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QUALITÄTSSICHERUNG DURCH
AKKREDITIERUNG VON
STUDIENGÄNGEN E.V.

FINAL REPORT

UNIVERSITAS PADJADJARAN (INDONESIA)

CLUSTER

“ENVIRONMENTAL SCIENCE” (MASTER OF ENVIRONMENTAL SCIENCE)

“ENVIRONMENTAL SCIENCE” (DOCTOR OF ENVIRONMENTAL SCIENCE)

June 2023



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DECISION OF THE AQAS STANDING COMMISSION ON THE STUDY PROGRAMMES

- “ENVIRONMENTAL SCIENCE” (MASTER OF ENVIRONMENTAL SCIENCE)
- “ENVIRONMENTAL SCIENCE” (DOCTOR OF ENVIRONMENTAL SCIENCE)

OFFERED BY UNIVERSITAS PADJADJARAN (INDONESIA)

Based on the report of the expert panel, the comments by the university and the discussions of the AQAS Standing Commission in its 17th meeting on 22 May 2023 and the circulation procedure on 14 June 2023, the AQAS Standing Commission decides:

I. For the master’s programme “Environmental Sciences” and the PhD programme “Environmental Sciences”:

1. The master’s programme “Environmental Sciences” (Master of Environmental Science) and the PhD programme “Environmental Sciences” (Doctor of Environmental Science) offered by Universitas Padjadjaran (Indonesia) are accredited according to the AQAS Criteria for Programme Accreditation (Bachelor/Master), and the AQAS Criteria for Doctoral Programme Accreditation (PhD).

The accreditations are conditional.

The study programmes essentially comply with the requirements defined by the criteria and thus the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) and the European Qualifications Framework (EQF) in their current version. The required adjustments can be implemented within a time period of twelve months.

2. The conditions have to be fulfilled. The fulfilment of the conditions has to be documented and reported to AQAS no later than **31 July 2024**. The confirmation of the conditions might include a physical site visit within the time period of twelve months.
3. The accreditation is given for the period of **six years** and is valid until **31 July 2029**.

Conditions:

For both programmes:

1. The number of physically available primary textbooks and literature on an international level must be increased for all programmes.

For the master’s programme “Environmental Sciences”:

2. The master’s programme “Environmental Sciences” must transparently outline the two different tracks.
3. The master’s programme “Environmental Sciences” needs to establish clear research lines.
4. The documentation of the master’s programme “Environmental Sciences” has to update the literature used in the courses to enhance student transparency.

For the PhD programme “Environmental Sciences”:

5. To outline the research lines transparently, a summary of research lines for the PhD programme has to be given to shift the visibility from an individual basis to a structural basis.

The following **recommendations** are given for further improvement of the programmes:

For both programmes:

1. Regular exchange with the labour market in both the public and private sectors should be organised for all programmes, especially for curriculum development.
2. All study programmes should include more courses fully or partially taught in English.
3. The university should encourage lecturers of the master’s and PhD programme “Environmental Sciences” to participate more frequently in international conferences.

For the master’s programme “Environmental Sciences”:

4. The curriculum of the master’s programme “Environmental Sciences” should incorporate more up-to-date techniques, e.g., multivariate statistics and data modelling or topics such as soil, hydrology, water management or climate change.
5. The programme’s documentation for the master’s programme “Environmental Sciences” should clarify how the environmental policy and industrial ecology emphasis is translated into the curriculum.
6. The curriculum of the master’s programme “Environmental Sciences” should include additional opportunities as elective courses.
7. A broader understanding of the discipline reflected in the master’s curriculum “Environmental Sciences” (e.g., electives) might increase job opportunities for graduates.

For the PhD programme “Environmental Sciences”:

8. Although valuable to the region, the overall strategy for the PhD programme “Environmental Sciences” should include more international research topics to connect the programme to global topics of the discipline.

With regard to the reasons for this decision the Standing Commission refers to the attached experts’ report.

EXPERTS' REPORT**ON THE STUDY PROGRAMMES**

- “ENVIRONMENTAL SCIENCE” (MASTER OF ENVIRONMENTAL SCIENCE)
- “ENVIRONMENTAL SCIENCE” (DOCTOR OF ENVIRONMENTAL SCIENCE)

OFFERED BY UNIVERSITAS PADJADJARAN (INDONESIA)

Visit to the university: 20 – 23 February 2023

Panel of experts:

Prof. Dr. Sören Thiele-Bruhn	University of Trier (Germany), Faculty of Spatial and Environmental Sciences
Prof. Dr. Ng Boon Kwee	University of Malaya (Malaysia), Faculty of Science, Department of Science and Technology Studies
Prof. Dr. Dagmar Lund-Durlacher	Eberswalde University for Sustainable Development (Germany), Centre for Sustainable Tourism (ZENAT),
Dipl.-Ing. Heike Wulf	Independent consultant for resource efficiency, Bielefeld (Germany) (labour market representative)
Anna-Lena Puttkamer	University of Cologne (Germany) (student representative)

Coordinators:

Patrick Heinzer & Vi Le	AQAS, Cologne, Germany
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I. Preamble

AQAS – Agency for Quality Assurance through Accreditation of Study Programmes – is an independent non-profit organisation supported by more than 90 universities, universities of applied sciences and academic associations. Since 2002, the agency has been recognised by the German Accreditation Council (GAC). It is, therefore, a notified body for the accreditation of higher education institutions and programmes in Germany.

AQAS is a full member of ENQA and also listed in the European Quality Assurance Register for Higher Education (EQAR) which confirms that our procedures comply with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), on which all Bologna countries agreed as a basis for internal and external quality assurance.

AQAS is an institution founded by and working for higher education institutions and academic associations. The agency is devoted to quality assurance and quality development of academic studies and higher education institutions' teaching. In line with AQAS' mission statement, the official bodies in Germany and Europe (GAC and EQAR) approved that the activities of AQAS in accreditation are neither limited to specific academic disciplines or degrees nor a particular type of higher education institution.

II. Accreditation procedure

This report results from the external review of the master's programmes "Environmental Sciences" (Master) and the PhD programme "Environmental Sciences" offered by Universitas Padjadjaran (Indonesia).

