

**Master programmes in  
Environmental Sciences  
and in  
Urban Environmental Management**  
Distinctive quality feature  
Internationalisation  
Wageningen University

Quality Assurance Netherlands Universities (QANU)  
Catharijnesingel 56  
PO Box 8035  
3503 RA Utrecht  
The Netherlands

Phone: +31 (0) 30 230 3100  
Telefax: +31 (0) 30 230 3129  
E-mail: [info@qanu.nl](mailto:info@qanu.nl)  
Internet: [www.qanu.nl](http://www.qanu.nl)

Project number: Q 419

© 2013 QANU

Text and numerical material from this publication may be reproduced in print, by photocopying or by any other means with the permission of QANU if the source is mentioned.

# CONTENTS

<b>Report on the master programme Environmental Sciences and the master programme Urban Environmental Management of Wageningen University: Distinctive quality feature internationalisation .....</b>	<b>5</b>
Administrative data regarding the programme .....	5
Administrative data regarding the institution.....	6
Composition of the assessment committee .....	6
Working method of the assessment committee .....	6
Summary judgement master programme Environmental Sciences .....	8
Summary judgement master programme Urban Environmental Management.....	10
Description of the standards from the Framework for the Assessment of Internationalisation .....	12
<b>Appendices .....</b>	<b>23</b>
Appendix 1: Curricula Vitae of the members of the assessment committee .....	25
Appendix 2: Domain-specific framework of reference.....	27
Appendix 3: Intended learning outcomes .....	41
Appendix 4: Overview of the curriculum.....	43
Appendix 5: Programme of the site visit .....	49
Appendix 6: Declarations of independence .....	53

This report was finalized on 29 November 2013.



# Report on the master programme Environmental Sciences and the master programme Urban Environmental Management of Wageningen University: Distinctive quality feature internationalisation

This report takes the NVAO's framework for the Assessment of Internationalisation as a starting point.

## Administrative data regarding the programme

---

### Master programme Environmental Sciences

Name of the programme:	Environmental Sciences
CROHO number:	60810
Level of the programme:	master
Orientation of the programme:	academic
Number of credits:	120 EC
Specializations or tracks:	Air Quality and Atmospheric Chemistry, Aquatic Ecology and Water Quality Management, Environmental Economics and Natural Resources, Environmental Policy, Environmental Systems Analysis, Environmental Technology, Integrated Water Management, Soil Biology and Biological Soil Quality, Soil Chemistry and Chemical Soil Quality, Toxicology.
Location(s):	Wageningen
Mode(s) of study:	fulltime
Expiration of accreditation:	31-12-2014

### Master programme Urban Environmental Management

Name of the programme:	Urban Environmental Management
CROHO number:	60110
Level of the programme:	master
Orientation of the programme:	academic
Number of credits:	120 EC
Specializations or tracks:	Environmental Economics and Natural Resources, Environmental Policy, Environmental Systems Analysis, Environmental Technology, Geo-information Science and Remote Sensing, Land Use Planning, Management Studies
Location(s):	Wageningen
Mode(s) of study:	fulltime
Expiration of accreditation:	31-12-2014

The visit of the assessment committee Environmental Sciences to the Wageningen University took place on 22 and 23 May 2013.

## **Administrative data regarding the institution**

---

Name of the institution:	Wageningen University
Status of the institution:	publicly funded institution
Result institutional quality assurance assessment:	positive

## **Composition of the assessment committee**

---

The committee that assessed the master Environmental Sciences and the master Urban Environmental Management consisted of:

- Prof. W.A. Hafkamp, chair, professor in Environmental Economics, Erasmus University Rotterdam;
- Prof. I. Janssens, research professor at the University of Antwerp, affiliated to the research group of Plant and Vegetation Ecology;
- Prof. A. Jamison, professor in Technology, Environment and Society, Aalborg University, Denmark;
- Prof J. Monstadt, Professor in Spatial and Infrastructure Planning, Darmstadt University of Technology, Germany;
- Mrs. L.H.A. van der Sanden, master student in Social and Political Sciences of the Environment, Radboud University Nijmegen.

The committee was supported by Dr. A. Venemans-Jellema, who acted as secretary.

Appendix 1 contains the curricula vitae of the members of the committee.

## **Working method of the assessment committee**

---

### *Assessment of internationalisation*

The master programme Environmental Sciences and the master programme Urban Environmental Management of Wageningen University requested an assessment of its internationalisation drive in order to be able to qualify for the so-called ‘distinctive quality feature for internationalisation’ by the NVAO. The internationalisation of the programme is assessed in addition to a regular assessment of the programmes. The working method of the committee is described in the report on this regular assessment.

In the critical reflection, the international aspects of the programme were described. During the site visit, the committee paid extra attention to internationalisation in all interviews. Additional information and documentation were provided during the site visit.

In this assessment report, the committee gives (separate) judgements for each standard and each underlying criterion included in the framework for the assessment of internationalisation as a distinctive quality feature. These judgements are all separately substantiated. This report

only contains the separate report evaluation of the internationalisation of the programme. This report could best be read together with the report on the assessment of the programme.

#### *Frameworks and decision rules*

The assessment was performed according to the NVAO (Accreditation Organization of the Netherlands and Flanders) framework for the Assessment of Internationalisation (14 November 2011).

A four-point scale is applied in the framework. The committee used the following definitions for the assessment of the standards, the programme as a whole, the standards and criteria on internationalisation, and the overall assessment on internationalisation.

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

#### **Assessment rules of distinctive quality feature for internationalisation**

The programme is assessed as excellent when at least 3 standards are assessed as excellent and 2 standards as good.

The programme is assessed as good when at least 3 standards are assessed as good or excellent and no standard is assessed as unsatisfactory.

The programme is assessed as unsatisfactory when 1 or more standards are assessed as unsatisfactory.

In all other cases the programme is assessed as satisfactory.

## Summary judgement master programme Environmental Sciences

---

The committee assessed whether a distinctive quality feature for internationalisation can be awarded to the master programme in Environmental Sciences. It used the criteria and standards from the NVAO Assessment framework for the Assessment of Internationalisation (14 November 2011). Based on its findings, the committee assesses the internationalisation of the programme as satisfactory. The programme meets the current generic quality standards. The following considerations played an important role in the committee's assessment.

### *Standard 1: Vision on internationalisation*

At institutional level, Wageningen University has a clear international orientation and vision. This also applies for the master programme Environmental Sciences. As the master programme has been internationally oriented since it started, the vision on internationalisation of the master programme is not explicit and difficult to separate from the general vision of the programme. Verifiable objectives are present at university level, but documentation with explicit objectives is lacking on programme level. Evaluations on internationalisation are in place, although rather fragmented.

### *Standard 2: Learning outcomes*

At least two intended learning outcomes of the programme Environmental Sciences explicitly focus on international, intercultural aspects. In addition, internationalisation is implicitly present in many learning outcomes.

Although no specific assessments are used for measuring the achievement of international oriented intended learning outcomes, the committee concludes that international aspects get sufficient attention during student assessment. The committee furthermore considers it very likely that students graduating from the master programme have obtained all intended learning outcomes regarding internationalisation.

### *Standard 3: Teaching and Learning*

Although only one course, the European Workshop, explicitly pays attention to internationalisation, the structure of the curriculum allows students to achieve the intended learning outcomes. The committee considers the international classroom an important and valuable aspect of this. Group work is regularly used and stimulates intercultural and international aspects of the programme and student population. The committee is positive about the added value of group work.

### *Standard 4: Staff*

Staff members involved in the programme are highly qualified researchers in their field of expertise, providing an excellent basis for lecturing about international developments in the field. Staff members have options to follow courses regarding international aspects of teaching. No information was provided on exact numbers of international staff members, or their international and intercultural experience. However, the critical reflection indicated that over 10% of educational staff is from abroad.

### *Standard 5: Students*

The composition of the student group is very internationally oriented with 70% of students being non-Dutch. Half of the international students are European, the other half non-European. International experience gained by students is adequate. Although many students spend time abroad, this is not guaranteed. Services provided to students are adequate and in line with the composition of the student group.

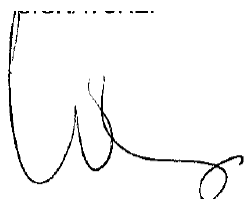


The committee assesses the standards from the *Framework for the Assessment of Internationalisation* as follows:

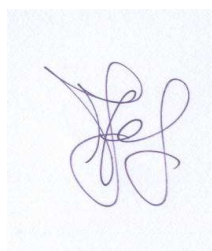
Standard 1: Vision on internationalisation	satisfactory
Standard 2: Learning outcomes	satisfactory
Standard 3: Teaching and Learning	satisfactory
Standard 4: Staff	satisfactory
Standard 5: Students	satisfactory
General conclusion	satisfactory

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 it. They confirm that the assessment has been conducted in accordance with the demands relating to independence.

Date: 29 November 2013



Prof. dr. W.A. Hafkamp



Dr. A. Venemans-Jellema

## Summary judgement master programme Urban Environmental Management

---

The committee assessed whether a distinctive quality feature for internationalisation can be awarded to the master programme in Urban Environmental Management. It used the criteria and standards from the NVAO Assessment framework for the Assessment of Internationalisation (14 November 2011). Based on its findings, the committee assesses the internationalisation of the programme as satisfactory. The programme meets the current generic quality standards. The following considerations played an important role in the committee's assessment.

### *Standard 1: Vision on internationalisation*

At institutional level, Wageningen University has a clear international orientation and vision. This also applies for the master programme Urban Environmental Management. As the master programme has been internationally oriented since it started, the vision on internationalisation of the master programme is not explicit and difficult to separate from the general vision of the programme. Verifiable objectives are present at university level, but documentation with explicit objectives is lacking on programme level. Evaluations on internationalisation are in place, although rather fragmented.

### *Standard 2: Learning outcomes*

At least one intended learning outcome of the programme Urban Environmental Management explicitly focuses on international, intercultural aspects. In addition, internationalisation is implicitly present in many learning outcomes.

Although no specific assessments are used for measuring the achievement of international oriented intended learning outcomes, the committee concludes that international aspects get sufficient attention during student assessment. The committee furthermore considers it very likely that students graduating from the master programme have obtained all intended learning outcomes regarding internationalisation.

### *Standard 3: Teaching and Learning*

Although only one course, the European Workshop, explicitly pays attention to internationalisation, the structure of the curriculum allows students to achieve the intended learning outcomes. The committee considers the international classroom an important and valuable aspect of this. Group work is regularly used and stimulates intercultural and international aspects of the programme and student population. The committee is positive about the added value of group work.

### *Standard 4: Staff*

Staff members involved in the programme are highly qualified researchers in their field of expertise, providing an excellent basis for lecturing about international developments in the field. Staff members have options to follow courses regarding international aspects of teaching. No information was provided on exact numbers of international staff members, or their international and intercultural experience. However, the critical reflection indicated that over 20% of educational staff is from abroad.

### *Standard 5: Students*

The composition of the student group is very internationally oriented with 60% of students being non-Dutch. Half of the international students are European, the other half non-European. International experience gained by students is adequate. Although many students

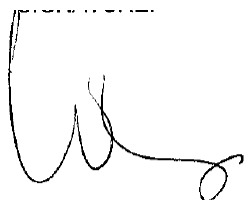
spend time abroad, this is not guaranteed. Services provided to students are adequate and in line with the composition of the student group.

The committee assesses the standards from the *Framework for the Assessment of Internationalisation* as follows:

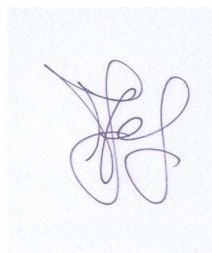
Standard 1: Vision on internationalisation	satisfactory
Standard 2: Learning outcomes	satisfactory
Standard 3: Teaching and Learning	satisfactory
Standard 4: Staff	satisfactory
Standard 5: Students	satisfactory
General conclusion	satisfactory

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 it. They confirm that the assessment has been conducted in accordance with the demands relating to independence.

Date: 29 November 2013



Prof. dr. W.A. Hafkamp



Dr. A. Venemans-Jellema

## Description of the standards from the Framework for the Assessment of Internationalisation

---

### Standard 1: Vision on internationalisation

*Criterion 1a: Shared vision*

The programme has a vision on internationalisation. This vision is supported by stakeholders within and outside the programme.

*Criterion 1b: Verifiable objectives*

The vision on internationalisation includes verifiable objectives.

