground in developing countries. The panel also agrees with the principle that the online modules are to be complimentary to the classroom teaching. The panel saw that online teaching is well embedded in the master's programmes. Intercultural collaboration in blended learning remains a challenge, but the panel saw that IHE Delft is exploring ways to incorporate this feature into a blended format as well. In this respect, the panel advises IHE Delft to make sure that future development of e-learning is properly aligned with the strategy and the philosophy of the institute.

C. Judgement

In the opinion of the panel, IHE Delft meets standard 4, Development.

4.5 Final conclusion

In the opinion of the panel, the final conclusion of the institutional audit of IHE Delft is positive. The panel was pleased to encounter a dedicated institute where a committed staff and a smart and articulate student body are collaborating in a productive way to make an impact to the Sustainable Development Goals and to develop their talents. The panel has an unanimous and positive overall impression about the institute and the quality assurance system that is in place. This system is supported by a diverse and professional community that is committed to improving quality.

The panel has seen a well-defined view on education based on the key values of IHE Delft. The panel found that these key values are not only well known by the staff, but that the students are aware of them as well. The way that these key values are incorporated differs between programmes, but these differences are accommodated within the overall framework of the institute. The panel has established that the vision is broadly supported, but that the strategy is new and the implementation of the strategy is as yet work in progress. The panel believes that the story behind the strategy can be explained and shared in a more convincing way. Furthermore, the panel believes that the stakeholders and the student body could be involved in a more substantial way in the further development of the strategy.

The panel has seen that governance and policy documents are well established at all levels. The Rectorate has a prominent place in safeguarding the quality assurance, with a dedicated vice-rector on and bureau on educational affairs. On most relevant issues, policy documents have been developed. Some policies are still under development, for instance on interdisciplinarity and innovation. The panel believes that in these cases a policy at the institutional level could support the initiatives that are being developed in the different programmes. The monitoring system is well-developed at all relevant levels as well. The quality system is extensive and detailed, but nevertheless is felt to be effective and useful. The system helps the staff to adjust and improve their modules and programmes regularly.

In development (Standard 4) the panel distinguishes between the regular improvement of current education and the development of new ways to improve the educational system. The regular development is done systematically, modules are improved continuously based on the evaluation outcomes. Concerning the new directions, the panel encountered many ideas about the shift to a one-year master's programme and to the development of e-learning. The panel saw that there is room for diversity and a learning approach to development. Here again, the panel advises the institute to explain its objectives and the motives behind them, and to involve the alumni and stakeholders. The development has to be aligned with the philosophy, the strategy and the budget requirements.

5 Recommendations

Based on its audit findings, the panel recommends that IHE Delft implements the following improvements:

- The story behind the strategy can be explained and shared in a more convincing and systematic way, including the impact issue. Take sufficient time for this important dialogue.
- The students could be involved in a more substantial way in the development of the strategy; so far, this has been restricted largely to the self-payers and the student representatives in the programme committees.
- The panel believes that a strategy at the institutional level could help to develop the good practices on interdisciplinarity across programmes.
- The panel believes that IHE Delft should continue along the current path of gradual development and discussion and to ensure the commitment of all parties involved. The development has to be aligned with the philosophy, the strategy and the budget of IHE Delft. This applies to both the move towards a one-year programme and the development of e-learning and blended learning.

6. Overview of the advice

The table below reflects the panel judgement regarding each standard as presented in chapter 4.

Standard	Judgement
Vision and policy	Meets the standard
Implementation	Meets the standard
Evaluation and monitoring	Meets the standard
Development	Meets the standard
Final conclusion	Positive

Appendix 1: Accreditation portrait

Instellingstoets kwaliteitszorg, Stichting IHE Delft

Accreditatieportret Stichting IHE Delft

Het accreditatieportret geeft een overzicht van alle NVAO besluiten met betrekking tot accreditatie en toets nieuwe opleiding. Het betreft alle besluiten onder regime van de tweede fase van het accreditatiestelsel¹, waarvan het definitief besluit is verstuurd voor 1 januari 2019. Daarmee wordt de periode 2013 tot einde 2018 in beeld gebracht².

De besluiten worden chronologisch gepresenteerd met daarbij aandacht voor bijzondere kenmerken en joint degree programma's. Omdat besluiten en niet de opleidingen de ingang vormen, kunnen opleidingen twee maal voorkomen. Bijvoorbeeld bij toekenning herstelperiode en vaststelling realisatie herstel.

Aangezien UNESCO-IHE Institute for Water Education op 12 mei 2015 de Instellingstoets kwaliteitszorg met een positief resultaat heeft doorlopen is het NVAO beoordelingskader voor de beperkte opleidingsbeoordeling en beperkte toets nieuwe opleiding van toepassing.