1. Criteria

Each programme is assessed against a set of criteria for accreditation developed by AQAS: the AQAS Criteria for Programme Accreditation (Bachelor/Master) and the AQAS Criteria for Doctoral Programme Accreditation (PhD), respectively. The criteria are based on the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) 2015. To facilitate the review each criterion features a set of indicators that can be used to demonstrate the fulfilment of the criteria. However, if single indicators are not fulfilled this does not automatically mean that a criterion is not met. The indicators need to be discussed in the context of each programme since not all indicators necessarily can be applied to every programme.

2. Approach and methodology

Initialisation

The university mandated AQAS to perform the accreditation procedure in January 2022. The university produced a Self-Evaluation Report (SER). In April 2022, the institution handed in a draft of the SER together with the relevant documentation on the programmes and an appendix and statistical data on the programmes. The appendix included e.g.:

- an overview over statistical data of the student body (e.g. number of applications, beginners, students, graduates, student dropouts),
- the CVs of the teaching staff/supervisors,
- information on student services,
- core information on the main library,
- as well as academic regulations.

AQAS checked the SER regarding completeness, comprehensibility, and transparency. The accreditation procedure was officially initialised by a decision of the AQAS Standing Commission on 29 August 2023. The final version of the SER was handed in November 2022.

Nomination of the expert panel

The composition of the panel of experts follows the stakeholder principle. Consequently, representatives from the respective disciplines, the labour market, and students are involved. Furthermore, AQAS follows the principles for the selection of experts defined by the European Consortium for Accreditation (ECA). The Standing Commission nominated the aforementioned expert panel in January 2023. AQAS informed the university about the members of the expert panel and the university did not raise any concerns against the composition of the panel.

Preparation of the site visit

Prior to the site visit, the experts reviewed the SER and submitted a short preliminary statement including open questions and potential needs for additional information. AQAS forwarded these preliminary statements to the university and to all panel members in order to increase transparency in the process and the upcoming discussions during the site visit.

Site visit

After a review of the SER, a site visit to the university took place on 20 – 23 February 2023 online. The experts interviewed different stakeholders, e.g. the management of the higher education institution, the programme management, teaching and other staff, as well as students and graduates, in separate discussion rounds and consulted additional documentation as well as student work. The visit concluded by the presentation of the preliminary findings of the group of experts to the university's representatives.

Reporting

After the site visit had taken place, the expert group drafted the following report, assessing the fulfilment of the AQAS Criteria. The report included a recommendation to the AQAS Standing Commission. The report was sent to the university for comments.

Decision

The report, together with the comments of the university, forms the basis for the AQAS Standing Commission to take a decision regarding the accreditation of the programmes. Based on these two documents, the AQAS Standing Commission took its decision on the accreditation on 22 May 2023. AQAS forwarded the decision to the university. The university had the right to appeal against the decision or any of the imposed conditions.

In July 2023, AQAS published the report and the result of the accreditation as well as the names of the panel of experts.

III. General information on the university

The Padjadjaran University (UNPAD) was established in September 1957, in Bandung, Indonesia. The university has exercised autonomy since 2008 and therefore held the status of a Legal Entity State university since 2014. Considering the tri dharma of higher education (education, research, and community service), UNPAD's vision is to be internationally recognised as a centre of excellence in research-based education in the field of natural resources and the environment and have an impact on the society.

The leadership of the university consists of one Chancellor and four Vice-Chancellors, including a Vice-Chancellor for Academic and Student Affairs, a Vice-Chancellor for Resources and Finance, a Vice-Chancellor for Research and Innovation, and a Vice-Chancellor for Organisation and Planning. Under the Chancellor, there are also the Dean of the Faculty, the Director of the Graduate School, the Director, the Head of the Unit, the Head of the Office, the Head of the Centre, and the Head of the Vocational Education Program.

UNPAD has 16 Faculties and 1 Graduate School. The 16 faculties include (1) Faculty of Law, (2) Faculty of Economics & Business, (3) Faculty of Medicine, (4) Faculty of Mathematics & Natural Sciences, (5) Faculty of Agriculture, (6) Faculty of Dentistry, (7) Faculty of Social & Political Sciences, (8) Faculty of Cultural Sciences, (9) Faculty of Psychology, (10) Faculty of Animal Husbandry, (11) Faculty of Communication Studies, (12) Faculty of Nursing, (13) Faculty of Fisheries & Marine Sciences, (14) Faculty of Agricultural Industrial Technology, (15) Faculty of Pharmacy, (16) Faculty of Geological Engineering and (17) Graduate School. In terms of resources, UNPAD offers 187 study programmes at different levels (Bachelor, Master, and PhD) with a total of 36,224 students, 2075 academic staff and 2007 supporting staff. Supporting facilities of UNPAD comprise libraries, dormitories, oral dental hospitals, teaching hospital, e-learning, language centres, place of worships, laboratories and basic science service centres, clinics and health centres, sport stadiums, etc.

The master's programme in Environmental Science and the Doctorate programme in Environmental Science operated by the UNPAD Graduate School are the four programmes to be accredited. In general, the Graduate School offers two Doctoral programmes in Environmental Sciences and in Biotechnology, and six master's programmes in Environmental Sciences, Biotechnology, Sustainable Tourism, Regional Innovation, Sustainability Sciences, and Natural Resources Management. The organisational structure of the Graduate School includes a dean who manages two units: International Unit and Quality Assurance Unit. The International Unit is responsible for internationalisation including international accreditation, while the Quality Assurance Unit takes care of the implementation of quality assurance in the study programmes and the Graduate School. There is a vice dean working under the dean and managing two other managers in academic and supporting activities. Heads of study programmes are working under the vice dean. The Graduate School has totally 12 persons holding management positions and 12 persons supporting academic and non-academic activities.

The Graduate School of UNPAD pursues the concept of multi- and transdisciplinary programmes and tries to integrate and coordinate the study programmes into/with the research centre and the centre of excellence in the university.

IV. Assessment of the study programmes

1. Quality of the curriculum / Aims and structure of the doctoral programme

Bachelor's/master's degree

The intended learning outcomes of the programme are defined and available in published form. They reflect both academic and labour-market requirements and are up-to-date with relation to the relevant field. The design of the programme supports achievement of the intended learning outcomes.

The academic level of graduates corresponds to the requirements of the appropriate level of the European Qualifications Framework.

The curriculum's design is readily available and transparently formulated.

[ESG 1.2]

Doctoral degree

The intended learning outcomes of the programme are defined and available in published form. They reflect both academic and labour-market requirements and are up-to-date with relation to the relevant field. The design of the programme supports the achievement of the intended learning outcomes.