*Criterion 1c: Improvement-oriented evaluations*

The vision on internationalisation is evaluated periodically and this evaluation forms the basis for improvement measures.

### Findings

*Vision and objectives on internationalisation*

Wageningen University has provided the committee with a document regarding internationalisation at Wageningen University. In this document, which was the basis for the distinctive feature internationalisation at institutional level, the overall vision on internationalisation is that a truly international university should be characterized by education and research aiming at international themes, a population of international students and staff, and a setting that welcomes the diversity of many nationalities and cultures.

The critical reflection states that a master programme in environmental sciences should have an international orientation, since environmental issues and regulations are transnational in nature (climate change being the example *par excellence*). Furthermore, as many countries in the developing world that need environmental experts still do not have the educational infrastructure required to train them, international master programmes like the ones in Wageningen can make a contribution by providing for the training of these experts, and at the same time contribute to the development of local academic environmental education at an advanced level by training the prospective trainers.

According to the critical reflection on the master programme in Environmental Sciences (ES), countries may differ in the nature and seriousness of their environmental issues, but natural resources are under pressure worldwide. Countries certainly differ in environmental awareness, the timing of its origin and the extent to which it has developed. According to the critical reflection on the master programme in Urban Environmental Management (UEM), environmental conditions and infrastructure in cities differ widely throughout the world. An international programme offers priceless opportunities of sharing knowledge, experiences, and ideas between people from different countries. According to Wageningen University, an international programme offers opportunities of sharing knowledge, experiences, and ideas between people from different countries.

The Wageningen programmes have been international from their start (in 2002) and even the preceding programmes focussed strongly on internationalisation. Most courses of the common part of the programmes are explicitly designed to further cooperation between the students and sharing of knowledge, experiences and opinions among them.

The programmes aim at attracting students from all over the world and their goal is a student population with a large diversity; both students from the Netherlands, other EU member states and from developed and developing countries outside the EU.

The committee initially had some difficulties in distinguishing the international vision of the programmes from the general vision. Subsequently, the committee concluded that the general objectives and vision of the programmes are internationally oriented and have been for a long time, making it difficult to separate an international component in the vision and objectives.

Wageningen University has received the Distinctive Quality Feature on Internationalisation as an institute, confirming the international vision and approach of the university. The committee considers that the programmes have a clear vision on internationalisation, but do not specifically take internationalisation as an additional topic in their vision. On the programme level, there is a vision on internationalisation, although less comprehensive and explicit compared with the institutional vision. A clear definition of verifiable objectives, based on the international vision, is lacking on the programme level. The committee recommends to refine the vision and to formulate verifiable objectives that link with this vision. Also, stakeholders all expect Wageningen University programmes to be internationally oriented and no signals were received by the committee that the vision of the programme was not supported by internal or external stakeholders.

Wageningen programmes should have the perspective to develop students' awareness of the international issues in their field. The graduates and staff are expected to work on global challenges, to compete for jobs in an international environment and to function well in a multicultural setting. The critical reflections of the programmes additionally state that the criteria for successful internationalisation are related to the composition of the student body and cooperation between students. Successful internationalisation adds value to the learning process.

Internationalisation is included in all evaluations of education at Wageningen University, both involving Dutch and international students. Course evaluations involve the lecturers' proficiency in English, the programme evaluation by graduating students has questions about the multicultural aspects of the programme. In addition, specific evaluations regarding internationalisation (e.g. the International Student Barometer). Finally, surveys among alumni contain questions about the country of employment, the international character of the job, etc. The committee considers that sufficient evaluations regarding questions on internationalisation are in place. It recommends to the programmes to use the outcomes of these questions to evaluate internationalisation as a whole..

## **Considerations**

According to the committee, internationalisation is engrained in Wageningen University and in the master programmes, Environmental Sciences and Urban Environmental Management. This makes the general vision of the programmes without a doubt very internationally-oriented.

On the programme level, there is a vision on internationalisation, although less comprehensive and explicit compared with the institutional vision. A clear definition of verifiable objectives, based on the international vision, is lacking on the programme level.

Although evaluations of internationalisation are in place, they are somewhat fragmented, making it difficult to evaluate the mission on internationalisation. Therefore, the committee assesses Standard 1 on internationalisation as satisfactory.

## **Conclusion**

The committee assesses Criterion 1a: Shared vision as **satisfactory**

The committee assesses Criterion 1b: Verifiable objectives as **unsatisfactory**.

The committee assesses Criterion 1c: Improvement-oriented evaluations as **satisfactory**.

Despite the lack of clear definition of verifiable objectives, the committee is of opinion that the programmes do have a vision on internationalisation. The committee does recommend to more clearly formulate the vision and objectives at programme level.

The committee assesses Standard 1: Vision on internationalisation as **satisfactory**.

## Standard 2: Learning outcomes

### *Criterion 2a: Intended learning outcomes*

The intended international and intercultural learning outcomes defined by the programme are a clear reflection of its vision on internationalisation.

### *Criterion 2b: Student assessment*

The methods that are used for the assessment of students are suitable for measuring the achievement of the intended international and intercultural learning outcomes.

### *Criterion 2c: Graduate achievement*

The programme can demonstrate that the intended international and intercultural learning outcomes are achieved by its graduates.

## Findings

### *Intended learning outcomes*

According to the critical reflection on the master programme ES, two of the intended learning outcomes explicitly refer to the international orientation of the Environmental Sciences programme:

After successful completion of the programme graduates are expected to be able to:

- ILO 3: interact with stakeholders of different cultural backgrounds or nationalities and with specialists from other disciplines so as to arrive at a common identification, analysis, and solution strategy of the issues involved;
- ILO 10: support working parties and committees, negotiate, and act as a mediator, effectively and appropriately dealing with cultural diversity.

According to the critical reflection on the master programme UEM, the international orientation is so obvious to the stakeholders that none of the intended learning outcomes are explicitly targeted at internationalisation. However, one of the learning outcomes reflects the importance the programme attaches to the intercultural communication:

After successful completion of the programme graduates are expected to be able to:

- support working parties and committees, negotiate, and act as a mediator, effectively and appropriately dealing with cultural diversity.

The committee concludes that, although limited, both programmes have intended learning outcomes that specifically address the international aspects of the programme. The committee agrees with the programmes that although most intended learning outcomes not specifically target internationalisation, it is implicitly present in the total of intended learning outcomes.

In addition to the intended learning outcomes, Wageningen University claims that the best way to be aware of international issues and the perception of these issues in different cultures is to have an international classroom, where the experience of the students from different countries can be shared. In both master programmes lecturers are stimulated to use the experience and background of the international students in their courses.

### *Student assessment*

The courses' learning outcomes determine the form of assessment. Most courses include more than one assessment to cover all learning outcomes. The most common forms of

assessment are written examinations with open questions, assessments of individual papers, group papers or other submitted assignments (and combinations of them), and assessments of performance during practical training.

During the site visit, the members of the committee studied written exams and assignments. They established that the exams were very objective, traceable assessments and at the appropriate level. They related well to the learning objectives of the courses they assessed. The committee appreciates the programmes' awareness of the importance of different kinds of assessments and testing in relation to individual and group work.

Specifically the Academic Master Cluster (European Workshop) provides assessment formats that can be used to assess each students' individual contribution to the final product and collaborative process. The course European Workshop is specifically designed for the two programmes that are assessed in this report. The intended learning outcomes on internationalisation are specifically part of this course.

Although no specific assessments are used for measuring specifically the achievement of international intended learning outcomes, the committee concludes that the international aspects of the programme get sufficient attention during student assessment.

#### *Graduate achievement*

Since aspects with respect to internationalisation are not explicitly assessed, it is difficult for the committee to conclude in which courses the internationalisation aspects are assessed and thus whether all intended learning outcomes are achieved by graduates. However, the committee also concluded that since internationalisation and international aspects are strongly integrated into the programmes and their assessment, it is very likely that students graduating from the programmes have obtained all intended learning outcomes regarding internationalisation.

### **Considerations**

The international character of the programme is sufficiently reflected in several intended learning outcomes.

The methods that are used for the assessment of students are not specifically set up for or aimed at measuring the achievement of the international intended learning outcomes. However, since internationalisation is clearly interwoven into the programmes, the committee is assured that assessment and graduate achievement with respect to internationalisation is at least satisfactory.

### **Conclusion**

The committee assesses Criterion 2a: Intended learning outcomes as **satisfactory**.

The committee assesses Criterion 2b: Student assessment as **satisfactory**.

The committee assesses Criterion 2c: Graduate achievement as **satisfactory**.

The committee assesses Standard 2: Learning outcomes as **satisfactory**.



### **Standard 3: Teaching and learning**

#### *Criterion 3a: Curriculum*

The content and structure of the curriculum enable the achievement of the intended international and intercultural learning outcomes.

#### *Criterion 3b: Teaching methods*

The teaching methods enable the achievement of the intended international and intercultural learning outcomes.

#### *Criterion 3c: Learning environment*

The learning environment is suitable for achieving the intended international and intercultural learning outcomes.

## **Findings**

### *Curriculum*

The two year master programmes are taught in English. Appendix 2 provides an overview of the core curriculum of both master programmes.

The curriculum of Environmental Sciences consists of a two-year programme with four types of building blocks: regular courses (standard size 6 EC per course), Academic Master Cluster (12 EC), academic internship (24 EC) and thesis (36 EC). The regular courses are divided in common courses, major-related courses and elective courses.

The programme contains 21 EC of common courses. Two of them dealing with interdisciplinarity (together 9 EC) are compulsory, two others (12 EC) are semi-compulsory, i.e., the student has to take them unless their learning outcomes have already been covered by the student's preparatory training. For the other regular courses, students can develop an individual course list. The study adviser plays an important role in ensuring the coherence of this individual programme.

The curriculum of Urban Environmental Management consists of a two-year programme with four types of building blocks: regular courses (standard size 6 EC), Academic Master Cluster (12 EC), academic internship (24 EC) and thesis (36 EC). The four core perspectives of the programme are urban environmental quality and health, urban environmental technology, urban governance, and urban planning.

Besides a compulsory introductory course, the programme has four urban courses in the common part in which combinations of the four core perspectives with varying emphasis are treated at an advanced level. Each student has to select at least two of these courses.

For both programmes, the compulsory Academic Master Cluster is scheduled in the second half of the first year. Students may choose between the field-specific European Workshop in Environmental Sciences and Management or the general Academic Consultancy Training in combination with Modular Skills Training (shared by many Wageningen master programmes). In the European Workshop in Environmental Quality and Management, students work together on an environmental problem commissioned by a client. During the site visit the committee attended a presentation regarding the European Workshop. It was really impressed by this course combining theory and skills in one workshop.

According to the critical reflections, one of the best ways to become aware of international issues and the perception of these issues in different cultures is to have an international

classroom, where the experience of students from different countries can be shared. The programmes have very good experiences with a blend of approximately one third Dutch, one third other European and one third non-European Students.

A large number of students do an internship abroad (over 50%). Other students participated in education abroad. Only 6% of students reported not to have participated in international activities.

According to the committee the European Workshop indeed is a clear and nice example of an international course. It furthermore agrees with the programme that having an international classroom is an important factor in having an international curriculum. However, this is rather implicitly integrated into the courses that do not explicitly target internationalisation. Nevertheless, the committee considers both programmes to have a curriculum which is sufficiently internationally oriented.

#### *Teaching methods and learning environment*

Wageningen University aims to offer programmes with an interdisciplinary approach. This is meant to stimulate students to develop a broad view and a wide range of interests. Most of the courses are attended by students from different programmes, creating a setting that favours interdisciplinary education.

With nearly 70% of students from other than Dutch origins, the committee concludes that this provides an excellent learning environment with respect to internationalisation. As was mentioned previously, the international classroom is a major contribution to internationalisation of the master programmes.

Different students, trained in different academic traditions, have different expectations. Some of them are not used to critical or independent thinking. This observation was confirmed in the interviews the committee conducted with students of both master programmes. Especially in the initial courses of both master programmes, there seems to be a gap between Dutch students and students from abroad. This difference is especially evident in group work.

Group work plays an important role in the programmes. According to the critical reflection, this method stimulates the students' intellectual skills as well as their communication skills. Students see the importance of group work. However, some students think there is an excess of group work. After discussing this topic in different sessions with students, it became clear that especially Dutch students from the master programme in Environmental Sciences are not satisfied with the large amount of group work. A lot of them graduated from the Wageningen bachelor programme in Environmental Sciences and are already familiar with the concept of group work. In their opinion, there is a difference in experience with this method between Dutch students and students from abroad, which affects the depth of the courses.