In het overzicht is in combinatie met het accreditatiebesluit ook het eindoordeel opgenomen. Het eindoordeel kan Onvoldoende, Voldoende, Goed of Excellent zijn. Het accreditatiebesluit kan luiden: negatief, herstelperiode, en positief. Daarnaast kan de aanvraag worden ingetrokken. In combinatie geeft dat de volgende reeks: Negatief, Herstelperiode; Voldoende; Goed; Excellent en intrekking. Onder opmerkingen wordt gemarkeerd of het een besluit betreft na herstel. In die gevallen wordt na de herstelperiode vastgesteld dat het herstel is gerealiseerd en wordt een positief accreditatiebesluit afgegeven.

In de periode 2013 tot einde 2018 heeft Stichting IHE Delft 5 aanvragen ingediend, waarvan 4 accreditatieaanvragen.

Er werd 1 aanvraag voor een Toets Nieuwe Opleiding ingediend.

Bijlage 1 Tabel Overzicht eindoordeelen per procedure
Bijlage 2 Tabel Besluiten chronologisch

¹ Op 1 januari 2011 is het nieuwe Nederlandse accreditatiestelsel hoger onderwijs in werking getreden (besluit 21 december 2010, Stb. 2010, 862).

² Met uitzondering van de besluiten onder het eerdere regime in die periode.

Bijlage 1 Tabel overzicht eindoordelen

Naam instelling	UNESCO-IHE/IHE Delft ³
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Som van Aantal		Jaar besluit						Eindtotaal
Soort dossier	Eindoordeel en besluit	2013	2014	2015	2016	2017	2018	
	Voldoende	4						4
Totaal Accreditatie NL		4						4
Toets Nieuwe Opleiding NL	Positief						1	1
Totaal Toets Nieuwe Opleiding NL							1	1
Eindtotaal		4					1	5

³ Per 01-01-2017 is de naam van UNESCO-IHE Institute for Water Education gewijzigd in IHE Delft Institute for Water Education.

Bijlage 2 Tabel Chronologisch overzicht besluiten

Accreditatie

Jaar besluit	Naam opleiding CROHO	Eindoordeel en besluit	Bijzondere procedures	Totaal
2013	M Environmental Science	Voldoende		1
	M Urban Water and Sanitation	Voldoende		1
	M Water Management	Voldoende		1
	M Water Science and Engineering	Voldoende		1
Eindtotaal				41

Toets nieuwe opleiding

Jaar besluit	Naam opleiding CROHO	Eindoordeel en besluit	Bijzondere procedures	Totaal
2018	M Programme in Sanitation	Positief		1
Eindtotaal				4

Besluit NVAO ten aanzien van verlenen Instellingstoets Kwaliteitszorg

Eindoordeel: positief

Datum: 12 Mei 2015

Appendix 2: Schedules of the site visits

Agenda exploratory visit by the NVAO Audit Panel, 17 and 18 September 2019.

Tuesday 17 September 2019

08:30h – 08:45h IHE Delft's welcome to the panel

Rectorate representatives

08:45h – 11:00h Closed panel preparation session and consulting documents

11:00h – 11:30h Meet & Greet – presentation IHE / ITK (Video)

- IHE Delft in a Nutshell and Studying at IHE Delft (video, 3 min)
- Tell your story - MSc students 2017-2019 (video, 8 min)
- Some facts and figures (presentation, 10 min)

Rectorate representatives

11.30h – 12.15h Walk through the building, class rooms and the Labs,

12:15h – 13:15h Lunch with participants Bestuurlijk Overleg (Rectorate representatives, Hd EB, Staff representative, Institutional Audit process coordinator, Student representatives;

13:30h – 14:15h Meeting with Governing Board members (or via Skype)

14:30h – 15:15h Standard 1 : Vision and Policy (6 staff)

- Rectorate (2)
- Head of Education Bureau
- Senior Policy Advisor Academic Affairs
- Academics (2)

15:30h – 16:15h Standard 2 : Implementation (part 1) (6 staff)

- Programme committee (2 chair persons)
- ECC representatives (3)
- Examination Board representative

16:30h – 17:30h Open Consultation Hour for staff and students (in hotel)

Wednesday 18 September 2019

08:30h – 09:30h Panel preparation (closed)

09:30h – 10:15h Standard 2 : Implementation (part 2)

- Social and Cultural Officer/Student Counselor
- Senior Fellowship and Admission Officer
- Study support and planning
- Academic Registrar

10:30h – 11:15h Panel preparation (closed)

11:15h – 12:15h Standard 3 : Evaluation and Monitoring (6 staff)

- Program coordinators of the 5 Msc Programmes;
- Quality management representative

12:30h – 14:00h Lunch (closed)

14:00h – 15:00h Meet & Greet with Student Representatives

- Students (6 persons)

15:00h – 16:30h Standard 4 : Development (6 staff)

- Vice-Rector
- EB representatives: Head of Education Bureau
- Academics (2)
- HR manager
- IT manager

16:30h – 17:00h Closed panel meeting

17:00h – 17:30h Debriefing Exploratory visit in VC room

Agenda visit by the NVAO Audit Panel, 11, 12 and 13 November 2019.