The academic level of graduates corresponds to with the requirements of the appropriate level of the national qualifications framework or the European Qualifications Framework.

The curriculum's design is readily available and transparently formulated.

[ESG 1.2]

a. Environmental Sciences (Master of Environmental Science)

Description

As stated in the SER, the master's programme in Environmental Science aims towards internationalisation and the curriculum was first developed in 1999 regarding international parties, namely the University of Twente (Netherlands), Mie University (Japan), and the International Institute of Social Studies (ISS) of Erasmus University (Netherlands). In 2008, the programme officially offered a Joint Degree/Dual Degree programme in cooperation with three institutions. The master's programme in Environmental Science is said to "form a synergy between the perspectives of social science and natural science".

The study workload is calculated in Semester Credit Units (SKS) based on a semester credit system. The curriculum contains 40-41 credits spanning four semesters, of which 46.7% are for compulsory courses, 44.4% for specialisation courses, and 8.9% for electives. One credit consists of 1 hour of attending classes and 3-4 hours of activities outside classes, including course preparation, assignments, library work, and group discussion. Completion of the study programme can be prolonged to maximum of eight semesters. In the 1st semester, students must take compulsory courses such as Environmental Science, Human Ecology, Research Methodology, Philosophy of Science and Environment, Natural Sciences and Environmental Management, and Environmental Law. Courses in the 2nd semester include Academic Writing, Natural Resources and Environmental Economy, Watershed Management, Environmental and Spatial Planning, Environmental Impact Assessment, Environmental Psychology, and Biodiversity Conversation. Research Proposal and Thesis are taken in semesters 3 and 4. The programme also offers four elective courses: Agro-ecosystem Management, Environmental Innovation and Technology, Planning for Natural Resources and Environmental Management, and Energy Management and Technology.

For the international double degree master's programme, intensive English courses and a pre-master programme are incorporated into the four-month curriculum. In addition, the curriculum contains courses for the Master of Science in Environmental Studies (held at UNPAD), courses for the Master of Environmental and Energy Management (held at UT), case studies, thesis proposals, and final examinations. The Double Degree programme should be completed in 28 months, and all subjects are taught in English.

It is stated in the SER that the curriculum is designed to help students gain broad and multidimensional knowledge and that courses are interdisciplinary. Besides in-person classes, the programme provides field activities in specific subjects such as Watershed Management and Environmental and Spatial Planning.

The programme's intended learning outcomes (ILOs) are explicitly outlined in the SER and clustered into four main focuses: attitude, general skills, specific skills, and knowledge. In general, graduates are expected to have:

- a holistic and integrated perception in environmental management,
- the ability to apply theories and concepts into the national context,
- an understanding of the significance of the environment and its function,
- multidimensional and integrative perspectives in environmental management, and
- ethics that prioritise the interests of the community.

The competencies of graduates are said to comply with the needs of stakeholders, according to the SER.

Experts' evaluation

The experts' panel have received documentation of the master's programme "Environmental Sciences", which put the discussion to a good starting situation. In addition, the online site visit served to clarify open questions based on having read through the documentation. The presentations and discussions provided essential information for evaluating the master's programme in environmental sciences. The experts learned that the programme is designed as a cross-faculty programme, which is a positive fact. At UNPAD, several faculties are involved (e.g., mathematics and natural sciences, fisheries and marine science, or geological engineering). The faculties provide content and expertise that fits the intended learning outcomes at the programme level.

Given that many faculties are involved in the programme, the programme has access to a wide range of professional and academic topics. The programme's composition reflects the intended learning outcomes of the programme and the course level and is in line with the curriculum. Thus, the programme reflects the Indonesian Qualifications Framework and is comparable to level 7 of the European Qualifications Framework.

The master's programme was launched many years ago and accordingly showed good development. Furthermore, the close cooperation with foreign universities within the framework of the double degree programme indicates that this is a proven and widely accepted programme. The parallel offered double degree programmes in cooperation with partner universities, i.e., the University of Twente (the Netherlands) and Mie University (Japan), appear attractive and a good addition to the programme wholly taught at UNPAD. The double degree programmes are an excellent option for students to expand the scope of their education in a meaningful and profitable way. The programme modules fit together in terms of content and intended learning outcomes. The workload and credits are correctly and transparently allocated to the different courses/modules. The size (credits) and workload of the courses are well-balanced.

The experts have learned that students have a parallel option within the programmes called the Bappenas programme. This collaborative programme was specifically designed to train government staff at various levels at the National Planning Board (BAPPENAS). Also, from the days of the classes (on weekends), it becomes clear that this is not a programme which is open to any interested student but exclusive to a defined clientele. This clientele seems to be served perfectly by this course of studies; the professional perspective is clear and given. Thus, the intended learning outcomes of the Bappenas programme reflect labour market requirements, while especially the double degree programme targets academic/scientific career options. Because of a significant overlap in the curriculum, the distinction between the master's programmes in Environmental Science and Environmental Science - Bappenas remains unclear regarding their content and objectives. This also leaves it unclear why the two programmes have different numbers of credits to be earned. A clear differentiation concerning the documentation is required (**Finding 1**).

The teaching rooms, with their equipment and the teaching formats, support a learning concept that is visibly based on student participation. In most modules, students must complete one or more assignments or seminar papers instead of the regular written and oral examinations. In this way, students often receive feedback on

their performance during the current semester. This is very positive. For practical analytical work, a laboratory with basic equipment is generally available. In addition, there is the central 'Lab Central' as, a facility of the entire university with very good personnel and equipment. However, it is unclear whether and to what extent Lab Central is already available to students or is included in practical laboratory training.

The different courses are covered by many qualified teachers (professors and assistant professors). Access to the programme, the organisation of courses and semesters, and quality control are clear and well-regulated. The educational and professional goals are recognisable. From the information provided, the subject-specific and interdisciplinary knowledge and the subject-specific, methodological and general skills imparted by the curricula of the Environmental Sciences and Environmental Sciences - Bappenas programmes enable students to reach the relevant level.

The current content, which is relevant to common environmental sciences programmes, must be fully reflected in the curriculum at UNPAD. Techniques, such as multivariate statistics and data modelling or topics such as soil, hydrology, water management or climate change (the latter is mentioned once in the context of international conventions but not of drivers, processes, and consequences) should be included in the curriculum (**Finding 2**). From the discussions, it became clear that several skills are taught to the students in optional courses offered at the individual's request.