The committee is impressed by the variety of teaching methods. Although it agrees that too many group work assignments might influence the depth of courses, it is convinced of the importance of group work with respect to internationalisation.

### **Considerations**

The content and structure of the curricula are allowing students to achieve the intended learning outcomes regarding internationalisation. With the exception of the European Workshop the curricula do not explicitly pay attention to internationalisation. However, the

committee is of opinion that implicitly sufficient attention is given to internationalisation and it agrees with the programmes that the international classroom is an important and valuable aspect of this.

Group work is a teaching method, which is regularly used and stimulates intercultural and international aspects of the programme and student population. The committee is positive about the additional value of group work with respect to internationalisation.

### **Conclusion**

The committee assesses Criterion 3a: Curriculum as **satisfactory**.

The committee assesses Criterion 3b: Teaching methods as **satisfactory**.

The committee assesses Criterion 3c: Learning environment as **good**.

The committee assesses Standard 3: Teaching and learning as **satisfactory**.

#### **Standard 4: Staff**

*Criterion 4a: Staff composition*

The composition of the staff (in quality and quantity) facilitates the achievement of the intended international and intercultural learning outcomes.

*Criterion 4b: International experience and competence*

Staff members have sufficient international experience, intercultural competences and language skills.

*Criterion 4c: Services provided to staff*

The services provided to the staff (e.g. training, facilities, staff exchanges) are in line with the staff composition and facilitate international experiences, intercultural competences and language skills.

#### **Findings**

One of the appendices to the critical reflection contains a list of the academic staff members. All professors involved in the programmes (chair holders, personal, associate, assistant and special professors) have a PhD degree and are involved in current research activities of the departments. In addition, designated researchers and lecturers are involved in the programmes. The committee noted that in the two programmes there is only one female chair holder.

During the site visit the committee confirmed the extensive involvement and enthusiasm of the staff. It recognises the staff's scientific quality, national and international academic reputation and teaching experience. In addition, in the interviews with students, it did not receive any signals of inadequate teaching qualifications. It was impressed by the quantity and quality of the research performed by the Chair Groups. The performance of staff members regarding ranking of scientific papers on the subject of environment is impressive. The committee recommends that the staff develop a system to bring that active (well-funded) research more explicitly into the programmes.

No exact numbers or detailed information with respect to international experience and intercultural competences were provided to the committee with respect to the quantity of international staff members. The critical reflection indicated that for the master programme in Environmental Sciences over 10% of educational staff is from abroad. For the master programme in Urban Environmental Management, this percentage lies over 20%. Based on these general numbers and the interviews during the site visit, the committee concludes that international experience and competence of staff is satisfactory.

The committee noted that the number of staff members who have obtained a basic educational qualification is quite low. Of the lecturers in the Faculty, only 24% has a formal University Teacher Qualification (Dutch: Basiskwalificatie Onderwijs, BKO). According to the critical reflection, a BKO is required for new permanent staff and staff participating in a tenure track. For 2015, Wageningen University aims at 45% of the lecturers having a BKO, with another 30% following the BKO track. Lecturers told the committee during the site visit that they are encouraged by the management to qualify for the BKO.

The student-staff ratios of the three programmes are listed in Appendix 5. Wageningen University staff generally teaches in several programmes. As a consequence, student/staff ratios cannot be computed for a specific programme simply by counting staff and student numbers. Given the total number of students and an average of 45% of faculty time spent on education, the total personnel costs of the programmes can be converted into a value for the student/staff ratio. For the Environmental Sciences master this calculation results in an

effective value of 7.2, and for the Urban Environmental Management master of 6.0. The university average is 6.8.

### **Considerations**

Staff members involved in the programmes are highly qualified researchers in their field of expertise. This provides an excellent basis for lecturing about international developments in the field. Staff members have plenty options for following courses regarding international aspects of teaching.

Although exact numbers of international staff members and international and cultural experience by staff members were limited available, the committee concludes that this criterion is satisfactory.

### **Conclusion**

The committee assesses Criterion 4a: Staff composition as **satisfactory**.

The committee assesses Criterion 4b: International experience and competence of staff as **satisfactory**.

The committee assesses Criterion 4c: Services provided to staff as **satisfactory**.

The committee assesses Standard 4: Staff as **satisfactory**.

## Standard 5: Students

### *Criterion 5a: Student group composition*

The composition of the student group (diversity of national and cultural backgrounds) is in line with the programme's vision on internationalisation.

### *Criterion 5b: International experience*

The international experience gained by students is adequate and in line with the programme's internationalisation vision.

### *Criterion 5c: Services provided to students*

The services provided to the students (e.g. information provision, counselling, guidance, accommodation, Diploma Supplement) are adequate and in line with the composition of the student group.

## Findings

The composition of the student group is very much in line with the programmes' vision on internationalisation. Currently, the percentage of international students in the programme is 60-70%, of which half are European and half are non-European students.

According to the committee, the international experience gained by students is adequate and in line with the programme's internationalisation vision. Many students spend time abroad, a limited number of courses specifically addresses internationalisation aspects and the group composition allows for an international class room.

The services provided to the students are adequate and in line with the composition of the student group. The information provision and counselling are sufficient, and students receive a diploma supplement.

## Considerations

The composition of the student group is in line with the programme's vision on internationalisation. The international experience gained by students is adequate and in line with the programme's internationalisation vision. However, it is not guaranteed that all students gain international experience abroad. The services provided to the students are adequate and in line with the composition of the student group.

## Conclusion

The committee assesses Criterion 5a: Student group composition as **satisfactory**.

The committee assesses Criterion 5b: International experience as **satisfactory**.

The committee assesses Criterion 5c: Services provided to students as **satisfactory**.

The committee assesses Standard 5: Students as **satisfactory**.

## Appendices





## **Appendix 1: Curricula Vitae of the members of the assessment committee**

---

**Prof. W. Hafkamp** (chair of the committee) is Professor in Environmental Economics, Erasmus University, Rotterdam (1994-present). He graduated in Econometrics at the Tilburg University in 1977 and got his PhD in economics at the Free University, Amsterdam (thesis: "Triple Layer Model; An Economic-Environmental Model for The Netherlands"). He was head of the Economic-Technological Department of the Institute for Environmental Studies of the Free University Amsterdam (1984-1998) and a professor of Environmental and Nature Conservation Studies of Tilburg University, Faculty of Economics and Econometrics (1990-1995). He was Dean of the Faculty of Social Sciences of Erasmus University, where he was also involved in setting up the Master of Strategic Urban Studies (2001-2005). Besides being Professor he is a Policy Advisor for the industry. He worked for KPMG Environmental Consulting and was a member of the Management Board of the Joint Programming Initiative Urban Europe. He was Scientific director of Nicis Institute, The Hague, the Netherlands Institute for City Innovation Studies. He has over 25 years of experience in research, policy and practice, on issues ranging from transport and the environment, urban development and spatial policy, environmental management in industry, waste management and safety to sustainable development.

**Prof. I. Janssens** is research Professor at the University of Antwerp (since 2003), affiliated to the research group of Plant and Vegetation Ecology. He studied Analytical Chemistry (bachelor, 1987), Environmental Sciences (master, 1991), Biology (bachelor + master, 1995) at the University of Antwerp. He obtained a PhD on Soil carbon cycling in 1999 (highest distinction, University of Antwerp, funded after obtaining a highly competitive grant from the Flemish National Science Foundation). After his PhD, he obtained two consecutive, highly competitive, post-doctoral grants from the Flemish National Science Foundation. During this period, he worked at the Australian National University (Canberra, Australia, to get acquainted with stable isotope applications in ecology) and at the University of Tuscia (Viterbo, Italy, to specialise in the eddy covariance technique to study ecosystem-atmosphere interactions, and in ecosystem manipulation methodologies). His overarching research focus is the functioning of terrestrial ecosystems, with a strong emphasis on soil processes, ecosystem biogeochemistry (carbon, nitrogen, and recently also phosphorous cycles), greenhouse gas emissions, and on how these ecosystem responses are affected by climate change and by atmospheric pollution. He was a member of the review committee on Climate Studies at Wageningen University (2012).

**Prof. A. Jamison** is Professor in Technology, Environment and Society, Aalborg University, Denmark. In 1970 he obtained his BA magna cum laude in History and Science, Harvard University. He was an External lecturer (Science and Society), University of Copenhagen (1976-1984), and in 1983 he obtained his PhD in Theory of Science at the University of Gothenburg, Sweden (thesis 'National Components of Scientific Knowledge. A Contribution to the Social Theory of Science'). He has organised and taught courses on the theory and methods of environmental science and social movements and politics at Malmö University College. He also organised and taught a course on the perceptions of technology at Denmark's Technical University (DTU). He is coordinator of the Program of Research on Opportunities and Challenges in Engineering Education in Denmark. He is the coordinator of a research program in Denmark on engineering education with a particular focus on sustainability issues (PROCEED). He served as a consultant for the ESSENCE network that was funded by the EU to investigate higher education in the environmental field. He has also been a coordinator and co-founder of a master's degree program in environmental

management at Aalborg University and served as a guest professor in the environmental studies program at Malmö University College.

**Prof. J. Monstadt** is full Professor and Head of the Working Group for Spatial and Infrastructure Planning, Department for Civil Engineering and Department for Architecture, Darmstadt University of Technology, Darmstadt, Germany (since 2009). He graduated in Environmental Planning at the Faculty of Environment and Society, Berlin University of Technology and got his PhD in Environmental planning in 2003, also at the Berlin University of Technology (thesis: ‘The Modernization of Electricity Systems. Regional Energy and Climate Policy in the Process of Liberalization and Privatization’). He was a Postdoctoral Research Fellow at Eawag – the Water Research Institute of the Swiss Federal Institute of Technology (ETH), Centre for Innovation Research in the Utility Sectors, Lucerne/Zürich (2004-2006). During 2007-2009 he was a Senior Research Fellow at the City Institute at York University, Toronto, Canada, and at the Keston Institute for Infrastructure and Public Finance, School of Policy, Planning, and Development, University of Southern California, Los Angeles, USA.

**Mrs. L.H.A. van der Sanden** is a Master Student in Social and Political Sciences of the Environment, Radboud University, Nijmegen. She also obtained her Bachelor in Environmental Sciences at Radboud University, Nijmegen. She studied abroad at Aalborg Universiteit, joining the Environmental Management & Sustainability Science. She was a member of the board of the Student Union for Environmental Sciences ‘Milieuprisma’ (2009-2010) and of the educational committee (2008-2011).

## Appendix 2: Domain-specific framework of reference

---

### Dutch-Flemish referential framework for academic environmental education

This text is the result of discussions between the academic heads of the Dutch and Flemish environmental education programmes. In anticipation of the visitations and accreditations scheduled in 2013/14 and 2015/16 respectively, they deemed this an appropriate time to draft a collective referential framework.

Generally speaking, this Dutch-Flemish referential framework aligns with the Bologna Process, from which the 'Framework of Qualifications for the European Higher Education Area' (FQ-EHEA) was borne. In formulating this referential framework, close attention was paid to the demand for a 'domain-specific referential framework' (DSF) by the Dutch QANU and the demand for 'domain-specific intended learning outcomes' (DSL) in Flanders.

All Dutch and Flemish environmental education programmes offered at university level – as well as those offered at the vocational level in Flanders – were invited to discuss this collective referential framework. Many attended these meetings and have made substantial contributions to this text. These meetings offered attendees the opportunity to identify and assess the similarities and differences between the programmes, and much progress was made. While this referential framework partially builds on earlier international benchmarks (see below), it also strives to take a bold new step towards a European benchmark for academic environmental education, the added value of which needs no further explanation.

Although many Dutch and Flemish environmental programmes collaborated on this referential framework, they do not all intend on formally implementing it: some are seeking accreditation as environmental programme, while others prefer to focus on specific environmental themes and attach more importance to visitations with colleague institutions in the fields of e.g. engineering or chemistry. Even the programmes that do endorse this DSF/DSL are not expected to identify with every element. They are, however, expected to use their respective 'self-evaluation' and 'critical reflection' reports to position their programme within the general framework of this document. In both cases, this document will serve as a general frame of reference only.

The document begins with a description of the environmental sciences domain (1) and moves on to discuss earlier initiatives taken towards establishing an international benchmark (2). It then offers a brief history of academic environmental education in the Netherlands and Flanders (3), including their similarities and differences. This will be used to discuss the academic competencies for bachelor's and master's degree programmes (4). The document will then explore the labour market for environmental scientists (5) and will conclude with the academic goals for environmental education at the bachelor and master levels (6).