The Panel resides in the VC room.

Monday 11 November 2019: Trail 1, Past performance

08:30h – 09:30h Organise laptops and digital access Panel members to relevant documents (Source, eCampus, EB drive)

09:30h – 12:15h Closed panel preparation session and consulting documents

12:30h – 13:30h Lunch

• **Trail 1: part Past performance Urban Water and Sanitation (UWS) Meeting programme 11 November**

13:30h – 14:15h Session 1: *How do we maintain the quality and relevance at the programme level?*

meeting programme management (chairs & coordinators)

- Chair of UWS PC, Head of Chair Group Water Supply Engineering;
- Head of Chair Group, Sanitary Engineering;
- Programme Coordinator;
- Deputy Programme Coordinator; Coordinator for UWEM Specialization with AIT Bangkok
- Student member

14:30h – 15:15h Session 2: *How is the programme delivered and quality realized in practice?*

meeting teachers & examination board representative

- Associate Professor, Chair of Examination Board)
- Three Associate Professors
- Senior Lecturer
- Lecturer

15:30h – 16:15h Session 3: *How is the programme delivered and quality realized in practice? – Student Perspectives* (meeting students)

- Four students Water Supply Engineering
- Two students Sanitary Engineering

16.30 – 17.15h Session 4: *How do we ensure that the programme stays relevant and ensure its impact?* meeting external stakeholders/sponsors

- Two Joint Programme Partners
- Three Guest Lecturers

- **Tuesday 12 November 2019: Trail 1, part WMG**

Trail 1: part Past performance Water Management and Governance (WMG) Meeting programme 11 November

09:00h – 09:45h Session 1: *How do we maintain the quality and relevance at the programme level?*

meeting programme management (chairs & coordinators)

- Programme Director WMG
- Programme Coordinator WMG
- Member Programme Committee/ Coordinator Joint Programme Water Cooperation and Diplomacy
- Former Programme Coordinator WMG
- Member WMG programme

10:00h – 10:45h Session 2: *How is the programme delivered and quality realized in practice?*
meeting teachers & examination board representative

- Five senior lecturers

11:00h – 11:45h Session 3: *How is the programme delivered and quality realized in practice? – Student Perspectives* (meeting students)

- Six students WMG programme

12.00 – 12.45h Session 4: *How do we ensure that the programme stays relevant and ensure its impact?* meeting external stakeholders/sponsors (by Skype)

- Asian Institute of Technology Bombay, Alumnus
- Aqua for All, Alumna
- Alumna

12:45h – 13:45h Lunch

- **Tuesday 12 November 2019 : Trail 2, Innovation**

Meeting programme 12 November

14:00h – 14:45h Session 1: *Vision and integration: What is the vision on innovation/eLearning? How is eLearning integrated in our QA system? What is the eLearning educational concept/eLearning course development workshop series? Examples of innovations and eLearning at IHE?*

- Vice-rector;
- Two representatives Educational Bureau;
- Member Academic Staff; prep courses;
- Member Academic Staff UWS; GDPD and stand-alone online courses;
- Member Academic Staff UWS; MSc Sanitation;
- Member Academic Staff WMG; making documentaries

15:00h – 15:45h Session 2: *Instruments (How to ...) How is innovation integrated in policies? What instruments does IHE use to stimulate innovations? How is innovation facilitated? What means are allocated to innovation?*

- Director business development IHE Delft
- Sponsor: DUPC
- Two representatives Educational Bureau
- Head (HR; PDM & UTQ+;
- Representative IT (technical / audio-visual support);
- Representative Finance

16:00h – 16:45h Session 3: *How do stakeholders perceive opportunities for eLearning at IHE? Are IHE's vision and ambitions realistic?* Meeting with Stakeholders

- Head Education Bureau, didactic support / eLearning Support team;
- Member Academic Staff WSE; business / blended model;
- Representative Vitens Evides International
- Representative DGIS
- Member Academic Staff WMG
- Student ES-EPM
- Student Sanitation

- **Wednesday 13 November 2019: Trail 3, Interdisciplinarity**

How do we create synergies between the programmes, building on each other's strengths, creating interdisciplinarity, and consistent quality?