Keeping in mind the university's vision "To become a Centre of Excellence in research-based education in the field of natural resources and the environment, which is equivalent at the international level in 2026", it will be necessary to include much more of the ongoing research in Environmental Sciences into the master's programmes. Currently, the programmes show little reference to research at UNPAD - student research seems to be largely limited to literature search and evaluation on various topics in environmental science. The master's programme "Environmental Sciences" needs to establish a clear strategy regarding research lines (**Finding 3**).

Concerning the documentation, it was shown that the master's programme in Environmental Sciences has a visible focus on natural resources and environmental management and planning. The other two pillars mentioned in the SER, environmental policy and industrial ecology, are less obvious in the curriculum but are included as components in individual modules (**Finding 4**). Against the background of the inter-faculty conception of the programme and also the international cooperation with the double degree programme, it is all the more regrettable that a) the above-mentioned focal points are not fully represented in the curriculum and b) the master's programmes do not offer any options with regard to elective modules and focal points (**Finding 5**). Although the SER mentions an option for election, this is limited to two modules each, different from the regular and Bappenas programmes. Within the study programme, choice and subject-specific specialisation are not possible.

In contrast, the range of subjects offered remains somewhat narrow; social science-related environmental aspects form a visible focus compared to natural science topics. Expanding the content of master's programs would also increase graduates' job opportunities. According to the interviews, only some graduates currently find a job with environmental relevance (**Finding 6**). The course handbook includes relevant information on the programmes to a certain extent. However, the experts have seen that the literature outlined in the courses focuses primarily on literature from the 1990s and early 2000s. An update concerning this matter is urgently needed (**Finding 7**).

Conclusion

The criterion is partially fulfilled.

b. Environmental Sciences (Doctor of Environmental Science)

Description

Regarding intended learning outcomes of the study programme, students are expected to gain subject-specific and interdisciplinary knowledge, master the most up-to-date skills in solving natural resources and environmental problems, make new contributions to scientific innovations and environmental management, and have a professional attitude with responsibility, integrity, and commitment to science. The learning outcomes correspond to level 9 of the Indonesian National Qualifications Framework and level 8 of the European Qualifications Framework when referring to international standards, as well as to meet the needs of the labour market. Evaluations are in place, ensuring the desired qualifications to be acquired for a dissertation, a defence in front of an expert panel, and publication in international scientific journals (at least Q3 – Scopus index), if possible.

The study workload to complete the programme is at least 44 credits, which are distributed to Doctoral Qualification Competence with a minimum of 14 credits, Research Proposal Seminar with five credits, Research Results Seminar with five credits, Dissertation Manuscript Review with six credits, Publication of Scientific Articles in Reputable International Journals with nine credits, and Doctoral Promotion Session with five credits. More details on the curriculum structure of the programme are outlined in the SER.

To explain the credit system, one credit (SKS) is equivalent to 50 minutes of face-to-face activities and 120 minutes of independent study outside the classroom (lecture preparation, assignments, library study and group discussions). One semester consists of 16 weeks. The PhD programme is limited to 7 years or 14 semesters without extension. When converted to the ECTS system, 44 credits equal 62.00 ECTS.

Moreover, the study programme developed an international Double Degree programme in cooperation with the Faculty of Behavioural, Management and Social Sciences of the University of Twente (Netherlands) in 2014. The cooperation was then extended in 2019.

Experts' evaluation

The SER submitted for the evaluation of the doctoral programme in environmental sciences and the information exchanged during the interviews was suitable for obtaining a comprehensive picture of this programme. A consistent concept was presented. This concept provides that six or one of 44 credits are acquired in the first two semesters. For this purpose, three modules are offered in the first semester and one in the second. General skills such as “Theoretical and Conceptual Framework of a Research” or “Academic Writing” are taught. The doctoral research project itself, for which up to five other semesters (a total of 5 to 8 semesters) are planned, only begins with preparing the student’s research proposal and its presentation, defence and possible revision in the third semester. According to the interview information, this is an established concept in Indonesia. Many doctoral students come from a professional positions from which they have developed the foundations for their doctoral project. The two- or three-semester starting phase of the doctoral programme can be used to work on the concept of the doctoral project alongside continued employment. This combination of work and study offers ideal conditions for further professional development after the doctorate.

The central element of this program is a two-semester introductory phase in which the doctoral candidates find a topic and a supervisor themselves: The former is written up in a proposal in the third semester. On the one hand, this concept ensures that doctoral candidates are deeply engaged with their thesis topic. On the other hand, however, several shortcomings appear. A topic developed in this way is based on the knowledge of a master’s candidate; thematic input on the part of the supervisors is at least not evident in the evaluation information. According to the information, this seems to result in many research topics being brought in from the candidates’ already existing professional environment. These topics may have high practical relevance and

topicality but seem to address local needs rather than the international state of research in environmental sciences. The goal of increasing the international visibility and ranking of UNPAD, as put forward by the university's senior management, will not be achieved by this orientation and should be reconsidered (**Finding 8**).

The two-semester entry period is a clear obstacle for international candidates to pursue doctoral studies at UNPAD. This will particularly affect those international doctoral candidates funded by a - temporary - scholarship. The discussions also gave the impression that it was separate from the strategy to attract international students with an accredited doctoral programme. The prospects in the Indonesian labour market for such international candidates were presented as non-existent. However, this contradicts UNPAD's general strategy and should be changed with structural modifications (**Finding 9**). By shortening the entry phase or at least the option of a shortened one, the programme will have more accessible contact with international academia. In particular, the second semester, in which only one credit can be earned, seems superfluous and should not be mandatory (**Finding 9a**). The module assigned to this semester could easily be moved. Doctoral candidates who have already come to the UNPAD with a proposal for a research topic should be allowed to present it in the first semester and start working on it (**Finding 9b**).

The visibility of the professors' research performance is essential for the attractiveness of a doctoral programme. In this respect, the colleagues involved in the doctoral program and UNPAD as a whole have shown remarkable development in the past ten years, which can be seen from the publication achievements. This trend undoubtedly points in the right direction. It is also necessary to let these good research achievements flow into the doctoral programme. However, the information provided during the review indicates that doctoral theses tend to research case studies with regional to local relevance; the doctoral students often suggest the topics. Such a strategy may make sense in individual cases, but it hinders the development of internationally visible and competitive expertise. Establishing a clear strategy regarding research lines for the PhD programme "Environmental Sciences" is needed (**Finding 10**).

Conclusion

The criterion is partially fulfilled.