#### 1. Environmental Sciences: a description of the discipline

With the advent of environmentalism in the 1970s, academic environmental research and education gained a serious international foothold. As a result of this academic research and education, the environmental sciences domain developed into an established and accredited field in the

Netherlands, Flanders and abroad, with its own 'body of knowledge' (Scholz, 2011), chairs, departments, academic education and research programmes, scientific organisations and journals. Environmental education now enjoys excellent contacts with professionals in the

environmental market, bolstering it with skilled experts and collective research. These environmental professionals have since organised themselves into distinct associations.

Several definitions of environmental sciences are available in both the Low Countries and the international arena (see Udo de Haes, 1984; Stern, 1993; Boersema and Reijnders, 2009). A closer examination, however, will reveal certain parallels: the environmental sciences concern the study of human-induced environmental problems. The word ‘problem’ is crucial here: from the outset, the environmental science discipline has profiled itself as a solution-oriented and mission-oriented field, deeply rooted in society (Broekhans, 2003). With its problem-solving nature, the environmental sciences focus on analysing and explaining environmental issues in order to find a suitable approach and solution. For the natural sciences, this means an examination of the physical, chemical and biological mechanisms of environmental degradation. The ensuing explanations provide for the design, implementation and evaluation of technical and engineering strategies. For the social sciences this means that, in addition to research on societal causes such as demography, economy, technology and culture, the discipline also offers political and policy solution strategies. All of the environmental sciences position their diagnostic and solution-driven approach within spatial and temporal dimensions – including interactions between the ‘here and now’ and the ‘there and later’ – with an eye for the complexity and uncertainty of environmental issues. For all environmental scientists, the effectiveness, political robustness and social legitimacy of any approach or solution must also be the object of research and reflection. From the very start, environmental scientists in the Netherlands, Flanders and abroad have proclaimed themselves to be interdisciplinary by nature. The environmental science discipline comprises the natural sciences, the social sciences, and the technical and medical sciences, and attempts to integrate the myriad of perspectives within these disciplines into one complementary whole.

In short: the environmental sciences examine human-environment interactions and the resulting problems from an integrated and interdisciplinary perspective. Much like Crutzen and the ‘anthropocene’ (2002), environmental scientists, borrowing from cognitive and ethical insights, believe that human activities have led to the serious degradation of our natural environment, the repercussions of which affect society as a whole.

Since the publication of *Our Common Future* in 1987, the sustainability sciences have gained considerable ground. Interdisciplinary by nature and borrowing heavily from cognitive and ethical insights, this discipline promotes the necessary transition towards a more sustainable society. The sustainability sciences also embrace dozens of concepts, approaches and themes from the environmental sciences, including systems thinking, modelling, and transitions, among others. The environmental sciences, however, take their own stance within this field: to them, sustainable development is a distinct object of (diagnostic and solutions-oriented) research and the driving force behind ethical scientific and social actions. Although ‘sustainable development’ is often viewed in its broader context, environmental scientists primarily focus on the ecological aspect of the ‘planet’ pillar. Like sustainability sciences, environmental sciences primarily emphasise different yet cohesive time-space scales, constantly connecting the ‘here and now’ with the ‘there and later’. Both the environmental and sustainability sciences appreciate the complexity of environmental issues, the limits of human knowledge and the ethical implications of both in terms of their uncertainty, precautions and risk governance.

Of course, environmental science activities – or in this case environmental education programmes – cannot pay equal attention to all of these aspects. Environmental scientists can decide to highlight the natural or social science aspect, the cognitive or ethical aspect, or the

design or analysis aspect. They can also focus on specific themes, such as water, biodiversity, energy, industrial processes or global governance. Regardless of how they position themselves, environmental programmes must always keep a keen eye on the different dimensions and aspects of the environmental sciences.

## **2. Environmental Sciences: inspiring international benchmarks**

The environmental science programmes offered in the Netherlands and Flanders were inspired by earlier benchmarks published abroad. In this case, ‘benchmark’ should be defined in the broadest sense of the word as a set of desires, demands, aspirations, qualifications and conditions for environmental science education, independent of the demand for formal status as an instrument of accreditation. Moreover, inspiration is sometimes roused by the content or substantive aspects and sometimes by the method or approach. In short: three inspirational reference points.

### *ES3*

In 2007, the English Quality Assurance Agency for Higher Education published a revised version of their 2000 benchmark for Earth Sciences, Environmental Sciences and Environmental Studies (ES3) (see: ). This report largely focuses on the substantive benchmark for bachelor’s programmes in these fields. Various substantive elements – including (sub) disciplines (geochemistry), themes (environmental hazards), and concepts (renewable energy) – are presented as (sub) categories in a virtual field. The advantage of such an approach is that it clearly traces the historical transformation of the ES3 fields, starting with their classification under more traditional natural sciences, like geology, to their reclassification under the earth sciences, to the more interdisciplinary environmental sciences. What is more, the report identifies a wide variety of essential substantive elements, to which different subsets apply in environmental sciences rather than in earth sciences. In identifying these substantive elements, the ES3 report reveals striking similarities to an earlier report: ‘Wisconsin’s Model Academic Standards for Environmental Education’ (1998). The drawback of the ES3 approach is its strong inclination to the natural sciences. Disciplines and niches such as environmental economics, environmental sociology, environmental policy science, environment and nature education, and science and technology studies are not included. It also fails to highlight the importance of the ethical aspects described above and the continuum between fundamental and applied, and explanatory and design research. A logical counterpart to this strong substantive focus is the limited attention paid to academic, professional, methodological and reflexive skills.

### *AUDES*

In the 1990s, several European academic environmental programmes founded the Association of University Departments in Environmental Sciences (AUDES). Biennial conferences were held to discuss the exchange of knowledge and academic curricula and to draw up individual country reports. These meetings inspired Jamison and Maarleveld (2001) to draft an assessment report which stated that, as a whole, European environmental education pays due attention to scientific, social and ethical themes. With an eye towards the further professionalisation of these programmes, the report defined a common knowledge base that could serve as a kind of core curriculum for all environmental programmes.

This core curriculum consisted of five elements: moral and ethical issues, the relationship between the environment and society, technical orientation, theoretical orientation and a variety of practical skills, each of which receiving further elaboration. It was never their intention to have all environmental education programmes blindly adopt these five elements as part of their core curriculum, nor was it their intention to incorporate them into a rigid

accreditation process. These elements were intended to set the common standard for all environmental programmes and facilitate the international exchange of information in the short term and lead to the creation of professional standards for environmental professionals in the long term. The advantage of this approach lies in its identification of broad and coherent fields of interest and its ability to bridge the gap between what they considered to be classic contradictions: academic versus professional; natural versus social sciences, and so on. The disadvantage is that such broad fields of interest are also subject to various interpretations. With a European ambition, it is easy to see how the latter may seem inevitable.

#### *Multilateral benchmarks*

Some Dutch and Flemish environmental programmes are involved in multilateral and/or European agreements with sister institutions, while others prefer to focus on North-South themes only. This does not lead to an all-embracing benchmark for the whole field, but rather to independent agreements about the design, content and implementation of programmes resulting in the gradual convergence of departments. The following is a non-exhaustive list of environmental programmes with Dutch and Flemish participants, founders and coordinators:

- JIMiSD is de Joint International Master in Sustainable Development. The programme connects natural scientific and social scientific knowledge to the development and evaluation of sustainable development policies in developed and developing countries. This programme was developed by University Utrecht in cooperation with four other European and four non-EU universities (<http://www.uu.nl/faculty/geosciences/EN/studying/informationforstudents/masterprogramas/SUSD/JointProgramme/Pages/default.aspx>).
- IMETE is the International Master of Science in Environmental Technology and Engineering. This programme is coordinated by the University of Gent ([www.imete.ugent.be](http://www.imete.ugent.be)).
- EMMEP, the Erasmus Mundus Minerals and Environmental Programme, offers a specialised European Geotechnical and Environmental Course that highlights the environmental and geotechnical aspects of mining. This programme is coordinated by TU Delft ([www.master-ema.org](http://www.master-ema.org)).
- Planet Europe is a Joint Master's Programme initiated by Radboud University Nijmegen in cooperation with the Blekinge Institute of Technology and Cardiff University that prepares graduates for a career in environmental and spatial planning in Europe ([www.planet-europe.eu](http://www.planet-europe.eu)).
- LECH-e stands for Lived Experience of Climate Change. This master track (30 EC) was developed by the Open University in collaboration with six other European universities and focuses on developing interdisciplinary knowledge and skills in the field of climate change and personal experience (<http://www.leche.open.ac.uk/>).

These and other collaborations between Dutch, Flemish and foreign environmental education programmes do not provide for an all-embracing benchmark. The programmes that collaborated on this referential framework and continue to collaborate in lasting partnerships can certainly claim moments of international exchange and coordination; of choices made and positions taken. In this sense, they are indeed a source of inspiration.

### **3. Environmental science education in the Low Countries: similarities and differences**

It is impossible to describe the forty-year history of the environmental sciences in the Low Countries and abroad in just a few sentences. This section is by no means exhaustive. Instead, this historical sketch aims to describe the choices made in environmental education in the

Netherlands and Flanders. These choices can be partly attributed to the different institutional contexts, but also to how each country dealt with the multitude of disciplines, perspectives and themes. This diversity also exposes the many similarities in the environmental science discipline. As the next section will reveal, the latter greatly contributed to the communal competencies we see today.

In the 1970s, environmental education was introduced in the Netherlands, predominantly in the form of interdisciplinary and interdepartmental (elective) courses. In the 1980s, many universities also began offering specialisations or four-year programmes in environmental science. From the early 1980s, environmental science institutes and departments – since then grouped in the ICM, the Interuniversity Committee Environmental Sciences - began making agreements on distinct thematic specialisations (energy, space, nature, policy and others) in their education and research. This allowed for a sharper classification of these programmes within the natural sciences, social sciences and other academic disciplines. During the first visitation of environmental education (VSNU, 1995), this interdisciplinary categorisation and specialisation was easy to identify. This type of profiling helped form the basis of the 2000 CROHO reforms, which divided these programmes into environmental natural science, environmental technology, environmental health, and environmental social science categories. The 1990s and early 2000s also ushered in new changes in the Netherlands: in addition to an interest in specific environmental education programmes, general environmental issues were receiving increasing attention from the more classic programmes like urban planning, chemistry, law, and engineering. To a certain extent, both of these variants played communicative roles. Participation in successive environmental science visitations continued over the years, with eleven visitations in 1995 (VSNU, 1996), five in 2002 (VSNU, 2002) and four bachelor's and eight master's visitations in 2007 (QUANU, 2007 and 2008). This amplified environmental focus led other programmes to sharpen their environmental profiles as well, or develop environmental masters – as was the case in Flanders from the very start (see below). Due in part to the Bologna Process, the Netherlands now has four environmental science bachelor's programmes (UU x2, WUR and OU). The other, formerly undivided, programmes gradually merged their bachelors with broader programmes in biology, chemistry, geography and administration. This not only fits the trend of following up a broader bachelor's programme with a more specific master's programme, but has also led to a wider range of more specialised master's programmes (see below).

Flanders has also seen the emergence of environmental science programmes since the 1970s. Like the Netherlands, some were based on interdepartmental collaboration, but most were specialised tracks offered within existing programmes. Unlike the Netherlands, however, these tracks never intended becoming independent programmes. In 2011, 20 to 25 environmental majors, electives and advanced master's programmes were offered by various faculties within the disciplines of engineering, biology, applied medical and biomedical science, economics, management, and law. The continued development of environmental science programmes and specialisations was largely a result of new environmental policies and regulations following the Flemish constitutional reforms of 1980 and 1988. That development led to a growing demand for environmental activities. Some of the more established environmental occupations (environmental coordinator, soil remediation expert, EIA expert, environmental expert, environmental auditor, environmental verifier (EMAS), and energy expert), started demanding specific graduate or postgraduate degrees.

In Flanders, certain government regulations stemming from the Bologna Process led to further streamlining: while master's programmes were required to have at least one related bachelor's programme, the advanced study programmes were becoming financially unfeasible.