- **Meeting programme 13 November**

09:00h – 09:45h *Session 1: What are examples of interdisciplinarity in our existing curriculum?*

- Programme Chair WSE
- Member Academic Staff WMG;
- Member Academic Staff Hydrology;
- Vice-rector;
- Student ES-EST;
- Student WSE-HWR

10:00h – 10:45h *Session 2: How can we use the MSc research phase to encourage interdisciplinarity?*

- Programme Chair ES;
- Member Academic Staff WMG;
- Member Academic Staff WSE;
- Student AS-AES;
- Research proposal coordinator
- Student WSE-HWR

11:00h – 12:30h Panel meeting (closed)

12:30h – 13:15h *Lunch (closed)*

13:15h – 15:00h Panel meeting in preparation of debriefing

15:00h – 16:00h Panel debriefing.

Appendix 3: Overview of the documents perused

Prior to the assessment, the following documents have been provided to the panel:

- Critical Self-Reflection Institutional Audit 2019, IHE Delft Institute for Water Education
- Annexes:
 - Annex 1: IHE Delft, Institute for Water Education, Overview of the organisation and its governance structure(s)
 - Annex 2: Vision on Education (updated 2018-2019)
 - Annex 3: Overview of education programmes, specialisations
 - Annex 4: Quality Assurance framework (QA)
 - Annex 5: Quality Assurance calendars and reports
 - Annex 6: Overview of QA policies and procedures
 - Annex 7: Overview of education related ToRs
 - Annex 8: IHE Delft response to the Next steps (Dec 2014 Follow-up report)
 - Annex 9: IHE Delft, Strength and challenges on 4 NVAO standards - overview

The following documents have been used for the management review and were available for inspection:

- Students' Critical Reflection on IHE Delft Master Programmes 2016-2018
- Education and Training Guide 2020

The following documents have been provided for the audit trails:

Trail 1:

General:

- 2017-2019 End of Taught Programme (results of the Student Evaluation (SE) of the End of Taught programme 2017-2019).
- Memo to Rectorate - MSc Programmes Student Evaluation End of Taught part 2017-2019
- Rectorate Email on End-of-taught-part evaluation to Programme committees and coordinators.pdf
- IHE and the SDGs brochure
- 2017-2019-End of Programme Evaluation cohort 2017-2019
- 2018 MSc programmes quantitative report
- Students Critical Reflection IHE Delft 2016-2018

MSc Urban Water and Sanitation:

- The latest programme accreditation self –reflection report of UWS
- Two qualitative reflection reports, as reported by the Programme coordinator, 2017 and 2018.
- A first module peer report of the UWS programme.
- Student Module Evaluation reports for selected modules, a follow up Module Reflection report by the module coordinator, and the minutes from the UWS Program committee on both.

MSc Water Management and Governance:

- The latest programme accreditation self –reflection report of WMG
- Example of an qualitative reflection report, as reported by the Programme coordinator in 2018.
- A document with proposed changes for approvals for WMG Programme 2019/2021
- A first module peer report
- Student Module Evaluation reports for selected modules, a follow up Module Reflection reports by the module coordinator, and the Minutes from the WMG Program committee on both (PC).

Trail 2: Innovation

- Didactic toolkit IHE
- Discussion note about how to deal with the MOOC developments
- IHE Delft's Digital Education Transformation 2018
- eLearning Support Team - vision on online education
- IHE and Innovations in land and water (brochure)
- 1 yr. MSc Sanitation - Design and Creation Workshop Report Externals Update (report of the Design workshop with stakeholders)
- 1 yr. MSc Sanitation Course overview
- Annual DUPC2 Project Report eLearning 2018 (DUPC is the Dutch Programmatic Cooperation between IHE Delft and the Ministry of Foreign Affairs (DGIS)
- WaterWorx-Memo Flexible WGM WSM to WMPC.

Trail 3: Interdisciplinarity

- Week 1 of the MSc programmes: Schedule Introduction to Water for Development
- Group work (examples)
- Electives (Module 8 and 10 offers intra-programme electives; Module 11 offers inter-programme electives)
- Summer courses and student evaluation report
- Institute wide qualifications
- 2018-Result Form and Rubric MSc Thesis Examination
- Report of the development dialogue IHE Delft 12 March 2019

Appendix 4: List of abbreviations

Ba	bachelor's degree
EB	Education Bureau
EC	European credit point
ECC	Education Coordination Committee
EDC	Education Development Committee
EVC	prior experiential learning
hbo	professional higher education
IHE	IHE Delft Institute for Water Education
ITK	Instellings Toets Kwaliteitszorg (Institutional Audit Quality Assurance procedure)
KPI	Key Performance Indicator
ma	master's degree
MC	Module Coordinator
MOOC	Massive Open Online Course
NVAO	Accreditation Organisation of the Netherlands and Flanders
OER	teaching and examination regulations
PC	MSc Programme Committee
PDCA	Plan, Do, Check, Act
UNESCO	United Nations Educational, Scientific and Cultural Organization
UTQ	University Teaching Qualification