2. Procedures for quality assurance

Bachelor's/master's degree

The programme is subject to the higher education institution's policy and associated procedures for quality assurance, including procedures for the design, approval, monitoring, and revision of the programmes.

A quality-oriented culture, focusing on continuous quality enhancement, is in place. This includes regular feedback mechanisms involving both internal and external stakeholders.

The strategy, policies, and procedures have a formal status and are made available in published form to all those concerned. They also include roles for students and other stakeholders.

Data is collected from relevant sources and stakeholders, analysed, and used for the effective management and continuous enhancement of the programme.

[ESG 1.1, 1.7 & 1.9]

Doctoral degree

The programme is subject to the higher education institution's policy and associated procedures for quality assurance, including procedures for the design, approval, monitoring, and revision of the programmes.

A quality-oriented culture, focusing on continuous quality enhancement, is in place. This includes regular feedback mechanisms involving both internal and external stakeholders.

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[ESG 1.1, 1.7 & 1.9]

Description

According to the SER, UNPAD has similar quality assurance procedures for all programmes. The quality assurance policy of UNPAD is developed and implemented following national regulations (the quality assurance guidelines of the Ministry of Research, Technology and Higher Education) and internal regulations (Rector's Regulation). At the programme level, the Postgraduate School leadership built a team called the Quality Control Group (GKM) led by the Head of the Study Programme.

There are three stages of the study programme's quality assurance processes, namely 1) Quality Culture, 2) Quality Commitment, and 3) Quality Monitoring and Evaluation. In the Quality Culture stage, the academic community, including lecturers, administrative staff and laboratory assistants, must be aware of the concept of quality and how to maintain and improve it. Meetings and discussions in this regard are held weekly and monthly with the participation of all academics in the study programmes. Moving to the stage of Quality Commitment, the standard operating procedure (SOP) is to monitor and ensure the implementation of quality components in all aspects (student admissions, lecturing process, assessments, and graduation). The quality monitoring and Evaluation stage is where every stage of the business process is reviewed, and changes are made correspondingly when necessary. A group discussion forum (FGD) involving relevant stakeholders is formed to carry out this stage. The university states in the SER that they use evaluation or feedback from the FGD and graduate users as input for the study programme enhancement in the future.

According to the SER, the actors involved in the quality assurance process are lecturers, students, alumni, and other relevant stakeholders. Aspects of quality improvement include curriculum, learning processes, and the use of information technology. The quality improvement process is conducted at least once a year. Feedback and evaluation are collected through face-to-face interviews or online surveys and questionnaires on the university's websites. Detailed information concerning student progress and success rates, grades, graduation data, study satisfaction, and educator effectiveness is also published on the university's Integrated Academic Information System (SIAT) and accessible to both lecturers and students.

Experts' evaluation

Based on the documentation provided to the experts and the discussion during the site visit, it became apparent to the experts that the responsibilities within the programme and for the different programme elements are clearly defined within the graduate school. This includes quality assurance mechanisms which are comprehensive and appropriate for the study programmes. The procedures involve instruments with different scopes, e.g., course evaluations regularly and programme evaluations. The experts have been provided with a high level of information, and it shall be recognised that the active exchange between teaching staff and students allows for direct feedback towards the management of the programmes on potential needs for adjustment in the teaching process.

The instruments include data on progression, student success or drop-outs. The experts have analysed the data provided and discussed them with the relevant stakeholders. However, the experts have seen that the data collection primarily focuses on the quantitative aspect of QA and less on the qualitative aspect of QA. Thus, the experts believe that a more qualitative analysis of the QA processes would strengthen this part of the programme's management (**Finding 11**).

The documentation submitted to the experts outlined that the labour market is involved in the QA procedures. However, the discussion with external stakeholders showed that no regular feedback processes concerning

the industry need or further development are established and happen only occasionally. Thus, regular exchanges with labour market representatives in the public and private sectors must be organised individually for all programmes (**Finding 12**). By carefully integrating this valuable external opinion, the programmes can quickly adapt the curricula developments to the needs of the labour market and changing societal needs.

Despite that adjustment concerning the external stakeholders, it can be testified that the procedures are in place and fit for purpose. The mechanisms and instruments lead to the improvement of the programmes.

Conclusion

The criterion is partially fulfilled.

3. Learning, teaching and assessment of students / Learning and assessment of students

Bachelor's/master's degree

The delivery of material encourages students to take an active role in the learning process.

Students are assessed using accessible criteria, regulations, and procedures, which are made readily available to all participants and which are applied consistently.

Assessment procedures are designed to measure the achievement of the intended learning outcomes.

[ESG 1.3]

Doctoral degree

The form of supervision and/or course structure is adequate and corresponds with the intended learning outcomes.

Students are assessed using accessible criteria, regulations, and procedures, which are made readily available to all participants and which are applied consistently.

Assessment procedures are designed to measure the achievement of the intended learning outcomes.

[ESG 1.3]

Description

Forms of learning methods at UNPAD include face-to-face classes; practicum/fieldwork; interactive learning; cooperative learning; project-based learning; presentation; case study; independent discussion and assignments; e-learning and hybrid learning combining in-person classes and virtual classes with the support of e-learning tools (e.g. LIVE UNPAD, Zoom).

The university issues an annual academic calendar containing the lecture schedule, mid-semester exams, end-of-semester exams, announcements and improvement of grades, and schedule for registration or graduation. In addition, an open house is created as an initiative of the university for discussions on technical matters of lecture processes, assessment, final projects, examination, trial, and graduation. In this open house process, the head of the study programme outlines the assessment process for each course and assessment criteria, while elaboration is the lecturer's responsibility.

The proportion of assessment forms is distributed as 20% for assignments, 20% for quizzes, 30% for the mid-term exam and 30% for the final exam. In the SER, it is described that lecturers can also make adjustments with the agreement of all students before courses start. Models and types of exams, such as quizzes, independent assignments, group assignments, or field assignments, are clarified at the beginning. Students have a platform to monitor their study progress and exam results. As stated in the SER, students get support from the university to find a place to conduct field training.

Regarding quality control on the teaching methods, students are asked to complete a survey by the end of the semester. Improvement is considered based on the results of this survey, which is also used as a source for

monitoring and evaluation. According to SER, the data is then published on the university website and made accessible to all relevant stakeholders.