As a result, many of the advanced master's programmes were demoted to the status of regular master's to ensure better alignment with multiple non-environmental bachelor's programmes. While Flanders currently has two specialised environmental science bachelor's programmes (HUB and HoWest), a structured dialogue between the various environmental science programmes has yet to be initiated. In 2007, seven environmental science programmes participated in the VLIR visitations (UA, UG x2, VUB x4). Flanders now has three specialised environmental master's programmes; the rest are accredited as separate programmes within healthcare, (applied) biology, industrial science and other disciplines.

While the first impression to be drawn from this brief development history is one of great disparity, the following axes have introduced more structure to the field and allowed for the positioning of independent environmental education programmes.

The first axis is formality: there are undivided four or five-year programmes; three-year bachelor's programmes; and one or two-year masters' programmes. This, according to FQ-EHEA regulations, has implications for the required competencies (see below). The second, substantive axis concerns the nature and extent of interdisciplinarity: this is used to define the interdisciplinary nature of the environmental science programmes within the natural or social science disciplines. Combined with the first axis, this differentiates the broad, interdisciplinary (environmental science) bachelor's programmes in the Netherlands from the more disciplinary ones. Both types can be followed with an interdisciplinary but thematically strong master's programme (Environment and Resource Management, VU; Energy and Environmental Sciences, RUG; and others) or a more general master's programme (Environmental Sciences, OU, UA, UU, WUR).

According to the CROHO format, the Dutch master's programmes are considered interdisciplinary within the divisions nature (Environmental Sciences, UU; Environmental Sciences, OU; Energy and Environmental Sciences, RUG), engineering (Industrial Ecology, TU Delft/UL), agriculture and natural environment (Environmental Sciences, WUR; Urban Environmental Management, WUR) or society and politics (Social and Political Sciences of the Environment, RU). They are all accessible to a relatively wide range of bachelor's graduates, albeit often with the requirement of a pre-master's programme. In Flanders, the seven visited master's programmes (VUB, UG and UA) were all interdisciplinary yet all very different. Although sometimes accessible to a wider range of bachelor's programmes, they were often limited to programmes within their own disciplines. The general pattern is that the more interdisciplinary in nature, the higher the student intake (Environmental Sciences, Human Ecology). This is in stark contrast to the selective entrance requirements held by specific natural science and engineering master's programmes, with the latter often involving a more specific thematic focus (Environmental Sanitation, Environmental Remediation and Environmental Management).

An equally large number of other environmentally relevant master's programmes in both Flanders and the Netherlands are not truly interdisciplinary. In this context, the term 'environmental programme' refers to an environmental specialisation in another programme or discipline, often in the natural science and engineering disciplines. Several of these Flanders-based programmes were involved in the development of this referential framework, even though they intend to maintain their accreditation as a natural science or engineering programme.

Thirdly, programmes can be positioned on the continuum between research-oriented and career-oriented profiles. Those who use terms like 'the academic professional' indicate their



need for a middle ground between research and career-oriented skills. This applies in particular to the master's programmes. While the Social and Political Science of the Environment programme (RU) and the Environmental Science programme (UU) highlight the research-oriented approach, the Environment and Resource Management programme (VU) and the Environmental Science programme (OU) prefer a more career-oriented approach. In Flanders, the interdisciplinary nature of the programmes offers a wide variety of career prospects in the research, management and policy sectors. Several programmes have integrated the aforementioned – and for some programmes compulsory – entry requirements (e.g. Environmental Coordinator). For some of these occupations, strict conditions have been set for the accreditation of the profession, but not for the programme itself.

The fourth and final axis on which environmental programmes revolve is that of internationalisation: in terms of content, they all pay close attention to transnational and global perspectives on environmental issues. Where they differ is in their linguistic and thematic preferences (e.g. English instruction with a strong affiliation for development issues). These preferences can be easily identified by the cultural diversity of their student bodies (which may or may not be supplemented by Erasmus exchange programmes, Erasmus Mundus programmes or Joint Curriculum Development programme – see list), their pursuit of international benchmarks and the career prospects of their graduates.

Flanders is in a very different position here: introducing a language of instruction other than Dutch is a considerable responsibility (Decree by the Flemish government on regulating the responsibilities and requirements of introducing a language other than Dutch, B.S. 08/11/2004). For this reason, the influx of foreign students in Flanders is largely regulated by specific programmes that target an international audience, primarily 'the global South'. The internationalisation of Flemish education is often supported by ICP programmes aimed at students from developing countries. Together with Erasmus Mundus, they strive to develop joint master's programmes in international partnerships (see above). Other programmes work with foreign guest lecturers, short study trips to supplement courses or the master's thesis, or with virtual environments for foreign students.

#### **4. Competences of an academic environmental scientist (m/f)**

Any observation regarding the competences after having completed an academic environmental study should distinguish between bachelor and master level, as defined by the FQ-EHEA (the Framework of Qualifications for the European Higher Education Area). The next step is to distinguish between generalist and the more specialised studies. The final step is the consideration of ethical and reflexive competences.

In general terms, the academic bachelor's graduate is expected to be able, with some support, to reason at a scientific level and to apply the knowledge and insights acquired. This implies that graduates from an environmental study at bachelor level can, without further qualifications, carry out fieldwork and supportive or executive tasks in, for instance, for EIA-related research, standard policy development or project work. Screening of the pre-masters for higher vocational education graduates reveals that they are particularly focused on complementing the professional skills already acquired with the scientific skills needed to take up the academic environmental study at master level (entry level master). Following their master's, the graduate is capable of independently functioning at a scientific level, i.e. able to develop ideas in research or expertise in an original way, and also to apply these ideas in new, more complex or uncertain situations.

As stated, environment-generalist studies can be distinguished from environment-specialist studies. Generalist studies are oriented toward a more generic job profile and, consequently, need to cover a broader spectrum of disciplines and methods. They educate students to become an all-round researcher, environmental advisor, process supervisor, environmental coordinator, sustainability expert etc., in both private and public organisations. The substantive, methodical, strategic and communicative skills aspired to are focused on being able to reason and to constantly be alert to the context in broad areas of science, both scientifically (interdisciplinarity, complexity, uncertainty), and socially (political sensitivity, social unrest). This is expressed in (the demands on) the problem theorem of the master's research and thesis, and possibly in the inclusion of practical aspects in execution and assessment. In addition, where specific environmental themes such as water pollution or sustainable production processes are involved, the generalist gives priority to the interaction between environmental subdivisions and sustainability aspects, to social opportunities and effects, and to the multiple-layered character of issues and solutions in time and space. The avoidance of 'shifting' of environmental problems in time, space or otherwise is thereby a crucial motive. The compilation of often dissimilar knowledge, maintaining an overview, making integral assessments, comparison and integration are essential cognitive and methodical competences. The specialist is more geared to concentrating on a specific component, such as polluted riverbeds, eco-design and environmental law. Even though these studies also comprise several disciplines, there is one key discipline. Furthermore, the quality of this process, subdivision or field of effect is the central point, and the context is not the deciding factor.

Environmental education programmes also differ in the motivation and social attitude of the environmental sciences and the environmental professional. They can be more or less focused on the analytical competences required to understand environmental issues, or more intent on solution-focused skills. Other divisions of focus are social motivation, passion and ethical reflexes. At bachelor level, social motivation and ethical aspects are recognised, if nothing else; they are, incidentally, related to a cognitive analysis of the background of environmental issues, and are therefore also objects for study. At master level, students are challenged to involve normative principles in their research, based on assumptions like environmentally responsible solutions, sustainability, socially responsible entrepreneurship, intra- and inter-generational justice, prevention and precaution, safety, etc. Programmes can, however, also compel the environmental professional to steer away from social choices and to seek the ethical norm in classical attitudes of the scientific sphere: scientific curiosity and innovation, but also dissemination of knowledge and service provision. Whereas the first type of study places more emphasis on practical issues, interventions and finding solutions, the second type focuses on scientific research and design routines. This differentiation should not, however, be interpreted as the difference between fundamental and applied or intervention-oriented work, nor as an indicator for academic levels.

Finally, environmental programmes pay attention, albeit in varying degrees, to skills aimed at the reflexivity of the –future- environmental professional. Apart from interdisciplinarity and methodical diversity, this also involves the necessary skills for coping with scientific uncertainty and social sensitivity, and with homing processes. Communicative skills are indispensable in this regard. Simultaneously, there must be a firm basis of classical rational target-oriented strategic thinking and systematic action, and of result-oriented process control. The ability to work under given personal, financial and temporal conditions is thereby of importance. The aforementioned skills lead to a certain level of classical and contemporary management skills. The skills areas, professionalism, and reflexivity are essential for intellectual quality. Those publishing on the subject of bio-fuels or who create

designs for a new generation of refining techniques must, by means of an argumentative attitude, be able to deal with the critical reactions of peers and, at the same time, be sufficiently structured and thorough to be able to continue on the determined path. Nevertheless, in a context of global risks and complex environmental issues, reflexive skills are of more value to the environmental professional than ‘classical’ strategic thinking and acting.

## **5. Labour Market**

Although no recent and systematic research is available, all the signs indicate that the labour market for environmental scientists is, in quantitative terms, reasonably stable whereas, in qualitative terms, it shows an increasing diversity of professional profiles. Some scenarios even show a future shortage of ‘green professionals’ (Bakker, 2011; ROA, 2011). Rather than speculating on this, in this section we pay attention to the manner in which programmes are attuned to the needs of the field, and to the degree of success of graduates.

### *Tuning to the needs of the professional field*

Programmes in both the Netherlands and Flanders are in fairly regular consultation with the professional field through a variety of channels: through participation in advisory councils, professional field committees or sounding board committees, often following curriculum reviews and/or visitations; through interaction at all kinds of congresses and workshops; through research programmes, traineeships and graduation projects on behalf of and at organisations in the associated field, and, more recently, through professional social media such as LinkedIn. In the Netherlands, moreover, there are continuous contacts with the VVM (Association of Environmental Professionals), in particular via the VVM-section ‘Environmental Education and Labour Market’ (MO). In Flanders, master’s course providers are in consultation with, for instance, the employers and professionals of VOKA (Flemish Employers Association), UNIZO (Employers’ Network) and VIK (Flemish Chamber of Engineers), with Vmx (The Association of Flemish Environmental Coordinators), with VMD (Flemish Environmental Experts), and with FEBEM (Federation of Environmental Companies). Whereas these national associations are, as a rule, members of international professional associations, such as ENEP/EFAEP (European Network of Environmental Professionals), the synchronisation with the professional field is usually oriented toward the Netherlands and Flanders.

From a historical viewpoint (see section 3 above), it has become clear that environmental education in Flanders is partly determined by the fact that certain profiles and competences are laid down in the regulations required for certain recognised jobs and professions. This is also a mechanism for connecting to the labour market.

### *Graduate success*

Although academic bachelors can, in principle, start on the labour market, there is little systematic information available on the civil effect of the bachelor study. In the field of environmental education, the impression prevails that bachelor graduates, sometimes with a number of years’ experience, go on to take a master’s degree, since neither the student nor the employer regard the bachelor level as a final qualification. In Flanders, the government Higher Education Register literally states in 2011-2012: ‘The academically oriented bachelor study is, in fact, not aimed at the labour market. (...). However, this does not mean that these graduates cannot find a position on the labour market, as there is also a demand for graduates from academic bachelor programmes (e.g. IT professionals)’. And further: ‘For academically oriented bachelor programmes, the move to a master’s is the main goal’. Therefore, also in

Flanders environmental professionals who only hold an academic bachelor's degree are an exception.

Environmental education providers are, through surveys among their graduates, reasonably well informed about the labour market for their graduates. In a general sense, the job opportunities for environmental scientists follow the economic climate of the general labour market. The environmental labour market does, however, exhibit specific trends with regard to specific environmental themes: from soil sanitation to EIA in the eighties and nineties, and, more recently, from sustainability assessments to renewable energy projects. The cessation of a specific demand (recent example: nature conservation) also becomes quickly apparent.

The survey of graduates from all academic environmental programmes shows, across the full spectrum, that these graduates tend to succeed and that, even when the public interest in the environment declines (after 1992-93, and after 2001) and in a poorly-performing economy, jobs are still available for environmental scientists with good qualifications. These opportunities can be mainly found in professional profiles on a continuum from research to advice. On the Dutch market, the proportion of private consulting firms is much larger, whereas in Flanders the emphasis is more directed to public organisations. A recent communal trend which is also visible in the environmental labour market, is the continual increase in the number of independent businesses, particularly consultancies in the field of environmental and energy technology, environmental communication, etc. NGOs are also increasingly active as environmental service providers, advisors etc. All this contributes to an increasing diversity of profiles on the environmental labour market. As already indicated, more and more academic programmes are providing courses with an 'environmental aspect' in addition to the existing academic environmental programmes.