Experts' evaluation

Based on the documentation and the site visit, it became evident that the programmes are primarily taught in Bahasa Indonesia, and only a few courses are offered in English. This makes sense keeping in mind the regional focus of the programmes. However, raising the number of courses taught in English would allow more substantial international visibility. It would allow the merging international students with Indonesian students, adding a component to the programmes (**Finding 13**).

With a broad suite of different learning and teaching methods, various formats during the courses and for the midterm exams are mentioned, i.e., quizzes, student presentations, exams, discussion forums, and assessments. However, the module handbooks clarify that individual examination forms are used in most courses. First, this is the preparation of a manuscript or report based on a literature search and its presentation and discussion or defence. Although this form of examination is very welcome due to the students' high contribution, its almost exclusive use in various study programmes is not expedient. All study programmes should consider a broader focus on different types of examinations for the final examination (**Finding 14**).

In the study programmes, topics for master's theses are first of all developed by the students. In many cases, especially when students are already in a professional position, topics are developed from immediate professional practice. This ensures a high practical relevance of the topics. On the other hand, these usually remain at the level of local or regional case studies. In contrast, research-driven topics developed, for example, from a subject leader's (professor's research expertise, are carried out much less frequently. This stands in the way of developing international visibility and competitiveness of research at UNPAD and its scientists. Not rarely are the research topics based on students' individual interests not linked to the core objectives of the study programmes.

The panel of experts analysed the regulation on examination, evaluation criteria and the criteria for publications submitted for the accreditation procedure. The discussion showed that the regulations are somewhat ad hoc, meaning that externals need more transparency and continuity. For example, the specifics of examination procedures and possible different modes of completing the programme must be communicated transparently, i.e., monograph versus cumulative dissertation, the thesis defence or viva voce, questions concerning the recognition of individual achievements, the status of publications, and timescale for publications. Thus, it is essential to have more institutionalised regulations on examinations, evaluation criteria and publications for the PhD programme "Environmental Sciences" (**Finding 15**).

Conclusion

The criterion is partially fulfilled.

4. Student admission, progression, recognition and certification / Legal status, admission and certification

Bachelor's/master's degree

Consistently applied, pre-defined, and published regulations are in place which cover student admission, progression, recognition, and certification.

[ESG 1.4]

Doctoral degree

The institution is entitled to award a doctorate.

Consistently applied, pre-defined, and published regulations are in place which cover student admission, progression, recognition, and certification.

[ESG 1.4]

Description

Admission

In general, admission criteria for master's students are graduation from undergraduate programmes accredited by BAN-PT or following level 7 of the Indonesia National Qualification Framework; Academic Ability Test (TKA) certificate of at least 450; and English Language Proficiency Test (TKBI) certificates such as TOEFL of at least 450 or IELTS of at least 4.5. According to the SER, UNPAD has a system called the Universitas Padjadjaran Entrance Selection (SMUP), through which student recruitments are processed. The study programmes open two batches of selection annually: Batch 1 for odd semesters and Batch 2 for even semesters. All information on general requirements, the registration process, and special requirements are available on the university website.

Nevertheless, the master's programme in Environmental Science also has a Double Degree programme, which requires higher criteria of prospective students, according to the SER. In particular, they must obtain a minimum score of 550 for TOEFL ITP or a GPA of 3.25. Student recruitment for this programme takes place once every odd year.

For the Doctoral programme, applicants must be graduates of master's programmes accredited by BAN-PT, having an Academic Ability Test (TKA) certificate with a score of at least 500 and an English Language Proficiency Test (TKBI) certificate with a minimum score of 500 for TOEFL or 6.0 for IELTS.

There are two stages of selection, the first stage for the administrative selection of general requirements conducted at the university level by the SMUP Team, and the second stage for the selection at the faculty level in the form of interviews. Interviewers are assigned by the head of the study programme and approved by the dean. The head of the study programme and the dean also make the final decision. As for international student recruitment, the SMUP team will work together with the university's Office of International Affairs. The numbers of applicants and accepted students of the study programmes are also reported in the SER.

Progression

Generally, students' study progress is monitored using the Integrated Academic Information System (SIAT), which students can access from outside the university via their student email accounts. This system also supports students working and studying online with a flexible learning schedule.

In the master's programme in Environmental Science, student progress is evaluated and monitored at least once before the end of the semester. It will be reported to the dean of the faculty in the periodical meetings.

Recognition and Certification

Graduates of the master's programmes receive a master's degree with the name of their study programmes. As for the international Double Degree programmes, students are awarded a master's degree from UNPAD and the partner universities. In the case of the Double Degree master's programme in Environmental Science, the master's degree at UNPAD is entitled "Master of Science on Environmental Studies". In contrast, the degree's title at the University of Twente is "Master of Science and Environmental and Energy Management" and at the Mie University is "Master of Science in Bioresources".

Experts' evaluation

Admission

The general admission requirements are available on the UNPAD homepage for applicants (*Seleksi Masuk Universitas Padjadjaran*). From an external perspective, navigating through the requirements for postgraduate programmes is sometimes unhandy because prospective students need to navigate via the faculty pages to find more information on the postgraduate requirements. In general, UNPAD requires an Academic Ability Test (TKA), Academic Potential Test (TPA), and English Language Proficiency Test (TKBI) for prospective students but allows them to substitute that if an applicant has successfully scientific publications in Q1 journals indexed in SJR as first author.

The qualification requirements for admission to this program, the requirements for the doctoral performance (e.g., number and type of peer-reviewed publications), the procedure for the final review and defence, and the composition of the review panel are clearly stated. The PhD regulations are so far only available in Indonesian. In order to appeal to international applicants, they should also be available in English (**Finding 16**).

For monitoring purposes, data on the admission procedures of past cohorts are available in SER for each study programme. As the study programmes are multidisciplinary and students come from various backgrounds, it is suggested that the programme owners consider determining more specific admission criteria for all study programmes (**Finding 17**). The prospective students should have at least basic knowledge of the core disciplines of the study programmes they apply. Appropriate bridging course modules are advised to introduce in the programme curriculum to compensate for the missing basic knowledge in the respective study programme.

Progression

The outlined instruments to monitor the student's progression, namely SIAT, are fit for purpose and show a solid commitment to supporting the students of the programmes. Action can be taken by the responsible persons if needed.

Recognition

As mentioned above, UNPAD allows substitution admission requirements but does not specify whether or not the admission requirements can be substituted by working experience in the relevant field. Concerning students' mobility, the double degree PhD programme between UNPAD and the University of Twente provides a mobility platform for students to stay and follow the curricula of the two universities and countries. On the one hand, this shows a strong commitment towards internationalisation. However, the discussion showed the other hand, that exchange is currently not active due to a low number of incoming students and only a few students going to the Netherlands.

Certification

The experts have been supplied with examples of the documentation that programme graduates receive upon graduation. The documents include the certificate and the transcript of records, which is common in Indonesia.

Conclusion

The criterion is fulfilled.

5. Teaching staff / Academic level of supervisory staff

Bachelor's/master's degree

The composition (quantity, qualifications, professional and international experience, etc.) of the staff is appropriate for the achievement of the intended learning outcomes.

Staff involved with teaching is qualified and competent to do so.

Transparent procedures are in place for the recruitment and development of staff.

[ESG 1.5]

Doctoral degree

The composition (quantity, qualifications, professional and international experience, etc.) of the staff is appropriate for the achievement of the intended learning outcomes.

Staff involved with teaching is qualified and competent to do so.

Transparent procedures are in place for the recruitment and development of staff.

[ESG 1.5]

5.1 Environmental Sciences (Master)

Description

As stated in the SER, due to the programme's interdisciplinary nature, the teaching staff are recruited from nine faculties of UNPAD and various fields such as biology, agriculture, anthropology, chemistry, and law. There are 24 lecturers, including 22 full-time and two part-time lecturers. The lecturer-student ratio of 1:4 is in line with applicable regulations. In addition, 16 guest lecturers from within the country and abroad have been invited to the study programme. The programme asserts that all programme lecturers completed a doctoral degree from leading universities in Indonesia and overseas.

Regarding the recruitment process of the teaching staff, it is stated in the SER that lecturers have to pass the selection as Government Employees of UNPAD. Recruitment is implemented first on the faculty level through suggestions from lecturers of the dean from faculties within the university. When no lecturer is found, a recruitment announcement will be sent to public and private universities and other institutions.

Staff development is implemented in different facets, according to the SER. Regarding qualifications, permanent lecturers completed doctoral degrees from domestic or overseas universities. According to SER, teaching staff can actively attend symposiums, seminars, and workshops to enhance their expertise. They can involve more in researching to apply for a professorship. Staff exchange in international cooperation programmes is also a part of the staff development plan.

Experts' evaluation

The combination of the documentation in the SER and the discussion provided a clear overview to assess the qualification and background of teaching staff involved in the master's programme "Environmental Sciences". Many doctoral graduates, full professors, associate professors and assistant professors are involved in the programme's teaching. External instructors from relevant professional backgrounds complement the faculty personnel.

Given the evaluation of the programme, it is regrettable that the programme needs to be narrower in content, given the university's broad environmental and natural science expertise. Here, an expansion of the course offerings should be considered to involve more lecturers with expertise in the core elements of more natural science-oriented environmental sciences and a strong research background (**Finding 18**).

As was mentioned before, the visibility of the research in environmental sciences done at UNPAD steadily increased in the past decade (Number of publications listed in databases). Additionally, colleagues should be encouraged to intensify international cooperation and exchange. In the discussion, only research cooperation with Mie University, Japan, was mentioned. Also, participation in international conferences will foster the exchange, cooperation and visibility of research at UNPAD (**Finding 19**).

Conclusion

The criterion is partially fulfilled.

5.2 Environmental Sciences (PhD)

Description

The Doctoral programme in Environmental Science has twelve professors and five associate professors working full-time. According to the SER, as the programme is interdisciplinary, lecturers should be recruited from various areas and have experience at both national and international levels.

Experts' evaluation

As for the master's programme "Environmental Sciences", the same applies to the teaching / supervising staff in the PhD programme "Environmental Sciences". The procedure allowed a broad overview of supervising staff in the PhD programme. Again, a considerable number of doctoral graduates, many of them full professors, associate professors and eventually assistant professors, are involved in teaching the program and especially the first two groups of professors in the supervision of PhD thesis work. It was convincingly shown that the supervisory staff is qualified and methodologically qualified to support and advise PhD candidates. The number of scientists involved should be expanded in perspective, with particular attention to appropriate expertise and strong research background. This would increase the subject breadth and depth of research implemented in doctoral projects (**see Finding 18**).

The responsibilities of supervisors are clearly defined concerning the curriculum of the doctoral programme, the admission requirements for student applicants, and the regulations and requirements for the final thesis and defence. However, which regulations apply to the supervision during the doctoral thesis still needed to be clarified. This applies, in particular, to external candidates. A doctoral agreement could be developed (numerous examples exist at other universities and can be used as a template) that clearly defines the role and tasks of the candidate as well as the responsibilities of the supervisor (**see Finding 16**).

As was mentioned in the context of the master's programme in Environmental Sciences, the visibility of the research in environmental sciences done at UNPAD steadily increased in the past decade (Number of peer-reviewed publications listed in databases). Even more, the colleagues should be encouraged to intensify international cooperation and exchange and to participate in international conferences, which will foster the quality and national and international visibility of research at UNPAD (**see Finding 19**).

Conclusion

The criterion is partially fulfilled.

6. Learning resources and student support / Support and research environment

Bachelor's/master's degree

Appropriate facilities and resources are available for learning and teaching activities.

Guidance and support is available for students which includes advice on achieving a successful completion of their studies.

[ESG 1.6]

Doctoral degree

Guidance and support are available for students which include advice on achieving a successful completion of their studies.

Appropriate facilities and resources are available for learning and research activities.

[ESG 1.6]

Description

According to SER, funding for the operation and development of the study programmes is acquired from the government budget, tuition fees, sponsorships, and collaboration programmes. In return, the university provides full and partial scholarships to attract fresh graduates and international students. UNPAD explains in SER that full scholarships are also available for lecturers pursuing a PhD degree. At the same time, the best applicants in each study programme also have the opportunity to receive partial scholarships.

Shared facilities in the Graduate School comprise standard lecture/discussion rooms, co-working spaces for lecturers and students, seminar rooms, learning resources and centres.

Other supporting facilities are provided for administrative services, international offices and partnerships, logistics, and archives. Regarding conducting research in laboratories, students at the Graduate School have access to the university's central laboratory and laboratories at other faculties and collaborating laboratories from outside the university when carrying out field training or community services.

The university states in the SER that they provide facilities for students with special needs, such as particular parking lots, special access for wheelchairs, unique signs with embossed letters, guiding lines for people who are blind, lifts in three-floor buildings, and wide entrance doors for disabled students.

As stated in the SER, the university has maintenance and renovation schemes for its facilities and laboratories to guarantee the functionality and lifespan of the equipment.

Experts' evaluation

UNPAD supports its students in many ways. There is a subpage for each degree programme on the university's website. On this website, students and prospective students can find information about all relevant aspects of the programme, such as curriculum, expected learning outcomes or examinations. Some tables provide information about the workload for the respective courses.

The university strives to make the study programmes studyable, which is why there are monthly meetings in the programmes where various problems and findings specific to the study programme can be discussed. Student support functions sufficiently well; individual solutions can be found regularly, for example, in case of illness. However, the university would like to grow strongly in the next few years, and it is questionable whether and to what extent the current individual solutions in areas that can be regulated comparatively well, such as missed examinations, can still be treated individually in this case and whether the university should not already develop regulations for such cases. Of course, it is commendable in many cases if there are individual solutions, for example, for students with families or care responsibilities. However, some areas can also be well "basic regulated" to ensure certain comparability and clarity in these processes.

The university presented adequate facilities to the evaluators. There were various well-equipped course rooms, recording studios, and computer pools but also individual work areas to see; various useful laboratory facilities were mentioned in conversations with teachers. The library was also basically good and very modern, but the evaluators criticised the small number of physically available primary textbooks and literature on the international level. This needs to be increased (**Finding 20**).

The university strives for internationalisation on a wide variety of levels. Mobility is supported by the university for both students and staff, and there is cooperation at the degree programme level (e.g., with the University of Twente), as well as teaching staff from abroad and scholarships for international students. An internship

programme is also being developed; however, internships can already be completed and credited at home or abroad. UNPAD has various ways for students to finance their studies. Particularly noteworthy here are scholarship programmes financed by the state or partners and offer a comparatively large number of students the opportunity to study. UNPAD provides full- and partial scholarships.

The qualification requirements for admission to this program, the requirements for the doctoral performance (e.g., number and type of peer-reviewed publications), the procedure for the final review and defence, and the composition of the review panel are clearly stated.

Conclusion

The criterion is partially fulfilled.

7. Public information

Bachelor's/master's degree

Impartial and objective, up-to-date information regarding the programme and its qualifications is published regularly. This published information is appropriate for and available to relevant stakeholders.

[ESG 1.8]

Doctoral degree

Impartial and objective, up-to-date information regarding the programme and its qualifications is published regularly. This published information is appropriate for and available to relevant stakeholders.

[ESG 1.8]

Description

Public information at UNPAD is divided into two main channels: the university website and the Graduate School website, which includes links to individual study programme websites and other social media platforms.

General information from the university website, such as the admission process, links to faculties (including study programmes), research and innovation grants, scholarships, intellectual property rights, and job vacancies, is accessible to all interested and relevant stakeholders.

The SER describes that the Graduate School website contains general information about the Graduate School, procedures for thesis and dissertation proposals, defence of all study programmes, and miscellaneous information regarding school facilities. This website also directs to the International Office homepage, where information about international services, activities, and cooperation is available. It is said that the websites of eight study programmes at the Graduate School provide information about the learning process (curriculums, expected learning outcomes, examinations, evaluations, publications, quality assurance, and academic staff), the profile of each study program, organizational structures, as well as academic and extracurricular activities. The Graduate School also provides public information on social media platforms such as YouTube, Instagram, and Facebook.

Experts' evaluation

The public information available for the programmes is difficult to access for externals who need to become more familiar with Indonesian universities. There is a main homepage of UNPAD and several faculty/postgraduate and departmental homepages. The link from one to the other is primarily hidden in the submenu, which sometimes causes friction. However, once these obstacles are solved, the level of information on the programmes is sufficiently available. It includes the curriculum, information on the teaching staff, admission requirements or contact details. However, it is visible that the university is currently in a transition phase making

its content more accessible to externals (especially international stakeholders). Consequently, there might be mismatches between the level of detail available in Bahasa Indonesian and English, which should be considered (**Finding 21**).

Conclusion

The criterion is fulfilled.

V. Findings

1. The master's programme "Environmental Sciences" must transparently outline the two different tracks.
2. The curriculum of the master's programme "Environmental Sciences" should incorporate more up-to-date techniques, e.g., multivariate statistics and data modelling or topics such as soil, hydrology, water management or climate change.
3. The master's programme "Environmental Sciences" needs to establish a clear strategy regarding research lines.
4. The programme's documentation should clarify how the environmental policy and industrial ecology emphasis is translated into the curriculum.
5. The curriculum of the master's programme "Environmental Sciences" should include additional opportunities as elective courses.
6. A broader understanding of the discipline reflected in the curriculum (e.g., electives) might increase job opportunities for graduates.
7. The documentation of the master's programme "Environmental Sciences" has to update the literature used in the courses to enhance student transparency.
8. Although valuable to the region, the overall strategy for the PhD programme "Environmental Sciences" should include more international research topics to connect the programme to global topics of the discipline.
9. Structural changes for the PhD programme "Environmental Sciences" might be needed to attract international students. A particular focus shall be paid to the following:
 - a. The possibility of shortening the entry phase in the first two semesters, and
 - b. The option to present research topics during the entry phase.
10. The PhD programme needs to outline its research lines transparently to give externals valuable insight into its strengths.
11. The QA processes should include a qualitative analysis of the data collected to enable the relevant positions to follow the development of the programmes more closely.
12. Regular exchange with the labour market in both the public and private sectors has to be organised for all programmes, especially for curriculum development.
13. All study programmes should include more courses fully or partially taught in English.
14. A variation of different examination types for the final examination should be implemented to assess better the course content.
15. It is essential to have more institutionalised regulations on examinations, evaluation criteria and publications for the PhD programme "Environmental Sciences".
16. The PhD regulations "Environmental Sciences" should be published in English to attract more international students.
17. The admission criteria of all study programmes should require prospective students to have basic knowledge of the core disciplines of the study programmes they apply.
18. More expertise in the core elements of more natural science-oriented environmental sciences and a strong research background should be integrated into the teaching body of the master's and PhD programmes "Environmental Sciences".
19. The university should encourage lecturers of the master's and PhD programme "Environmental Sciences" to participate more frequently in international conferences.
20. The number of physically available primary textbooks and literature on an international level must be increased for all programmes.
21. It should be ensured that the availability of public information has the same depth in Bahasa Indonesian and English.