Finally: although academic environmental programmes increasingly focus on foreign students, there is only limited information available regarding the labour market situation of graduates who have returned to their country of origin. This also applies to 'native' students who have gone abroad.

## **6. Consequences for the final attainment levels**

This DSF/DSL is, by definition, not the platform to formulate final attainment levels of specific programmes. This will be done by the programmes themselves through their 'self-evaluation' or 'critical reflection' reports. In this last section, we have formulated implications for the final attainment levels in the form of points of attention which should be worked out in more detail.

In the first place, final attainment levels should cover the essence and the entire breadth of the field of environmental sciences, as described in section 1, including the positioning in that field. On the level of the specific programmes, not only the international benchmarks stipulated in section 2 may serve as a source of inspiration, but also the involvement in multilateral alliances. Secondly, the final attainment levels of each programme should do justice to the positioning of that particular programme with regard to the various characteristics and dimensions stipulated in section 3. This, of course, concerns the level, bachelor or master, and the way in which the level of access to the master's programme is warranted. It also concerns the positioning of the course in respect of the nature and the degree of interdisciplinarity and, particularly at a master's level, the consolidation in a (dominant group of) discipline(s) and the thematic choices or omissions. In addition, programmes should indicate their positioning with regard to research and/or vocational orientation, and for which social roles and/or professions they primarily aim to educate their

students. Finally, the above means that courses should indicate their policy on internationalisation, both with regard to inflow and outflow.

#### *Bachelor's in Environmental Sciences*

Students who have completed an environment-specific bachelor's programme have at least the domain-specific knowledge and skills set out below. The student:

##### *General:*

- Is able to define environmental issues as human-environment interaction issues, to indicate the multi-faceted nature of these issues, to identify the aspects in this regard that require either typical natural or social science research, and to argue the necessity and the interconnection of a variety of disciplinary approaches.
- Is able to identify the nature, the extent or gravity and the background of environmental issues, to further analyse and interpret these aspects using scientific concepts, theories and methods, and to formulate recommendations for dealing with these issues.
- Is able to position environmental issues within the context of 'sustainable development' as an object of scientific practice, as a directive and as a background for transition-oriented intervention.

##### *Depending on the specific focus of programmes on natural science or social science:*

- Is familiar with natural science cause and effect processes and is able to apply natural science approaches and methods of analysis (e.g. generating models, systems analysis).
- Is familiar with social cause and effect processes as an object and is able to apply social science approaches and research methods.

##### *In addition, the following applies to both bachelor groups:*

The student:

- Has, through theme-oriented studies, built up experience with interdisciplinary collaboration and the associated methodical and communicative problems and skills.
- Has the basic academic skills for setting up a research plan, formulating a problem, gathering information, processing and interpreting data.
- Is able to submit oral and written reports and to clarify, defend, and if required, adjust a scientifically based point of view.
- Is experienced in and able to recognise and address the ethical aspects of an environmental issue, and can choose and defend an ethical position.

Incidentally, as a consequence of the increasing mobility of students between the bachelor's and the master's programmes, it is also important for academic environmental bachelor's programmes that students have a sufficiently broad and generic level of academic knowledge and skills, in order to enable their inflow to other, non-environment-specific, master's programmes if desired.

#### *Master's programmes in Environmental Sciences*

As indicated above, mobility of students between bachelor's and master's programmes is on the rise. As a result, environmental programmes are increasingly faced with an inflow of students to the master's programme, without having followed a 'logical' preliminary bachelor's. The increasing division of bachelor and master implies that courses need to

warrant both the final level as well as the entry level to the master. All environmental science programmes apply a number of general rules in this connection. For trained academics the following (mix of) conditions apply: a sufficient basic level in either the social or the natural sciences, sufficient analytical, methodical and research knowledge and skills, and – this does not apply to Flanders – a basic knowledge of issues regarding the environment and sustainability. For non-academics, in most cases in addition to the requirements noted above, a switch programme varying from 30 to 60 EC applies, with the possible requirement of a minimum average score and a letter of motivation or an introductory interview as a condition for entry. The objective of this is twofold: improving general scientific skills or competences, and upgrading basic scientific discipline ([www.hogeronderwijsregister.be](http://www.hogeronderwijsregister.be), 2011).

The competences of a master's student on completion of their academic training in environmental sciences can be summarised as follows:

- Is able to assess the relevance of environmental issues in the context of both the natural and the social sciences.
- Is able to position environmental issues within the context of sustainable development.
- Is able to carry out in-depth research and analysis of environmental issues, starting from a set of concepts, theories and research methods based on either the natural or the social sciences, or from a twofold approach.
- Is able to independently set up an investigation into an environmental issue, to carry out this investigation, to report on the progress, and to formulate recommendations for further intervention and research.
- Is able to make a profound contribution at an academic level to the transition to a sustainable society, on the basis of acquired substantive and methodical knowledge, skills in the field of the integration of knowledge, and reporting and advisory skills.
- Is able to communicate both in a scientific and a non-scientific context about environmental issues and the way to deal with those issues, to assume scientifically sound points of view in that connection, and to argue those points of view.
- Is able to critically reflect on environmental issues, the contribution of environmental scientists in that respect, and the associated questions of complexity and uncertainty.
- Is trained to assume the role of an environmental professional, acting as a researcher, an advisor and/or an operative for academic, government or private (profit and non-profit) organisations.

## References

- Bakker, R. (2011), Tekort aan voldoende geschoold personeel op milieuwerkveld, Milieu, december 2011, p. 35.
- Boersema J. and L. Reijnders (2009) (eds.), Principles of Environmental Sciences, Springer.
- Broekhans, B. (2003), Hoe milieukunde geschiedenis werd – demarcatie van een maatschappelijk relevante wetenschap, 1970-2000, Nijmegen University Press.
- Crutzen, P.J., The 'Anthropocene', Journal de Physique IV France, 12, 2002, 10-11-15.
- Fortier, J.D., S.M. Grady, S.A. Lee, and P.A. Marinac (1998), Wisconsin's Model Academic Standards for Environmental Education, Madison.
- Jamison, A. and P. Maarleveld (2001), Reforming Environmental Higher Education in Europe, Utrecht.
- NAAEE (2000), Environmental Education Materials: Guidelines for Excellence Workbook, Rock Spring.
- QAA (2007), Earth sciences, environmental sciences, environmental studies, Mansfield.
- QAA (2010), Master's degree characteristics, London.

- QANU (2007), Milieuwetenschappen, Utrecht.
- QANU (2008), Milieuwetenschappen - Appendix Wageningen Universiteit, Utrecht.
- Researchinstituut voor Onderwijs en Arbeidsmarkt (ROA) (2011), Arbeidsmarktonderzoek 2012-2016, Den Haag.
- Scholz, R.W. (2011), Environmental Literacy in Science and Society – From knowledge to decisions, Cambridge University Press.
- Stern, P.C. (1993), A second environmental science: human-environment interactions, *Science*, 260 (5116), 1897-1899.
- Udo de Haes, H.A. (1984), Milieukunde, begripsbepaling en afbakening, in J.J. Boersema et alii (red.), *Basisboek Milieukunde*, Meppel/Amsterdam, 17-30.
- VLIR (2007), De onderwijsvisitatie Milieuwetenschappen, Een evaluatie van de kwaliteit van de masteropleidingen Milieuwetenschappen aan de Vlaamse universiteiten, Brussel.
- VSNU (1996), Onderwijsvisitatie Milieukunde, Utrecht.
- VSNU (2002), Onderwijsvisitatie Milieuwetenschappen, Utrecht.





### Appendix 3: Intended learning outcomes

---

#### *Master of Environmental Sciences*

After successful completion of this programme graduates are expected to be able to:

1. draw up an integrated analysis of perceived or potential environmental and sustainability issues, based on insight in the environmental causality chain, linking driving forces in society, pressure on the environment, changes in environmental quality, effects on nature and public health, and social response;
2. take multiple perspectives and pursue interdisciplinary approaches to environmental problem solving and sustainable resource management;
3. interact with stakeholders of different cultural backgrounds or nationalities and with specialists from other disciplines so as to arrive at a common identification, analysis, and solution strategy of the issues involved;
4. define the scientific issues ensuing from an integrated analysis, taking account of relevant spatial scales (from local to global) and adopting a long-term perspective;
5. independently design and execute environmental research in accordance with academic standards, thus contributing to the development of the body of knowledge in the field, or to the development of creative and innovative solutions to environmental and sustainability issues;
6. design strategies to deal with environmental and sustainability issues in the practice of policy development and management;
7. act as a consultant, advising (non-)governmental organisations and commercial corporations on how best to improve current and future activities with regard to the environment;
8. clearly present, both orally and in writing, research proposals and results, as well as plans for measures and interventions, taking into account the nature of the target group;
9. formulate and manage projects in the fields of research, consultancy or management;
10. support working parties and committees, negotiate, and act as a mediator, effectively and appropriately dealing with cultural diversity;
11. reflect on the ethical aspects of their research and plans for measures and interventions;
12. Design and plan their own learning processes by virtue of continuous reflection on personal knowledge, skills, attitudes and performance.

#### *Master of Urban Environmental Management*

After successful completion of this programme graduates are expected to be able to:

1. demonstrate thorough knowledge and understanding of the urban environment and its infrastructure; the economic, social and political factors involved; the possibilities and limitations of technological means to curb emissions and limit resource depletion; relevant management and quality assurance systems;
2. apply theoretical and methodological concepts in urban environment assessments so as to identify environmental issues at various scales of time and space;
3. independently formulate and execute urban environment research in accordance with academic standards, thus contributing to the development of the body of knowledge in the field, or to the development of creative and innovative solutions to urban environmental issues;
4. develop realistic environmental goals for governmental organisations and commercial corporations and establish strategies to introduce changes to existing systems, which take into account environmental factors as well as financial, social and political factors;

5. design strategies to include environmental aspects in, and develop indicators of environmental performance and benchmarking for urban management systems;
6. act as a consultant, advising governmental organisations and commercial corporations on how best to improve current and future activities with regard to the environment;
7. engage different stakeholders and communicate with specialists from other disciplines;
8. demonstrate cross-disciplinary views on urban environment issues, taking into account various stakeholders and interests;
9. clearly present, both orally and in writing, research proposals and results, as well as plans for measures and interventions, taking into account the nature of the target group;
10. support working parties and committees, negotiate, and act as a mediator, effectively and appropriately dealing with cultural diversity;
11. reflect on the ethical aspects of their research and plans for measures and interventions;
12. Design and plan their own learning processes by virtue of continuous reflection on personal knowledge, skills, attitudes and performance.

## Appendix 4: Overview of the curriculum

### Master Environmental Sciences

Course code	Course name	EC	CS/RO	Year	Period
<i>Common part</i>					
ENP-35806	Environmental Quality and Governance	6.00	CS	M1	2AF, 5AF
ESA-32303	Seminar Interdisciplinarity in Scientific Research and Education	3.00	CS	M1/2	2AF, 5AF
ESA-60312	European Workshop Environmental Sciences and Management	12.00	RO1	M1/2	1WD, 6WD
YMC-60303	Modular Skills Training	3.00	RO2	M1/2	1AF, 2AF, 3AF, 5AF, 6AF
YMC-60809	Academic Consultancy Training	9.00	RO2	M1/2	1WD, 2WD, 3MO+4WD, 5WD, 6WD
ESA-20806	Principles of Environmental Sciences	6.00	RO3	M1	1AF, 4WD
YRM-20306	Research Methods in Environmental Science	6.00	RO3	M1	1MO, 2MO
Choice of 1 cluster from RO1 - RO2; 1 or 2 courses from RO3 need to be chosen if the study adviser deems it necessary					
<i>Supporting courses</i>					
MAT-14903	Mathematics 2	3.00	RO4	M1	1AF
MAT-23306	Multivariate Mathematics Applied	6.00	RO4	M1	1AF
MAT-14303	Basic Statistics	3.00	RO4	M1	1MO
MAT-15003	Mathematics 3	3.00	RO4	M1	2AF
MAT-20306	Advanced Statistics	6.00	RO4	M1	2AF
LAW-23306	Sustainable Development Law	6.00	RO4	M1	3WD
SOQ-33806	Environmental Analytical Techniques	6.00	RO4	M1	3WD
MAT-22306	Quantitative Research Methods and Statistics	6.00	RO4	M1	3WD, 4WD
1 or more supporting courses from RO4 need to be chosen if the study adviser deems it necessary					

<i>Major Environmental Systems Analysis</i>					
ESA-22806	Environmental Systems Analysis: Methods and Applications	6.00	RO5	M1	2AF
ESA-31806	Environmental Assessments for Pollution Management	6.00	RO5A	M1	3WD
ESA-31306	Integrated Ecosystem Assessment in Regional Management	6.00	RO5A	M1	5MO
ESA-70424	MSc Internship Environmental Systems Analysis	24.00	RO5	M1/2	1,2,3,4,5,6
ESA-80436	MSc Thesis Environmental Systems Analysis	36.00	RO5	M2	1,2,3,4,5,6
Choice of 1 course from RO5A					

<i>Major Aquatic Ecology and Water Quality Management</i>					
SOQ-22306	Chemical Processes in Soil, Water, Atmosphere	6.00	RO6A	M1	2MO
AEW-31306	Water Quality	6.00	RO6B	M1	4WD
AEW-30806	Chemical Stress Ecology and Risk Assessment	6.00	RO6B	M1	5AF
AEW-20706	Practical Aquatic Ecology and Water Quality	6.00	RO6B	M1	6WD
AEW-70424	MSc Internship Aquatic Ecology and Water Quality Management	24.00	RO6	M1/2	1,2,3,4,5,6
AEW-80436	MSc Thesis Aquatic Ecology and Water Quality Management	36.00	RO6	M2	1,2,3,4,5,6

Choice of 2 courses from RO6B; RO6A needs to be chosen if the study adviser deems it necessary					
<i>Major Soil Chemistry and Chemical Soil Quality</i>					
SOQ-22306	Chemical Processes in Soil, Water, Atmosphere	6.00	RO7A	M1	2MO
SOQ-33806	Environmental Analytical Techniques	6.00	RO7	M1	3WD
SOQ-34806	Applications in Soil and Water Chemistry	6.00	RO7	M1	4WD
SOQ-21306	Soil Pollution and Soil Protection	6.00	RO7B	M1	5AF
SOQ-21806	Soil Quality	6.00	RO7B	M1	5MO
SOQ-35306	The Carbon Dilemma	6.00	RO7B	M1	5MO
SOQ-70424	MSc Internship Soil Quality	24.00	RO7	M1/2	1,2,3,4,5,6
SOQ-81336	MSc Thesis Soil Chemistry and Chemical Soil Quality	36.00	RO7	M2	1,2,3,4,5,6
Choice of 1 course from RO7B; RO7A needs to be chosen if the study adviser deems it necessary					
<i>Major Soil Biology and Biological Soil Quality</i>					
SOQ-32806	Biological Interactions in Soil	6.00	RO8	M1	2AF
SOQ-22306	Chemical Processes in Soil, Water, Atmosphere	6.00	RO8A	M1	2MO
SOQ-21806	Soil Quality	6.00	RO8B	M1	5MO
SOQ-35306	The Carbon Dilemma	6.00	RO8B	M1	5MO
SOQ-70424	MSc Internship Soil Quality	24.00	RO8	M1/2	1,2,3,4,5,6
SOQ-81336	MSc Thesis Soil Biology and Biological Soil Quality	36.00	RO8	M2	1,2,3,4,5,6
Choice of 1 course from RO8B; RO8A needs to be chosen if the study adviser deems it necessary					

<i>Major Air Quality and Atmospheric Chemistry</i>					
MAQ-34806	Atmospheric Composition and Air Quality	6.00	RO9	M1	2AF
SOQ-22306	Chemical Processes in Soil, Water, Atmosphere	6.00	RO9A	M1	2MO
MAQ-21806	Meteorology and Climate	6.00	RO9	M1	3WD
MAQ-71324	MSc Internship Air Quality and Atmospheric Chemistry	24.00	RO9	M1/2	1,2,3,4,5,6
MAQ-81336	MSc Thesis Air Quality and Atmospheric Chemistry	36.00	RO9	M2	1,2,3,4,5,6
RO9A needs to be chosen if the study adviser deems it necessary					

<i>Major Environmental Toxicology</i>					
SOQ-22306	Chemical Processes in Soil, Water, Atmosphere	6.00	RO10A	M1	2MO
CBI-20306	Cell Biology and Health	6.00	RO10A	M1	3WD
TOX-30806	Environmental Toxicology	6.00	RO10	M1	5MO
TOX-70424	MSc Internship Toxicology	24.00	RO10	M1/2	1,2,3,4,5,6
TOX-80436	MSc Thesis Toxicology	36.00	RO10	M2	1,2,3,4,5,6
1 Course from RO10A needs to be chosen if the study adviser deems it necessary					

<i>Major Integrated Water Management</i>					
LDD-30306	Sustainable Watershed Management	6.00	RO11A	M1	1AF
ESS-33806	Integrated Water Management	6.00	RO11	M1	2AF
ENP-37306	Water Governance: Concepts and Practices	6.00	RO11	M1	3WD
RDS-35306	Natural Hazards and Disasters	6.00	RO11A	M1	5MO
ESS-70824	MSc Internship Integrated Water Management	24.00	RO11	M1/2	1,2,3,4,5,6
ESS-80836	MSc Thesis Integrated Water Management	36.00	RO11	M2	1,2,3,4,5,6
Choice of 1 course from RO11A					

<i>Major Environmental Policy</i>					
ENP-34306	Environmental Policy: Analysis and Evaluation	6.00	RO12A	M1	2MO
ENP-31306	Sustainable Technology Development	6.00	RO12B	M1	3WD
ENP-30306	International Environmental Policy	6.00	RO12B	M1	4WD
ENP-32806	Sociological Perspectives on Environmental Change	6.00	RO12B	M1	5MO
ENP-33306	Environment and Development	6.00	RO12B	M1	5MO
ENP-70424	MSc Internship Environmental Policy	24.00	RO12	M1/2	1,2,3,4,5,6
ENP-80436	MSc Thesis Environmental Policy	36.00	RO12	M2	1,2,3,4,5,6
Choice of 1 course from RO12B; RO12A needs to be chosen if the study adviser deems it necessary					

<i>Major Environmental Economics and Natural Resources</i>					
ENR-21306	Environmental Economics for Environmental Sciences	6.00	RO13A	M1	2MO, 5AF
ENR-31306	Economics and Management of Natural Resources	6.00	RO13B	M1	4WD
ENP-32306	Advanced Environmental Economics and Policy	6.00	RO13B	M1	5AF
DEC-31306	Cost-Benefit Analysis and Environmental Valuation	6.00	RO13B	M1	6WD
ENR-70424	MSc Internship Environmental Economics and Natural Resources	24.00	RO13	M1/2	1,2,3,4,5,6
ENR-80436	MSc Thesis Environmental Economics and Natural Resources	36.00	RO13	M2	1,2,3,4,5,6
Choice of 1 course from RO13B; RO13A needs to be chosen if the study adviser deems it necessary					

<i>Major Environmental Technology</i>					
E'TE-24804	Fundamentals of Environmental Technology	4.00	RO14A	M1	2MO
PCC-21802	Introductory Thermodynamics	2.00	RO14A	M1	2MO
E'TE-30306	Biological Processes for Resource Recovery	6.00	RO14B	M1	4WD
E'TE-30806	Advanced Water Treatment and Re-use	6.00	RO14B	M1	5AF
E'TE-32306	Renewable Energy: Sources, Technology & Applications	6.00	RO14B	M1	5MO
E'TE-70424	MSc Internship Environmental Technology	24.00	RO14	M1/2	1,2,3,4,5,6
E'TE-80436	MSc Thesis Environmental Technology	36.00	RO14	M2	1,2,3,4,5,6
Choice of 2 courses from RO14B; RO14A needs to be chosen if the study adviser deems it necessary					

<i>Minor Environmental Education</i>					
COM-20806	Environmental Communication and Innovation	6.00	RO15A	M1	2AF
COM-23306	Risk Communication	6.00	RO15A	M1	4WD
ECS-31806	Applied Environmental Education and Communication	6.00	RO15	M1	6WD
ECS-70424	MSc Internship Educational Studies	24.00	RO15B	M2	1,2,3,4,5,6
ECS-80424	MSc Thesis Educational Studies	24.00	RO15B	M2	1,2,3,4,5,6
Select a thesis and accompanying preparatory courses from RO5-RO14; choice of 1 subject from RO15B in consultation with the study adviser; 1 course from RO15A needs to be chosen if the study adviser deems it necessary					

<i>Minor Environmental Communication</i>					
COM-20806	Environmental Communication and Innovation	6.00	RO16A	M1	2AF
COM-23306	Risk Communication	6.00	RO16A	M1	4WD
ECS-31806	Applied Environmental Education and Communication	6.00	RO16	M1	6WD

ECS-70424	MSc Internship Educational Studies	24.00	RO16B	M2	1,2,3,4,5,6
ECS-80424	MSc Thesis Educational Studies	24.00	RO16B	M2	1,2,3,4,5,6
Select a thesis and accompanying preparatory courses from RO5-RO14; choice of 1 subject from RO16B in consultation with the study adviser; 1 course from RO16A needs to be chosen if the study adviser deems it necessary					

## Master Urban Environmental Management

Course code	Course name	EC	CS/RO	Year	Period
<i>Common part</i>					
E'TE-22806	Principles of Urban Environmental Management	6.00	CS	M1	1AF
YRM-20306	Research Methods in Environmental Science	6.00	RO0	M1	1MO, 2MO
ESA-60312	European Workshop Environmental Sciences and Management	12.00	RO1A	M1	6WD
YMC-60303	Modular Skills Training	3.00	RO1B	M1	1AF, 2AF, 3AF, 5AF, 6AF
YMC-60809	Academic Consultancy Training	9.00	RO1B	M1	1WD, 2WD, 3MO+4WD, 5WD, 6WD
ENP-36806	Governance for Sustainable Cities	6.00	RO2	M1	4WD
E'TE-32806	Managing Urban Environmental Infrastructure	6.00	RO2A	M1	5MO
LUP-23806	Planning for Urban Quality of Life	6.00	RO2B	M1	2AF
E'TE-33806	Planning and Design of Urban Space	6.00	RO2B	M1	5AF
Choice of 1 cluster from RO1A and RO1B; choice of 2 courses from RO2, RO2A, and RO2B; RO0 needs to be chosen if the study adviser deems it necessary					

<i>Major Urban Environmental Technology and Management</i>					
E'TE-25306	Basic Technologies for Urban Environmental Management	6.00	RO3A	M1	2MO
E'TE-34306	Energy, Water, and Waste Cycles in the Built Environment	6.00	RO3	M1	4WD
E'TE-70824	MSc Internship Urban Environmental Technology and Management	24.00	RO3	M2	1,2,3,4,5,6
E'TE-81836	MSc Thesis Urban Environmental Technology and Management	36.00	RO3	M2	1,2,3,4,5,6
RO2A needs to be chosen; RO3A needs to be chosen if the study adviser deems it necessary					

<i>Major Environmental Policy</i>					
ENP-20806	Environmental Management and Industry	6.00	RO4A	M1	1MO
ENP-31306	Sustainable Technology Development	6.00	RO4A	M1	3WD
ENP-32306	Advanced Environmental Economics and Policy	6.00	RO4A	M1	5AF
ENP-70424	MSc Internship Environmental Policy	24.00	RO4	M2	1,2,3,4,5,6
ENP-80436	MSc Thesis Environmental Policy	36.00	RO4	M2	1,2,3,4,5,6
RO2 needs to be chosen; choice of 2 courses from RO4A					

<i>Major Environmental Economics and Natural Resources</i>					
ENR-21306	Environmental Economics for Environmental Sciences	6.00	RO5	M1	2MO
ENP-32306	Advanced Environmental Economics and Policy	6.00	RO5	M1	5AF
ENR-70424	MSc Internship Environmental Economics and Natural Resources	24.00	RO5	M2	1,2,3,4,5,6

ENR-80436	MSc Thesis Environmental Economics and Natural Resources	36.00	RO5	M2	1,2,3,4,5,6
-----------	--	-------	-----	----	-------------

*Major Environmental Systems Analysis*

ESA-22806	Environmental Systems Analysis: Methods and Applications	6.00	RO6	M1	2AF
ESA-31806	Environmental Assessments for Pollution Management	6.00	RO6A	M1	3WD
ESA-31306	Integrated Ecosystem Assessment in Regional Management	6.00	RO6A	M1	5MO
ESA-70424	MSc Internship Environmental Systems Analysis	24.00	RO6	M1/2	1,2,3,4,5,6
ESA-80436	MSc Thesis Environmental Systems Analysis	36.00	RO6	M2	1,2,3,4,5,6
Choice of 1 course from RO5A					

*Major Geo-information Science and Remote Sensing*

GRS-10306	Introduction Geo-information Science	6.00	RO7A	M1	1MO
GRS-20806	Geo-information Tools	6.00	RO7	M1	2AF
GRS-32806	Spatial Data Infrastructure	6.00	RO7	M1	3WD
GRS-70424	MSc Internship Geo-information Science and Remote Sensing	24.00	RO7	M2	1,2,3,4,5,6
GRS-80436	MSc Thesis Geo-information Science and Remote Sensing	36.00	RO7	M2	1,2,3,4,5,6
RO7A needs to be chosen if the study adviser deems it necessary					

*Major Management Studies*

ENP-20806	Environmental Management and Industry	6.00	RO8	M1	1MO
MST-21306	Advanced Management and Marketing	6.00	RO8	M1	3WD
MST-32306	Strategic Change Management and Innovation	6.00	RO8	M1	5AF
MST-70424	MSc Internship Management Studies	24.00	RO8	M2	1,2,3,4,5,6
MST-80436	MSc Thesis Management Studies	36.00	RO8	M2	1,2,3,4,5,6

*Major Land Use Planning*

LUP-31806	Reflections on Spatial Planning Practices	6.00	RO9	M1	1MO
LUP-32806	Planning Theory	6.00	RO9	M1	4WD
LUP-70424	MSc Internship Land Use Planning	24.00	RO9	M2	1,2,3,4,5,6
LUP-80436	MSc Thesis Land Use Planning	36.00	RO9	M2	1,2,3,4,5,6
RO2B needs to be chosen					





## Appendix 5: Programme of the site visit

---

### Wednesday 22 May

---

09:00 – 11:45	Preparatory meeting including reviewing documents	
11:45 – 12:00	Presentation European workshop	
12:00 – 12:45	Lunch and consultation hour	
12:45 – 13:45	Management of the programme Environmental Sciences and Urban Environmental Management	<ul style="list-style-type: none"><li>• Prof. dr. T.W.(Thom) Kuyper (personal professor, board member of the Education Institute)</li><li>• Prof. dr. ir. G. (Grietje) Zeeman (personal professor, chair of the Programme Committee)</li><li>• Drs. J.J. (Jan) Steen (quality manager, Education Institute)</li><li>• Ir. P.G.P. (Paul) Geurts (international relations manager, Corporate Education, Research and Innovation)</li><li>• Ir. Th.M. (Theo) Lexmond (programme director)</li></ul>
13:45 – 14:00	<i>Break</i>	
14:00 – 14:45	Students bachelor Environmental Sciences	<ul style="list-style-type: none"><li>• W.J.C. (Wouter) Blom (2012)</li><li>• C.K. (Chandni) Dwarkasing (2010)</li><li>• K. (Koen) van Gijn (2011)</li><li>• G.J. (Gusje) Koorneef (2011)</li><li>• T.K. (Tobias) Seggewiß (2010)</li><li>• J.A.R. (Jill) Soedarso (2012)</li><li>• R. (Robin) Smale (2009)</li></ul>
14:45 – 15:30	Lecturers bachelor Environmental Sciences	<ul style="list-style-type: none"><li>• Dr. B. (Bettina) Bluemling (assistant professor, Environmental Policy)</li><li>• Dr. ir. J.T.C. (Tim) Grotenhuis (assistant professor, Environmental Technology)</li><li>• Ir. M.G. (Meindert) Keizer (lecturer, Soil Quality)</li><li>• Dr. ir. D.P.B.T.B. (David) Strik (assistant professor, Environmental Technology)</li><li>• Dr. ir. B.G. (Hardy) Temmink (assistant professor, Environmental Technology )</li><li>• Dr. ir. A.J.H. (Arnold) van Vliet (researcher, Environmental Systems Analysis)</li><li>• Dr. E.H. (Edwin) van der Werf (assistant professor, Environmental Economics)</li></ul>
15:30 – 15:45	<i>Break</i>	

15:45 – 16:30	Students master Environmental Sciences	<ul style="list-style-type: none"> <li>• T.O. (Tom) Banks (2012)</li> <li>• H.P. (Hein) Heuver (2012)</li> <li>• D.J. (Domingos) Langa (2011)</li> <li>• G. (Gaofeng) Ni (2011)</li> <li>• H.A. (Arnoud) de Wilt (2011)</li> </ul>
16:30 – 17:15	Lecturers master Environmental Sciences	<ul style="list-style-type: none"> <li>• Prof. dr. ir. C.J.N. (Cees) Buisman (chair holder, Environmental Technology)</li> <li>• Dr. S.R. (Simon) Bush (associate professor, Environmental Policy)</li> <li>• Ir. K.P.J. (Karen) Fortuin (lecturer, Environmental Systems Analysis)</li> <li>• Dr. ir. A. (Annemiek) ter Heijne (assistant professor, Environmental Technology)</li> <li>• Prof. dr. ir. E.C. (Ekko) van Ierland (chair holder, Environmental Economics)</li> <li>• Prof. dr. C. (Carolien) Kroeze (personal professor, Environmental Systems Analysis)</li> <li>• Prof. dr. ir. A.P.J. (Arthur) Mol (chair holder, Environmental Policy)</li> <li>• Dr. ir. E.J.J. (Erik) van Slobbe (lecturer/researcher, Earth System Science-Integrated Water Management)</li> </ul>
17:15 – 18:00	Alumni Environmental Sciences and Urban Environmental Management	<ul style="list-style-type: none"> <li>• A. (Arjan) Dekker (MSc Environmental Sciences, 2010)</li> <li>• Indra Firmansyah (MSc Urban Environmental Management, 2011)</li> <li>• T. (Tanya) Huizer (MSc Environmental Sciences, 2011)</li> <li>• J. (Jori) Naus (MSc Environmental Sciences, 2010)</li> <li>• E.M. (Els) Schuman (MSc Environmental Sciences, 2008)</li> <li>• M. (Maryna) Strokal (MSc Environmental Sciences, 2011)</li> <li>• A.B. (Anna) Veldhoen (MSc Environmental Sciences, 2010)</li> </ul>

19:00 – *Dinner*

### Thursday 23 May

09:00 – 09:45	Students Urban Environmental Management	<ul style="list-style-type: none"> <li>• K.D. (Karla) Lieberg (2012)</li> <li>• K. (Kim) van Sparrentak (2012)</li> <li>• A.W.J. (Alwin) Veldboom (2012)</li> <li>• I.M. (Ilse) Voskamp (2011)</li> <li>• Z. (Ziyou) Wang (2011)</li> </ul>
09:45 – 10:30	Lecturers Urban Environmental Management	<ul style="list-style-type: none"> <li>• Dr. ir. G.J. (Gerrit-Jan) Carsjens (assistant professor, Land Use Planning)</li> <li>• Dr. K. (Katarzyna) Kujawa-Roeleveld (lecturer, Environmental Technology)</li> </ul>

		<ul style="list-style-type: none"> <li>• Dr. ir. C.S.A. (Kris) van Koppen (associate professor, Environmental Policy)</li> <li>• Prof. dr. ir. H.H.M. (Huub) Rijnaarts (chair holder, Environmental Technology)</li> <li>• Dr. M. (Marc) Spiller (researcher, Environmental Technology)</li> <li>• Dr. ir. B.J.M. (Bas) van Vliet (assistant professor, Environmental Policy)</li> </ul>
10:30 – 10:45	<i>Break</i>	
10:45 – 11:30	Educational Committee	<ul style="list-style-type: none"> <li>• Dr. ir. R.A. (Rolf) Groeneveld (assistant professor, Environmental Economics)</li> <li>• Dr. A. (Aarti) Gupta (assistant professor, Environmental Policy)</li> <li>• Dr. ir. N. (Nynke) Hofstra (assistant professor, Environmental Systems Analysis)</li> <li>• Dr. ir. E.T.H.M. (Edwin) Peeters (assistant professor, Aquatic Ecology and Water Quality Management)</li> <li>• N.A. (Niels) van der Linden (BSc Environmental Sciences, 2009)</li> <li>• C.Y. (Coen) de Jong (BSc Environmental Sciences, 2010)</li> <li>• L.F. (Lukas) Schaefer (MSc Urban Environmental Management, 2012)</li> <li>• H.R. (Hein) Tanis (MSc Environmental Sciences, 2011)</li> </ul>
11:30 – 12:25	Study advisors and members Examining board including presentation Study Programme Approval	<ul style="list-style-type: none"> <li>• Dr. ir. R.J.A. (Ron) van Lammeren (associate professor, chair Examining Board)</li> <li>• Dr. D. (Dick) van der Hoek (assistant professor, secretary Examining Board)</li> <li>• Dr. J. (Judith) van Leeuwen (study advisor)</li> <li>• Drs. M.J. (Marjo) Lexmond (study advisor)</li> </ul>
12:25 – 13:00	<i>Break</i>	
13:00 – 13:45	Preparing for the final meeting	
13:45 – 14:45	Final meeting with the management	<ul style="list-style-type: none"> <li>• Prof. dr. T.W. (Thom) Kuyper (personal professor, board member of the Education Institute)</li> <li>• Prof. dr. ir. G. (Grietje) Zeeman (personal professor, chair of the Programme Committee)</li> <li>• Drs. J.J. (Jan) Steen (quality manager, Education Institute)</li> <li>• Ir. Th.M. (Theo) Lexmond (programme director)</li> </ul>
14:45 – 16:45	Committee meeting	
17:00 – 17:15	Oral presentation by the chairman	
17:15 –	<i>Drinks</i>	



## Appendix 6: Declarations of independence

---



### DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY

TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME

THE UNDERSIGNED

NAME: WA HAFKAMP

HOME ADDRESS:

STADE DE COLOMBES 55  
1098 VS AMSTERDAM

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

ENVIRONMENTAL SCIENCES

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;



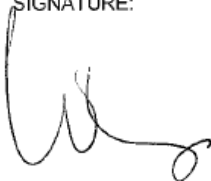
HEREBY CERTIFIES TO NOT HAVING MAINTAINED SUCH CONNECTIONS OR TIES WITH THE INSTITUTION DURING THE PAST FIVE YEARS;

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:  
UTRECHT

DATE:  
25 March 2013

SIGNATURE:  




## DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY

TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME

THE UNDERSIGNED

NAME: Ivan Janssens

HOME ADDRESS:

JACOBSLAAN 122  
2580 ZOERSEL, BELGIUM

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

ENVIRONMENTAL SCIENCES

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: *Antwerpen*

DATE: *20/3/2013*

SIGNATURE:





**DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY**

TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME

THE UNDERSIGNED

NAME: ANDREW JAMISON

HOME ADDRESS: KABBARSVÄGEN 25  
S-232 52 ÅKARP  
SWEDEN

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

Environmental sciences

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:

Utrecht

DATE:

25/03-2013

SIGNATURE:



## **DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY**

TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME

THE UNDERSIGNED

Prof. Dr. Jochen Monstadt

HOME ADDRESS:

Neuhofstr. 41a, D-60318 Frankfurt

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

BSc. and MSc. programmes in Environmental Studies;

MSc. programme in Urban Environmental Management

APPLICATION SUBMITTED BY THE FOLLOWING INSTITUTION:

Wageningen University, NL

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:

Frankfurt

06.09.2013

SIGNATURE:

*John Howarth*



**DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY**

TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME

THE UNDERSIGNED

NAME: Lieke van der Sanden

HOME ADDRESS: Pegasusplaats 103-3  
6525 JJ Nijmegen

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

environmental sciences  
RUG, Wageningen University, Univ. Utrecht University

APPLICATION SUBMITTED BY THE FOLLOWING INSTITUTION:

RanU  
~~Radboud University Nijmegen~~

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:

*Utrecht*

DATE:

*15-03-2013*

SIGNATURE:



**DECLARATION OF INDEPENDENCE AND CONFIDENTIALITY**

TO BE SUBMITTED PRIOR TO THE ASSESSMENT OF THE PROGRAMME

THE UNDERSIGNED

NAME: Annemarie Venemans

HOME ADDRESS: Vondellaan 58  
2332 AH Leiden

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

Environmental Sciences

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:

Utrecht

DATE:

25-03-2013

SIGNATURE: