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FINAL REPORT

RWTH AACHEN UNIVERSITY

WATER SECURITY AND GLOBAL CHANGE (MASTER OF SCIENCE)

JOINTLY WITH:

INDIAN INSTITUTE OF TECHNOLOGY MADRAS, INDIA

DRESDEN UNIVERSITY OF TECHNOLOGY, GERMANY

October 2025

European Approach Procedure



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DRAFT DECISION OF THE AQAS STANDING COMMISSION ON THE STUDY PROGRAMME

▪ WATER SECURITY AND GLOBAL CHANGE (MASTER OF SCIENCE)

OFFERED BY

- RWTH AACHEN UNIVERSITY (GERMANY)
- INDIAN INSTITUTE OF TECHNOLOGY MADRAS (INDIA)
- TUD DRESDEN UNIVERSITY OF TECHNOLOGY (GERMANY)

Based on the report of the expert panel and the discussions of the AQAS Standing Commission in its 26th meeting on 8 September 2025, the AQAS Standing Commission decides:

1. The study programme “**Water Security and Global Change**” (**Master of Science**) offered by **RWTH Aachen University, Germany, Indian Institute of Technology Madras, India, and Dresden University of Technology, Germany**, is accredited according to the Standards defined in the European Approach for Quality Assurance for Joint Programmes.

The accreditation is conditional.

The study programme essentially complies 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 **30 September 2026**. 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 **30 September 2031**, provided that the conditions listed below are fully met. Otherwise, the accreditation may be withdrawn.

Conditions:

1. The list of intended learning outcomes must better reflect the requirements of the EQF. Greater consideration of Bloom’s taxonomy should be applied.
2. Course/Module descriptions must be of comparable quality across the academic offer assuring that learning outcomes, assessment methods and main contents are transparent and clear to students.

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

1. It is suggested to group and organise the modules in the respective areas of water security to ensure that all aspects of water security are balanced and considered in the programme, including drought and water scarcity.

2. Students should be provided with “career profiles” to assist them in finding a suitable study path they can follow.
3. Digital platforms and tools as well as information channels should be simplified, streamlined, and used more efficiently to ensure students are informed about all aspects of their programme.
4. To ensure transparency in equality and diversity goals, the consortium should develop and communicate goals for the expected proportion of male, female, and non-binary students as well as clear guidelines on the expected student intake from countries other than India and Germany.
5. Hybrid learning should only be considered for additional learning and not as a set delivery method to ensure that students benefit from studying abroad.
6. The module handbook and the examination regulations should be made available on the “ABCD Centre’s” website or at least linked from there.
7. It should be announced more clearly which equipment will be used in which course, especially for lab work.
8. Students should be involved more intensely in the quality management of the programme to assure that issues can be dealt with in the short term.

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

EXPERTS' REPORT

ON THE STUDY PROGRAMME

- “WATER SECURITY AND GLOBAL CHANGE” (MASTER OF SCIENCE)

OFFERED BY

- RWTH AACHEN UNIVERSITY (GERMANY)
- INDIAN INSTITUTE OF TECHNOLOGY MADRAS (INDIA)
- TUD DRESDEN UNIVERSITY OF TECHNOLOGY (GERMANY)

Visit to the university: 05-06 May 2025

Panel of experts:

Prof. Dr. Robert Jüpner	University of Kaiserslautern-Landau (RPTU), Germany, Department of Civil Engineering, Professor of Hydraulic Engineering and Water Management
Prof. Dr. Vengatesan Venugopal	University of Edinburgh, UK, School of Engineering, Pro- fessor of Ocean Engineering
Dr. Mariska Ronteltap	Senior Process Technologist, Delfland Water Authority, The Netherlands (labour market representative)
Nicole Bratz	Bachelor student of Marine Technology, Jade University of Applied Sciences, Germany (student representative)

Coordinator:

Ronny Heintze	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 nearly 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 programme "Water Security and Global Change" offered jointly by RWTH Aachen University (Germany), Indian Institute of Technology Madras (India), and TUD Dresden University of Technology (Germany).

1. Criteria

The programme is assessed against the criteria defined by the European Approach for Quality Assurance of Joint Programmes. The criteria are based on the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) 2015.

2. Approach and methodology

Initialisation

The university consortium mandated AQAS to perform the accreditation procedure in August 2024. The university consortium produced a Self-Evaluation Report (SER). In October 2024, the consortium handed in a draft of the SER together with the relevant documentation on the programme and an appendix. 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 02 December 2024. The final version of the SER was handed in April 2025.

Nomination of the expert panel

The composition of the panel of experts follows the stakeholder principle. Consequently, representatives from the respective discipline, 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 March 2025. AQAS informed the university consortium about the members of the expert panel and the university consortium 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 consortium 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 05-06 May 2025. On site, 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, in separate discussion rounds and consulted additional documentation. The visit concluded by the presentation of the preliminary findings of the group of experts to the consortium's representatives.

Reporting

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

Decision

The report, together with the comments of the university consortium, forms the basis for the AQAS Standing Commission to take a decision regarding the accreditation of the programme. Based on these two documents, the AQAS Standing Commission took its decision on the accreditation on 8 September 2025. AQAS forwarded the decision to the university consortium. The university consortium had the right to appeal against the decision or any of the imposed conditions.

In October 2025, 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 universities

The "Water Security and Global Change" Master's programme is a collaborative initiative involving three primary partner institutions: RWTH Aachen University (Germany), Indian Institute of Technology Madras (IITM) in Chennai (India), and TUD Dresden University of Technology (Germany). This joint degree programme, fully taught in English, awards a Master of Science (M.Sc.) equivalent to M.Tech. in India. It operates within the "Global Water and Climate Adaptation Centre: Aachen-Bangkok-Chennai-Dresden" (ABCD-Centre), funded by the German Academic Exchange Service (DAAD).

The programme integrates civil engineering as the core discipline while incorporating other related fields such as environmental engineering, hydro science, and water resources management. Students must demonstrate English proficiency at a B2 level. The curriculum spans four semesters over two years, awarding 120 ECTS credits. The study sequence starts in Chennai, followed by semesters in Dresden and Aachen, with the fourth semester dedicated to the master's thesis, which may be conducted at associated partner institutions in Bangkok or Dresden.

The governance of the programme is managed through four key bodies: the Executive Committee, Joint Examination Board, Advisory Committee, and Selection Committee, each responsible for strategic, academic, and administrative oversight. Student support is facilitated by the ABCD-Centre project staff across all partner institutions. Despite being self-funded, some mobility funding is available.

IV. Assessment of the study programme

1. Eligibility

1.1 The institutions that offer a joint programme should be recognised as higher education institutions by the relevant authorities of their countries. Their respective national legal frameworks should enable them to participate in the joint programme and, if applicable, to award a joint degree. The institutions awarding the degree(s) should ensure that the degree(s) belong to the higher education degree systems of the countries in which they are based.

1.2 The joint programme should be offered jointly, involving all cooperating institutions in the design and delivery of the programme.

1.3 The terms and conditions of the joint programme should be laid down in a cooperation agreement. The agreement should in particular cover the following issues:

- *Denomination of the degree(s) awarded in the programme*
- *Coordination and responsibilities of the partners involved regarding management and financial organisation (including funding, sharing of costs and income etc.)*
- *Admission and selection procedures for students*
- *Mobility of students and teachers*
- *Examination regulations, student assessment methods, recognition of credits and degree awarding procedures in the consortium.*

Description

The "Water Security and Global Change" Joint Master Programme is described in the documentation as a collaborative academic effort developed by RWTH Aachen University, TUD Dresden University of Technology, and the Indian Institute of Technology Madras (IITM) in Chennai. The institutions involved are reported to be accredited under their respective national regulations, with IIT Madras being designated as an "Institute of National Importance," and both German institutions holding "University of Excellence" status.

The self-evaluation report (SER) outlines that the development of this programme was a core objective of the Global Water and Climate Adaptation Centre – Aachen, Bangkok, Chennai, Dresden (ABCD-Centre), a project reportedly funded by the DAAD for the period from 2021 to 2025. The governance of the programme, as explained, initially revolved around a Steering Committee and a Study Board that met in an alternating weekly schedule. The Study Board, comprising scientists, coordinators, and administrators from each university, is reported to have designed the programme through a process marked by consensus and collaborative decision-making.

According to the SER, a significant adjustment in the programme's composition is highlighted: the Asian Institute of Technology (AIT) in Bangkok was originally intended as a full partner but became an associated partner due to its inability to waive tuition fees. This structural change is noted as a point of contention, with the SER indicating a desire among the remaining partners to incorporate AIT fully in the future.

The SER acknowledges the roles of associated partners, such as AIT and United Nations University – Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES) in Dresden, in providing additional academic and research opportunities. It is indicated that these institutions contribute to the supervision and facilitation of research projects, especially for master theses. The documentation outlines a vision for expanding the programme, potentially integrating more partners and continuously enhancing the student experience.

The agreement (attached to the SER) outlines the primary objective of the collaboration, which is to provide a comprehensive, interdisciplinary Master's programme that addresses critical global challenges related to water security and climate adaptation. The agreement specifies the governance structure to ensure efficient management and accountability across all participating institutions. This structure includes several key bodies:

- **Executive Committee:** This committee is composed of senior academic representatives from each partner institution. Its primary role is to oversee the academic direction of the programme, make strategic decisions, and ensure the curriculum remains relevant and high-quality.
- **Joint Examination Board:** Responsible for handling all matters related to examinations and the awarding of credits. It operates in compliance with the European Credit Transfer and Accumulation System (ECTS) and ensures that academic assessments meet the standards set by each institution.
- **Advisory Committee:** This body provides guidance on industry relations, research opportunities, and future partnerships. It serves to connect the programme with external stakeholders, enhancing the employability and research prospects for students.
- **Selection Committee:** This committee manages the student admission process, which IITM leads. The criteria and process for selecting students are designed to ensure a diverse and high-calibre cohort, drawing applicants from a wide range of disciplines.

The agreement also specifies the provision for a joint degree. The Master of Science (M.Sc.) degree is awarded jointly by the three institutions, with the academic credential recognised as equivalent to the Master of Technology (M.Tech.) in India. This arrangement has been made possible by recent educational reforms, such as India's National Education Policy of 2020, which facilitated the recognition of joint and double degrees.

The agreement outlines a highly coordinated academic schedule, designed to accommodate differences in academic calendars across the institutions. Students begin their studies at IIT Madras in July, followed by semesters in Dresden and Aachen. This arrangement ensures that students experience each university's academic culture and research environment, promoting an understanding of diverse approaches to water and climate challenges.

In addition to this, the agreement specifies on hybrid learning and the credit distribution among the partner, as follows:

- **Hybrid Learning:** To accommodate the cohort's mobility and synchronise academic content across continents, the programme includes a hybrid learning model. This model leverages virtual teaching infrastructure developed during the COVID-19 pandemic and ensures that courses are accessible whether students are attending in person or remotely.
- **Credit Distribution:** The curriculum is structured to include 30 ECTS credits from each institution, totalling 120 ECTS over four semesters. The fourth semester is dedicated to the master thesis, for which students can choose supervisors based on their research interests. The flexibility in thesis supervision is designed to optimise the expertise available across the three universities.

The agreement furthermore outlines the effort for the quality assurance of the programme. RWTH Aachen University takes the lead in coordinating the accreditation process, in collaboration with TUD Dresden and IITM. The agreement outlines measures for internal and external evaluation, continuous curriculum assessment, and feedback mechanisms from students and faculty.

The agreement details how resources, such as research facilities, academic staff, and administrative support, will be shared among the partner institutions. Each university commits to providing the necessary infrastructure to support student learning and research. Additionally, students have full access to the facilities and services of all three universities, including libraries, laboratories, and student support services.

While the programme is primarily self-funded, the agreement acknowledges the availability of financial support for student mobility through DAAD funding. This funding covers travel and accommodation costs, particularly for the first cohorts. The agreement specifies how financial resources will be allocated and managed, with IITM overseeing the initial student intake and enrolment.

Furthermore, the agreement expresses a long-term vision for the programme, including the possibility of expanding partnerships. The Asian Institute of Technology (AIT) in Bangkok, currently an associated partner, may be integrated as a full partner in the future, pending resolution of tuition fee and structural challenges. The agreement also hints at potential collaborations with industry partners and international research organisations, which could enhance the practical and research components of the curriculum.

The agreement includes provisions for conflict resolution, outlining a structured approach to address disagreements among the partner institutions. It also specifies the conditions under which the agreement can be amended, emphasising the importance of mutual consent and regular review to adapt to emerging educational and research needs.

Expert evaluation

The panel of expert can confirm that the institutions offering the joint programme are recognised as higher education institutions by the relevant authorities of their countries. RWTH Aachen University and TUD Dresden University of Technology hold “University of Excellence” status in Germany, and the Indian Institute of Technology Madras (IITM) is designated as an “Institute of National Importance” in India. The national legal frameworks in India and Germany enable IIT Madras, RWTH Aachen, and TU Dresden to participate in joint programmes and, if agreed upon, to award joint or double degrees in compliance with their respective regulations.

The programme is offered jointly by all three cooperating institutions: IIT Madras, RWTH Aachen, and TU Dresden. Each institution is involved in the design and delivery of the programme, with a highly coordinated academic schedule that accommodates differences in their academic calendars. Students begin their studies at IIT Madras, followed by semesters at TU Dresden and RWTH Aachen, ensuring that each institution contributes to the overall academic experience and research environment.

The agreement specifies that a Master of Science (M.Sc.) degree is awarded jointly by IIT Madras, RWTH Aachen, and TU Dresden. In India, this degree is officially recognised as equivalent to a Master of Technology

(M.Tech.), clearly establishing the denomination of the qualification. Graduating students receive a joint certificate, issued by the coordinating institution (IIT Madras). The certificate features the logos, official seals, and signatures of all three degree-awarding institutions, reflecting the collaborative nature of the programme.

The highly coordinated schedule implies a level of collaboration in terms of responsibility for student mobility and academic planning. The agreement outlines the governance structure with several key bodies, including an Executive Committee for academic direction and a Selection Committee for student admissions. While the consortium provided an overview of the semester fees, the allocation and sharing of income details were not clear.

The admission and selection procedures for the programme are clearly defined. Admission is open to applicants holding a bachelor's degree or equivalent, with a minimum overall grade of 60% aggregate or "first class." The Selection Committee, led by IIT Madras, is responsible for overseeing the selection process. It comprises six members, two each from RWTH Aachen, TU Dresden, and IIT Madras, with the Chairperson from IIT Madras. The selection process aims to ensure a diverse and high-calibre cohort. Applicants submit their applications through the IIT Madras admission system. An initial pre-selection is conducted by designated staff at the IITM Admissions Office, after which shortlisted applications are reviewed by the Selection Committee. Final admission decisions are made by IIT Madras, based on the Committee's evaluations. All teaching, exercises, and practical sessions are conducted in English, and applicants must provide proof of English language proficiency. Admitted students are enrolled at all three partner universities for the full duration of the programme. To accommodate individuals seeking a career shift into this interdisciplinary field, the experts suggest that the programme may consider expanding eligibility to include applicants with academic backgrounds outside of engineering (as currently listed).

The agreement outlines student mobility in detail. Students will begin their studies at IIT Madras in July, followed by semesters at TU Dresden and RWTH Aachen. This ensures that students experience each university's academic culture.

The cooperation agreement adequately covers examination regulations, student assessment methods, recognition of credits, and degree awarding procedures. Each partner university conducts exams according to local rules, and exam types and methods are specified in the course schedules. Results are reported to IIT Madras within six weeks, supporting coordinated credit recognition. Local grades are converted using agreed tables (Table 2 and Table 3), ensuring consistency. A joint M.Sc. degree is awarded with official seals and signatures from all three institutions. It operates in compliance with the European Credit Transfer and Accumulation System (ECTS), ensuring that credits are recognised across the institutions. The degree awarding procedure is also addressed, as the MSc degree is awarded jointly by the three institutions.

Conclusion

The criterion is fulfilled.

2. Learning outcomes

- 2.1 The intended learning outcomes should align with the corresponding level in the Framework for Qualifications in the European Higher Education Area (FQ-EHEA), as well as the applicable national qualifications framework(s).*
- 2.2 The intended learning outcomes should comprise knowledge, skills, and competencies in the respective disciplinary field(s).*
- 2.3 The programme should be able to demonstrate that the intended learning outcomes are achieved.*
- 2.4 If relevant for the specific joint programme, the minimum agreed training conditions specified in the European Union Directive 2005/36/EC, or relevant common trainings frameworks established under the Directive, should be taken into account.*

Description

The SER presents the programme as structured around a three-semester academic cycle, starting in Chennai and followed by semesters in Dresden and Aachen. This arrangement, as per the SER, aligns with the earlier academic year start in India. IIT Madras is reported to have assumed responsibility for admissions, while enrolment at the German universities occurs subsequently. The courses, amounting to 30 ECTS at each institution, are delivered in English through a hybrid format, a design element attributed to the need to manage transcontinental academic schedules and enhanced by the infrastructure developed during the COVID-19 pandemic.

The SER states that the programme offers a distinctive academic value by integrating expertise from both the global north and south. This interdisciplinary approach is purportedly aimed at addressing critical global issues such as water scarcity. Students are expected to gain exposure to diverse cultural and academic perspectives, while the opportunity to engage with research facilities across the three institutions is highlighted as a significant advantage. The fourth semester, dedicated to the master thesis, is described as offering students the flexibility to select their supervisors based on research interests, adding a layer of academic customisation.

The documentation describes the Water Security and Global Change Master's Programme as one designed to provide students with a thorough and multidisciplinary understanding of the complex interplay between water resources, environmental changes, and societal impacts. The stated aim is to equip students with the necessary knowledge, skills, and ethical sensibilities to confront pressing water security challenges associated with climate change. According to the text, graduates are expected to be capable of influencing and implementing sustainable water policies, developing innovative solutions, and enhancing resilience within diverse environments. The ultimate goal, as outlined, is to contribute to a secure, sustainable, and equitable water future globally.

The programme reportedly focuses on key themes such as climate adaptation and sustainable development, encouraging students to approach water-related issues through social, economic, and ecological lenses. The documentation indicates that the curriculum includes fundamental topics such as water resource management, pollution control, water treatment, and safe water supply. It also integrates methods like ecosystem resilience and nature-based adaptation strategies to provide practical skills applicable to real-world contexts. The programme's alignment with the United Nations' Sustainable Development Goal 6, which aims for "Clean Water and Sanitation for All", is highlighted as a significant feature.

Furthermore, the programme is described to aim at developing internationally oriented engineers who are prepared for lifelong learning, able to work in interdisciplinary and multicultural teams, and committed to ethical and critical thinking. The document claims that such graduates would be attractive candidates for roles in international industries, public service, and research institutions, as well as being well-prepared to undertake PhD research in water management or environmental science.

The programme's objectives are articulated through a set of comprehensive ILOs, ensuring that students acquire the necessary skills and competencies. Here are the specific ILOs:

1. **Understanding Water Systems:** Students gain an in-depth understanding of the hydrological cycle and the components of water systems, exploring how water interacts with natural environments, societies, and ecosystems.
2. **Global Change Impacts:** Students learn about the effects of global change, including climate change, on water resources and ecosystems. They study how variables like temperature shifts, precipitation changes, and sea-level rise affect water availability and quality.
3. **Water Policy and Governance:** The curriculum covers policies, regulations, and governance structures that influence water resources management on local, national, and international scales.
4. **Water Quality and Pollution:** Students examine the sources and impacts of water pollution, strategies for monitoring, and methods for improving water quality to safeguard human health and ecosystems.
5. **Water Resources Management:** The programme develops students' abilities to manage and optimise water resources sustainably, including conservation strategies and integrated water resource management practices.
6. **Risk Assessment and Resilience:** Students learn to assess water-related risks, such as floods, droughts, and water scarcity, and develop strategies to enhance the resilience of water systems.
7. **Interdisciplinary Approaches:** Emphasising collaboration, students integrate knowledge from various disciplines—environmental science, engineering, policy, economics, and social sciences—to solve water security challenges.
8. **Research and Analysis:** The programme fosters research skills and analytical capabilities, enabling students to investigate complex water-related problems and propose evidence-based solutions.
9. **Ethical and Social Considerations:** Students consider the ethical, social, and equity aspects of water security, understanding that access to clean water is a fundamental human right.
10. **Communication and Leadership:** The programme enhances communication and leadership skills, critical for advocating water security policies and working effectively in interdisciplinary teams.
11. **Independence and Critical Judgement:** Graduates are expected to challenge existing knowledge, adopt a critical perspective, propose creative solutions, and exercise independent judgement.
12. **Further Education:** Students are trained to continue learning and acquiring new knowledge and skills, ensuring they can adapt to evolving challenges in their professional careers.

The educational model described in the document is student-centred, focusing on active learning and knowledge construction. Students are expected to reflect on their experiences and actively engage in constructing their understanding, rather than passively absorbing information. The programme reportedly uses activating teaching methods and applies constructive alignment, ensuring that teaching activities and assessments are clearly linked to the learning objectives. This alignment is said to motivate students to engage fully with the curriculum and achieve the desired outcomes.

The curriculum is described as modular, combining core courses with elective options to provide flexibility. This structure allows students to tailor their academic experiences to their individual interests and career goals. The use of team-based teaching and the integration of interdisciplinary content are highlighted as strategies to enhance coherence and prepare students for collaborative work in real-world settings.

The documentation points out that hydraulic engineering and urban water management are core disciplines of the programme, critical for climate adaptation, environmental protection, and sustainable development. These fields are essential for addressing global challenges, such as achieving SDG 6 (Clean Water and Sanitation), SDG 13 (Climate Action), and SDG 17 (Partnerships for the Goals). The text emphasises that students are trained to manage water resources sustainably and protect against environmental hazards, applying engineering and scientific principles to solve complex problems.

The programme covers various dimensions of water management, including risk management, coastal engineering, and the efficient use of water in agriculture and industrial processes. The documentation suggests that the ILOs are designed to ensure that graduates are well-prepared to adapt to evolving challenges and contribute effectively to economic development.

The SER explains that each module is linked to the programme's ILOs to ensure comprehensive coverage of learning objectives. If students wish to take electives outside the pre-approved options, they must obtain approval from the Joint Examination Board, which evaluates whether the elective supports the programme's goals. The master thesis serves as a culminating project, where students demonstrate their ability to apply interdisciplinary research skills, critical analysis, and independent thinking. This final project, as described, reinforces the learning outcomes, with students engaging in scientific work and collaborating with supervisors to produce impactful research.

Expert evaluation

The panel of experts confirms that the intended learning outcomes are clearly documented in the SER. At the same time the experts find that the master's programme would probably benefit from describing more clearly who the intended learners are, how the programme aims to deliver the graduates back to society, with which skills and knowledge, and what needs to happen in between, i.e. during the running of the programme.

Based on a careful analysis and also confirmed by the discussions on site, the expert find that the programme currently focuses very strongly on flood management, which – depending on viewpoint - creates a slight imbalance in the scope of the programme. The experts understand that floods are highly impactful and are increasing as a consequence of global change. Still considering the name of the programme, it aims to embrace the full range of water security issues, including droughts and their effects, as well as the functioning of and relation to the urban (and also rural) water cycle. The experts therefore strongly recommends grouping and organising the modules in the respective areas of water security to ensure that all aspects of water security are balanced and considered in the programme, i.e. droughts and water scarcity (**Finding 1**). In this effort the programme management might also reassess whether there is a risk of overlaps between the modules on offer, as was mentioned by several panel members as well as by current students. For example, the question arises how “Sanitary Engineering in Developing Countries” is different from “Water Sanitation and Hygiene and Urban Water Management”. Large cities are mainly found in lower income countries, and by far most cities offer a wide variety of wastewater (sewered, non-sewered, stormwater, industrial, greywater), and prospective engineers should know the difference to be able to look for the best solution to manage any of these issues.

Recognizing the complexity of the challenges the programme intends address, and the different possible pathways of specialization, the experts consider that providing students with “career profiles” as part of the degree programme to assist students in finding a suitable study path they can follow might be helpful to assure a clear graduation profile (**Finding 2**). In cohesion with the study paths provided to students for further guidance, the direction of the programme would be more balanced, and profiles/pathways will become clearer. For example, students can either focus on water security in an inland setting, on a coastal setting, or on an urban setting. Each focus could come with its own suggested study path and matching master's thesis topic. From the panels point of view this would be a helpful response to the broadness of the intended field the name of the programme suggests.

The experts understand that – reflecting the title of the programme - a consideration of all areas of water security in the programme may mean that the development of different course material or even a new course might be required. Yet, all students would profit from the new material as drought is a pressing issue in many parts of the world. To this end, the experts the panel of experts is convinced that the consortium in its strong

composition can draw from existing networks and experience and might not be challenged when looking for contributors with whom this material can be co-developed or who can deliver parts as guest lecturers.

Learning objectives also serve as a guideline to select suitable and essential topics, motivate potential students, show which topics are introductory, which are more fundamental, and which are more 'nice to have', and provide a way to integrate cross-cutting issues such as cultural awareness, teamwork skills, problem-solving skills, presentation skills, working with AI, modelling, and others. As the learning objectives are a key element and fundament of the degree programme, the experts suggest to carefully revise them, also grammatically. While the described outcomes reflect well the field of study and clearly indicate the Masters level according to the EQF, the experts recommend reviewing the list of intended learning outcomes as it is not immediately obvious how these learning outcomes cover the areas of skills, knowledge and responsibility / autonomy as suggested by the EQF (**Finding 3**). Applying Bloom's taxonomy or a similar framework for arranging learning objectives may encourage teachers to fundamentally think about the content and the way of delivery for each individual topic, for the module, and for the programme as a whole.

The SER focuses on the quality of the institutions and how well equipped they are for the task. For the three renowned institutions involved, the quality speaks for itself. The consortium should use that quality to focus on students and the professional profile they design for them.

Conclusion

The criterion is fulfilled.

3. Study programme

- 3.1 The structure and content of the curriculum should be fit to enable the students to achieve the intended learning outcomes.*
- 3.2 The European Credit Transfer System (ECTS) should be applied properly and the distribution of credits should be clear.*
- 3.3 A joint bachelor programme will typically amount to a total student workload of 180-240 ECTS-credits; a joint master programme will typically amount to 90-120 ECTS-credits and should not be less than 60 ECTS-credits at second cycle level (credit ranges according to the FQ-EHEA); for joint doctor-ates there is no credit range specified. The workload and the average time to complete the programme should be monitored.*

Description

The SER provides an overview of the curriculum for the Joint Master's Programme in Water Security and Global Change, specifying the courses offered by each of the partner institutions: RWTH Aachen University, TUD Dresden University of Technology, and the IIT Madras. It presents a structure of mandatory and elective courses distributed over three semesters, followed by the master thesis in the fourth semester.

The curriculum is structured to cover various aspects of water security and climate adaptation, with courses credited using the European Credit Transfer and Accumulation System (ECTS). Each partner university offers a combination of mandatory and elective courses amounting to 30 ECTS per institution, ensuring a balanced workload across all three semesters. The final 30 ECTS are allocated to the master thesis, culminating in a total of 120 ECTS.

RWTH Aachen University offers mandatory courses such as Climate Adaptation in Coastal and Hydraulic Engineering, Flood Protection, and Global Changes and Sustainable Development. Electives include a diverse range of topics, including Coastal Engineering, Flood Risk Management, Geographic Information Systems in Water Management, and Sanitary Engineering in Developing Countries, among others.

TUD Dresden University of Technology provides mandatory courses like Ground Water, Hydraulic Engineering, and Urban Water Management, as well as Water Extremes - Risk Management and Adaptation. Elective courses cover subjects like Climate Systems and Climate Modelling and International Water Issues.

IIT Madras features mandatory courses such as Physico-Chemical Processes for Water & Wastewater Treatment, Sustainability in River Basin Management, Contaminant Transport Modelling, and Water Resources Planning & Management. Electives include courses like Ocean Environment Policy and Coastal Zone Management and Technology and Sustainable Development.

The curriculum overview looks as follows:

Mandatory Courses offered by RWTH Aachen University		
<u>Title</u>	<u>Credits</u>	<u>Semester</u>
Climate Adaption in Coastal and Hydraulic Engineering	5	1
Flood Protection	5	2
Global Changes and Sustainable Development	5	3
Elective Courses offered by RWTH Aachen University		
<u>Title</u>	<u>Credits</u>	<u>Semester</u>
Coastal Engineering	5	2
Environment, Local Economies and Resource Conflict	5	2
Flood Risk Management	5	3
Geographic Information Systems in Water Management I	5	2
Geographic Information Systems in Water Management II	5	3
Hydrodynamic Simulation	5	2
Industrial Wastewater Treatment	5	3
International Project Management	5	3
Numerical Modelling in Water Resources Management	5	3
Sanitary Engineering in Developing Countries	5	3
Sediment Transport and Morphodynamics	5	3
Seminar on Hydraulic Engineering	5	2
Technological Modernization and Globalization	5	3

Mandatory Courses offered by TUD Dresden University of Technology		
<u>Title</u>	<u>Credits</u>	<u>Semester</u>
Ground Water	5	1
Hydraulic Engineering	5	2
Urban Water Management	5	2
Water extremes - Risk Management and Adaptation	5	3

Elective Courses offered by TUD Dresden University of Technology		
<u>Title</u>	<u>Credits</u>	<u>Semester</u>
Climate Systems and Climate Modelling	5	3
Environmental Perspectives on Resource Nexus	5	2/3
From Concept to Policy and Practice Impact: Advancing the Resource Nexus	5	2/3
International Water Issues	5	2
Natural Forest Management and Restoration in the Tropics	5	3

Mandatory Courses offered by Indian Institute of Technology Madras		
<u>Title</u>	<u>Credits</u>	<u>Semester</u>
Physico-Chemical Processes for Water & Wastewater Treatment	7.5	1
Sustainability in River Basin Management	5	1
Contaminant Transport Modelling	5	1
Water Resources Planning & Management	7.5	2

Elective Courses offered by Indian Institute of Technology Madras		
<u>Title</u>	<u>Credits</u>	<u>Semester</u>
Ocean Environment Policy and Coastal Zone Management	5	2
Technology and Sustainable Development	5	2
Coastal Engineering	5	2
Water, Sanitation and Hygiene	5	2
Numerical Techniques in Ocean Hydrodynamics	5	2

The curriculum is credited according to ECTS standards, with IIT Madras using an official conversion system to align with these credits. The total of 120 ECTS is split evenly among the partners and the master thesis. The SER mentions a detailed module handbook (annexed to the documentation), which outlines the content, learning outcomes, methods, assessment criteria, and workload for each course. The Study Board is responsible for ensuring the consistent application of ECTS guidelines.

The total workload of 120 ECTS over four semesters is designed to be rigorous yet manageable, with considerations for the academic and cultural diversity of the student body. The first semester starts earlier in India, making it slightly longer compared to the German academic calendar.

The curriculum is integrated with existing hydraulic and civil engineering programmes at the respective universities, allowing joint cohorts to attend courses alongside local students. Additionally, comprehensive student support services at each location are highlighted as crucial for helping students adapt to new environments and academic cultures.

RWTH Aachen University is tasked with developing monitoring tools to evaluate the student workload and the overall effectiveness of the study programme. If a course's workload proves misaligned with expectations, the Executive Committee will review and potentially adapt the course content and requirements. Any changes would be made in consultation with the examination board and the relevant academic dean, ensuring that academic standards and student well-being are maintained.

Expert evaluation

The panel of experts finds that the curriculum is well structured and shows an impressive, broad range of topics within the field of water security and global change. The content of the programme is well selected and expresses the specific strengths of each partner university, which enables students to meet the intended learning outcomes. However, it is recommended that the topics of drought and water scarcity be included more strongly in the curriculum to ensure that it covers the full range of water security issues (**see Finding 1**).

The consortium explained in detail the mechanisms of monitoring the adequacy of structure and content of the programme. Beside regular updates, the exchange of teaching staff among partner universities seems to play an important role. This is indeed a challenge given the different teaching history of each partner institution. Feedback also comes from regular teaching evaluations which influence the development of structure and content of the programme.

The ECTS are clearly described and applied properly in the programme. The distribution of ECTS to each module is outlined accordingly. This ensures that students can gain 30 ECTS per semester. As discussed above, it might be helpful to develop "career profiles" as part of the degree programme to assist students in finding a suitable study path (**see Finding 2**). The suggested study paths should also include the recommended distribution of ECTS per semester.

The total amount of ECTS must be 120 and the workload of the programme is adequate and clearly described. Nevertheless, the experts expect the workload to be a challenge, as students move to a different university every semester and will have to adjust to the specific requirements and learning conditions. During the discussion rounds, the consortium made it clear that it is aware of this issue and will continuously monitor the workload of students through various measures, e.g., regular evaluations.

During the accreditation process and especially while interviewing students of the first batch, no indicators have shown a problem with the workload. However, to enable study success, finding information ahead of time is vital, so it is recommended that digital platforms and tools as well as information channels are used more efficiently to ensure that students are informed about all aspects of their programme (**Finding 4**). This will help them to concentrate on and complete their studies within the given time frame.

Conclusion

The criterion is fulfilled.

4. Admission and recognition

4.1 The admission requirements and selection procedures should be appropriate in light of the programme's level and discipline.

4.2 Recognition of qualifications and of periods of studies (including recognition of prior learning) should be applied in line with the Lisbon Recognition Convention and subsidiary documents.

Description

The SER outlines the admission process for the Water Security and Global Change Master's Programme, highlighting that Indian Institute of Technology Madras manages admissions. This organisational arrangement is attributed to the earlier academic year start in India (August) compared to Germany (October). Applications are processed through IIT Madras's online system, and specific criteria, agreed upon by the ABCD-Centre's Study Board, guide the selection process.

The SER specifies that applicants must hold a Bachelor's degree (or equivalent) in one of several engineering or related fields, such as Civil Engineering, Mechanical Engineering, Environmental Engineering, or Water Resources Management. This degree must cover at least 180 ECTS credits and be awarded by a recognised higher education institution accredited by bodies such as AICTE, AIU, or the *Zentralstelle für ausländisches Bildungswesen*. Additionally, candidates should have a minimum of 60% aggregate marks or a "first class" classification.

While there is a focus on civil engineering knowledge, the SER notes that applicants are not strictly required to hold a Bachelor's degree in Civil Engineering. IIT Madras pre-screens applications to verify completeness and eligibility, with a significant portion of applications reportedly coming from India. The admissions office at IIT Madras is deemed well-suited to authenticate applications, assess the quality of prior education, and account for local academic standards. The document also specifies that the Indian admissions quota system, designed to support marginalized communities, does not apply to this international programme.

Applicants who pass the initial screening are evaluated by a Selection Committee, which assesses candidates based on several criteria. The evaluation includes a scoring matrix that rates academic records, work experience or internships, communication skills, awareness of water security issues, and technical proficiency. Each aspect is scored from 1 to 5, with 5 being the highest. The committee then conducts interviews with shortlisted candidates, compiling a total score for each applicant. The final list is submitted to the Executive Committee, which grants admission based on these scores. Admission may be conditional, requiring some students to fulfil specific requirements before formal enrolment. The documentation states that successful applicants will be enrolled at all three partner universities (IIT Madras, RWTH Aachen University, and TUD Dresden University of Technology) for the duration of the programme.

Regarding the recognition of qualifications, RWTH Aachen and TUD Dresden, as public universities within the European Union, have adopted the Lisbon Recognition Convention, ensuring transparent and efficient recognition processes for academic qualifications and study periods. The document mentions initiatives like RWTH Aachen's MATCH Initiative, aimed at improving the efficiency of credit mobility recognition among European partners. In India, recognition processes are reportedly evolving under the National Education Policy (2020), and IIT Madras follows practices similar to its German partners.

It is stated that the recognition of prior learning or qualifications is handled on a case-by-case basis by the Executive Committee.

Expert evaluation

The admission requirements are clearly defined. Applicants must hold a relevant bachelor's degree (minimum 180 ECTS) with at least 60% aggregate marks or first class, from a recognised institution. While there is a focus on engineering backgrounds, some flexibility is allowed for related disciplines. This ensures that students have the foundational knowledge necessary to meet the programme's level and learning outcomes.

The selection procedure is comprehensive and appropriate. IIT Madras manages admissions through a structured process that includes pre-screening for eligibility and completeness, evaluation by a Selection Committee using a scoring matrix (academic record, work experience, communication skills, etc.), interviews with shortlisted candidates, final selection approved by the Executive Committee. This multi-stage process ensures that selected students are well-qualified and aligned with the programme's interdisciplinary and international focus.

The recognition regulations are appropriate and generally transparent. RWTH Aachen and TU Dresden follow the Lisbon Recognition Convention, ensuring fair and transparent recognition of prior qualifications. IIT Madras aligns with India's National Education Policy (2020) and applies similar recognition practices. Recognition of prior learning is handled case-by-case by the Executive Committee, allowing flexibility.

Conclusion

The criterion is fulfilled.

5. Learning, teaching and assessment

5.1 The programme should be designed to correspond with the intended learning outcomes, and the learning and teaching approaches applied should be adequate to achieve those. The diversity of students and their needs should be respected and attended to, especially in view of potential different cultural backgrounds of the students.

5.2 The examination regulations and the assessment of the achieved learning outcomes should correspond with the intended learning outcomes. They should be applied consistently among partner institutions.

Description

The SER outlines the learning and teaching approach for the programme, emphasising a well-structured curriculum curated by the Study Board. The course content was deliberately designed to ensure that all Intended Learning Outcomes (ILOs) are met without content overlap across the partner universities. The focus on maintaining high-quality teaching and continually adapting the curriculum to evolving needs is highlighted as a central priority.

The programme employs a variety of instructional methods, predominantly lectures and exercises, but also includes seminars, project work, and practical training in using various modelling software. Given the international and multicultural nature of the student body, all courses are delivered in English. The global perspective extends beyond language to the curriculum, with courses designed to cover ethical, social, and equity dimensions of water security. Students are expected to develop competencies to address global water issues, such as water scarcity and equitable access to clean water.

The document mentions that students have direct access to academic experts and are encouraged to engage with course lecturers and professors for content-related inquiries. Additionally, comprehensive counselling and

academic advisory services are available across all three partner institutions, ensuring adequate academic support.

Student assessment primarily occurs through written examinations, which can be taken either as traditional paper-based tests or as online e-tests with multiple-choice questions. The programme provides flexible examination arrangements to accommodate the students' mobility across partner universities. If a student cannot sit for a repeat exam at the initial location, alternative examination formats, such as oral or written assessments, are available at the new study location. Oral exams are also utilised for seminars and project-based work.

The examination regulations for each module adhere to the standards of the respective university offering the course. However, overarching regulations that apply to all partner institutions are documented in the "General Program Regulations for the Joint Master Program Water Security and Global Change" (GPR). These regulations are detailed in the module handbook and are communicated to students in advance. All examination guidelines and regulations are provided in English to ensure clarity and accessibility.

The Joint Examination Board, consisting of six members, is responsible for overseeing examination and assessment matters. Each university employs its own grading scale, but the Study Board has established rules to convert these grades into a common grading scale to ensure uniformity. The document includes a grading conversion table that aligns the grades from TUD/RWTH with those from IIT Madras.

The grading system has specific criteria for distinctions and classifications. For example, at RWTH Aachen University, the "distinction" is awarded only if the overall grade is no worse than 1.3, and the master's thesis is graded 1.0. This grading standard reflects a rigorous assessment system designed to uphold academic excellence across the partner institutions.

Expert evaluation

The programme follows a well-structured, joint curriculum that ensures all currently defined intended learning outcomes are met. A variety of student-centred teaching methods, including lectures, seminars, project work, and practical training, are used. Students are encouraged to interact with faculty, and receive academic support and advising at all partner institutions. Flexible assessment formats (written, oral, and online) accommodate student mobility, supporting an inclusive and adaptable learning environment. The experts recommend checking the course materials for any overlapping.

The entire programme is delivered in English, and the curriculum integrates global, ethical, and equity-focused perspectives on water issues. The teaching approach is designed to reflect the diverse academic and cultural backgrounds of students, ensuring relevance and inclusivity. Support services and adaptable assessments further address the needs of an international, mobile student body. To a certain extent the issue of student diversity is work in progress in different dimensions. On the one hand there was not yet a clear answer about expectations and goals with regard the expected student intake from countries other than India and Germany as well as the intended mix of gender representation and clarity towards the expected proportion of male, female, and non-binary students (**Finding 5**).

The programme uses appropriate and varied assessments, written, oral, project-based, and e-tests aligned with each module's learning outcomes. Flexible formats support student mobility. While local rules apply, common guidelines in the General Program Regulations ensure consistency. The Joint Examination Board and a unified grading conversion system further maintain academic standards across all institutions.

The examination regulations ensure that all assessments are conducted according to the standards of each partner university, and the rules outlined in the General Program Regulations (GPR). These regulations are shared with students in advance and ensure consistency, fairness, and alignment with the programme's learning outcomes.

Lastly, considering the differences in implemented learning methods the experts find that hybrid learning should only be considered for additional learning and not as a set delivery method to ensure that students benefit from studying abroad (**Finding 6**). This applies especially to courses delivered by the organisation responsible for that particular semester. Modules that are already pre-recorded can serve as extra materials for further studying but preferably not as the main delivery method.

Conclusion

The criterion is fulfilled.

6. Student support

6.1 The student support services should contribute to the achievement of the intended learning outcomes. They should take into account specific challenges of mobile students.

Description

The SER outlines the student support services available through the three partner universities—RWTH Aachen University, TUD Dresden University of Technology, and IIT Madras—emphasising that these institutions provide comprehensive support mechanisms for both local and international students. Participants in the Joint Degree Programme have full access to these services at all three locations.

The coordination of the programme is managed by project coordinators from the ABCD-Centre, who also act as programme coordinators. The programme's relatively small cohort size, limited to 21 students, allows for personalised mentoring where needed. The document notes that efforts are ongoing to improve the programme's website and course handbook, aiming to deliver more detailed and accessible information.

Housing arrangements are facilitated by the partner universities, with information provided to students in advance of their arrival. At IIT Madras, accommodation is available on campus. In Dresden, the *Studierendenwerk* offers student housing, with applications processed through an online system that typically provides responses within two weeks. For students not eligible for this housing (such as those holding a prior MSc degree), alternative housing options are listed. In Aachen, where the housing market is more constrained, RWTH provides guidance on alternative accommodation options well ahead of time. Additionally, the Association of Indian Students in Aachen (AISA) supports incoming students by facilitating connections within the student community.

Students enrolled in the programme have integrated access to academic resources, such as email accounts, internet services, libraries, classrooms, and tutoring. Each partner university assigns a tutor to assist students in integrating into the academic environment and navigating available resources. The programme also offers a German language class during the students' time in Chennai, funded by the ABCD-Centre and delivered by IIT Madras's Faculty of Humanities and Social Sciences. While these classes aim to ease the transition to living in Germany, they do not result in an official language certification, although students can choose to take exams at the Goethe-Institute Chennai.

The SER outlines further support services, including access to student and alumni networks, individual counselling, social and medical services, career guidance, and assistance with securing internships and MSc thesis placements. Campus amenities include affordable dining options, sports facilities, and comprehensive library resources, including electronic journals and databases.

It is stated that each institution provides specific support tailored to student needs. RWTH Aachen, for example, offers the “BeBuddy” mentoring programme, and TU Dresden provides legal advice related to studies and housing. IIT Madras's Office of Global Engagement offers activities and guidance for international students, particularly for navigating life in Chennai. These services are designed to support students from their initial contact through enrolment, participation in the programme, and post-graduation. Alumni services include providing additional transcripts, updates on news and events, and information on potential PhD or employment opportunities. Graduates become alumni of all three universities, maintaining a connection with each institution and benefiting from their respective networks.

Expert evaluation

The structure of the programme is overall well-organised and effectively supports both the feasibility of studies and the achievement of learning outcomes. The central role of the ABCD Centre is particularly noteworthy, as it ensures continuous support and serves as a consistent point of contact across all locations. Its decentralised accessibility and personalised guidance during mobility phases provide significant added value.

The small cohort size allows for individualised supervision, which is especially beneficial in an international context with high mobility demands. The close integration of academic coordination, subject-specific mentoring, and administrative support ensures a high level of orientation and planning reliability for students.

From an experts point of view, the support services at all three partner universities are comprehensive and address key student needs – from housing assistance and academic integration to social and legal counselling. Participation in established buddy and mentoring programmes further facilitates students' arrival and adjustment on site.

However, as the panel of experts learned during the interviews on site, the simultaneous use of three separate email accounts and learning platforms has been perceived by students as a logistical challenge, and the same applies to the lack of a consolidated overview of deadlines and requirements across the institutions, which may further complicate adherence to timelines. As this is a challenge resulting from the joint offer by different institutions, this yet disharmonized service cannot be solved by students but requires attention by the programme management. The experts therefore recommend simplifying and streamlining digital platforms and tools as well as information channels to ensure students are informed about all aspects of their programme (**see Finding 4**).

In summary, the student support structure is systematically designed and largely well-implemented. The programme organisation is functional, mobility-oriented, and characterised by a clearly defined structure of responsibilities.

Conclusion

The criterion is fulfilled.

7. Resources

7.1 The staff should be sufficient and adequate (qualifications, professional and international experience) to implement the study programme.

7.2 The facilities provided should be sufficient and adequate in view of the intended learning outcomes.

Description

The academic programme is delivered by professors from the partner universities, who are described as leading experts in their fields. These professors are responsible for teaching core content, while tutorials, seminars, lab courses, and support services are provided by additional academic and administrative staff. The roles and tasks of these personnel are detailed in a handbook. The courses are offered in a hybrid format, accommodating the students' travel between locations and eliminating the need for a staff mobility scheme. Digital meetings for programme management have been successfully implemented within the ABCD-Centre, supporting efficient and cost-effective decision-making processes.

Each partner institution employs a project coordinator funded through the ABCD-Centre by the DAAD. These coordinators handle administrative and management tasks for the programme. The staff involved in the programme are noted to have substantial qualifications and international experience, ensuring they are well-prepared to deliver high-quality education. The SER provides an overview of the staff, including roles such as scientific coordinators, project officers, and professors specialising in various aspects of water security and engineering.

Students enrolled in the programme have simultaneous access to the facilities of all three universities. The costs associated with enrolment, such as "semester contributions" and public transport tickets in Germany, depend on the students' current residence during each semester. Regardless of their location, students have full access to academic and research facilities at each university.

A distinctive feature of the German universities involved is the open access to laboratories relevant to the students' fields of study. IIT Madras, which was established with support from the German government, has adopted a similar policy. Consequently, the programme is designed to be highly practical and application-oriented.

The SER states that the programme does not charge tuition fees, as all three institutions are public universities. Therefore, student expenses are limited to relatively low semester contributions and living costs. The German Academic Exchange Service provides mobility scholarships, with the first batch (2024) receiving funding for all students. For larger groups in future cohorts, scholarships will be awarded based on merit or equal opportunity criteria as determined by the Executive Committee.

The partner universities are recognised as leaders in hydraulic and ocean engineering, providing students with access to advanced research and teaching facilities. These include state-of-the-art laboratories, weather stations, a digital lab network, and a virtual reality teaching environment at RWTH Aachen. The expertise of the staff spans various fields, such as offshore engineering, flood protection, and resilient urban design.

It is stated that the programme benefits significantly from the infrastructure and resources of RWTH Aachen, IIT Madras, and TUD Dresden, with the teaching and administrative staff funded through their regular university budgets. The management and coordination roles of the ABCD-Centre, partially funded by DAAD, also contribute to the programme's support system. The document suggests that, even after the termination of DAAD funding, the programme is designed to remain financially sustainable and continue operating on a self-funded basis.

Expert evaluation

The panel of experts undoubtedly can confirm come out that all three universities possess an outstanding reputation in the field of water management and global change. The experts find that the involved departments and institutions employ teaching staff with adequate academic experience as well as very good education skills. This is framed by institutional support which ensures the high quality of the programme. The number of teaching staff as well as their qualifications are sufficient in such a way that the intended learning outcomes can be achieved.

The resources used for the programme are excellent. Also based on the interviews that included the leadership of the institutions, the panel concludes that the broad range of support from all partner institutions ensures that the intended learning outcomes can be achieved.

The premises for the students of the programme are sufficient, in some parts even excellent. The access to digital teaching facilities are adequate and on a very high level. Nevertheless, it is a challenge for students to cope with three different systems at three different universities. Intensive efforts are made by the consortium to support students in this regard. Based on substantial student feedback, the experts recommend simplifying and streamlining digital platforms and tools as well as information channels to ensure students are informed about all aspects of their programme (see **Finding 4**).

Conclusion

The criterion is fulfilled.

8. Transparency and documentation

8.1 Relevant information about the programme like admission requirements and procedures, course catalogue, examination and assessment procedures etc. should be well documented and published by taking into account specific needs of mobile students.

Description

The SER indicates that a webpage dedicated to the Water Security and Global Change Study Programme already exists on the ABCD-Centre's official website. This webpage is intended to serve as a comprehensive resource for prospective and current students, providing information on admission requirements, application procedures, deadlines, and more. The content on the site is described as being continuously updated to ensure that relevant and accurate details are readily available.

Additionally, the General Programme Regulations, annexed to the SER, are expected to be published on the website once technical issues with the server are resolved. The partners also plan to enrich the site with first-hand insights from students and faculty, such as testimonials, regular updates, and promotional videos, to give a more engaging and authentic overview of the programme.

The document further mentions plans to enhance the programme's visibility through increased social media activity. This strategy aims to better engage and inform mobile students, who are part of the programme's target demographic, by leveraging digital platforms for wider outreach and interaction.

Expert evaluation

The formal framework of the study programme is clearly documented and accessible. Key information regarding admission, examinations, and course content is available online and in English, which aligns well with the international and mobile nature of the programme. The main point of access is the website of the ABCD Centre.

Some minor improvements are suggested for the module catalogue. Several modules are described only briefly, which makes it hard to understand the content in detail, so a clear and detailed description of all modules is recommended (**Finding 7**). Particularly as the programme is to be seen as one entity it is troublesome to see that the descriptions do not seem to implement a joint minimum standard. As student will experience the programme as one entity, this is some clear room for future finetuning. It would also be helpful to standardise the information on required language levels and the study fees, as these are listed differently across documents and websites. At this point students need to access different websites to find the respective course descriptions. From the experts point of view it would strengthen the character of the jointness of the offer if the module handbook and the examination regulations were directly available on the website of the ABCD Centre or at least linked from there (**Finding 8**). Finally, when looking at the course descriptions the experts suggest announcing and documenting more clearly which equipment will be used in which course, especially for lab work (**Finding 9**).

It is a positive sign that the online visibility of the programme is set to be improved. At present, the programme is difficult to find unless you search the exact title. Better search engine optimisation using related terms, and a stronger presence on social media, are useful steps and already in progress.

Overall, the documentation of the programme is solid and meets the essential requirements. The planned improvements to accessibility and information structure are welcome and appropriate.

Conclusion

The criterion is fulfilled.

9. Quality assurance

9.1 The cooperating institutions should apply joint internal quality assurance processes in accordance with part one of the ESG.

Description

The SER underscores that the programme's success is heavily reliant on high-quality teaching, which is central to achieving its objectives. Each partner institution is recognised for meeting academic standards, and several QA mechanisms are implemented to maintain and enhance the programme's quality. These measures include local quality assurance processes, course evaluations, and feedback mechanisms facilitated through direct contact between students and faculty, given the programme's relatively small cohort size.

Quality Assurance at RWTH Aachen University

RWTH Aachen employs standardised questionnaires for course evaluations, with results automatically processed and discussed with students. Additional evaluations occur at the module level to ensure alignment between learning outcomes, teaching methods, assessments, and workload. The university also conducts a graduate survey to track alumni career paths and assess the relevance of the curriculum. Statistical data on academic progress, such as average study duration, subscription rates, and drop-out rates, are collected and analysed to inform improvements.

Quality Assurance at TU Dresden

TU Dresden implements an extensive internal QA system, involving self-evaluation, peer reviews, and continuous feedback from students and alumni. The university has a structured internal evaluation and accreditation process, which includes data analysis from university records, teaching reports, and various surveys. Although

the Joint Master's Programme will undergo external accreditation, TU Dresden's established QA practices and experienced staff contribute to ensuring high teaching quality.

Specific mechanisms at TU Dresden include:

- Teaching Reports and Course Evaluations: Faculties prepare reports to document teaching quality and outline improvement measures, and course evaluations are conducted regularly across multiple dimensions, such as didactic competence and student engagement.
- University Didactics: The Centre for Interdisciplinary Learning and Teaching (ZiLL) offers support to instructors, including consulting services, peer evaluations, and teaching feedback mechanisms.
- Complaint Management: Systems are in place for students and staff to report issues related to teaching or studies, with anonymous submissions also accepted and addressed promptly.
- Continuous Improvement: Feedback from various stakeholders, including students, faculty, and external experts, is systematically reviewed to enhance the programme continuously.

Quality Assurance at IIT Madras

IIT Madras, a top-ranked Indian institution according to the National Institutional Ranking Framework (NIRF), follows its vision of balancing academic excellence with social and economic development. The university's QA policy is anchored in two main principles: achieving global excellence across teaching, research, and innovation, and continuously improving through stakeholder feedback and effective risk management. The SER mentions that IIT Madras's administrative services are ISO 9001:2015 certified, covering various core and support functions.

Joint Quality Assurance Mechanisms

The SER highlights the collaboration among the partner universities to ensure consistent QA. RWTH Aachen is designated as responsible for developing joint QA guidelines and overseeing the programme's overall quality assurance. The programme will undergo periodic external reviews by experts, in accordance with European standards for joint programmes.

The QA processes involve both internal and external stakeholders. Students participate in surveys and receive feedback in line with university regulations. Academic tutors at each university act as primary points of contact for students, providing mentoring and support. Faculty members are connected through the Executive and Study Boards, facilitating the exchange of information on course quality.

External stakeholders, such as future employers and industry representatives, are engaged through the Advisory Board, which offers feedback on the programme's relevance and alignment with societal needs. The ABCD-Centre maintains connections with alumni and evaluates funding mechanisms, which is expected to provide valuable insights as graduates enter the workforce.

The Executive Board is tasked with pooling data from various QA instruments and making strategic decisions to improve the programme. It reviews information on learning outcomes, student workload, and resource availability, taking measures as needed to ensure the programme's quality. The Advisory Board, comprising members from industry, government, and NGOs, serves as an additional source of input on employer expectations and sustainability concerns.

Expert evaluation

The expert panel finds that the quality assurance processes in place for the study programme are adequate. The committee has confidence that evaluation results from course, module, programme, and graduate surveys will be used for further development after the first full run of the course.

RWTH Aachen is designated as responsible for developing joint QA guidelines and overseeing the programme's overall quality assurance. The programme will undergo periodic external reviews by experts, in accordance with European standards for joint programmes. The Executive Board is tasked with pooling data from various QA instruments and making strategic decisions to improve the programme. The panel of experts found sufficient evidence that the three universities meet very regularly and maintain very short communication lines. During the discussions on site, students have demonstrated their communicative skills and willingness to be involved in the process. At this point the panel found a rather weak footprint of student involvement in the continuous development of the programme. While it was confirmed that students made their challenges known to the programme, the experts recommend involving the students more intensely during the run of the programme to ensure that issues can be dealt with in the short term (**Finding 14**).

As these are the first experiences with the implementation, stakeholder involvement concerning the evaluation results could not yet be verified; yet, the consortium has an extensive network, and the experts are confident that this will be well utilised. An annually published report or evaluation plan will suffice in informing the stakeholders.

Conclusion

The criterion is fulfilled.

V. Recommendation of the panel of experts

The panel of experts recommends accrediting the study programme "Water Security and Global Change" offered jointly by RWTH Aachen University (Germany), Indian Institute of Technology Madras (India), and TUD Dresden University of Technology (Germany) without conditions.

Commendation:

Offered by three institutions with outstanding reputations, the study programme offers a well-structured, joint curriculum with a broad range of topics within the field of water security and global change and reflects the specific strengths of each partner university. The universities follow a student-centred approach which encourages student mobility and interaction with faculty, and which ensures extensive (academic) support. With excellent resources, qualified staff, and a high-quality programme, the universities show strong efforts to combine high academic standards with an openness for improvement and close collaboration.

Findings:

1. The experts strongly suggest to group and organise the modules in the respective areas of water security to ensure that all aspects of water security are balanced and considered in the programme, including drought and water scarcity.
2. The experts recommend providing students with "career profiles" to assist students in finding a suitable study path they can follow.
3. The experts strongly recommend reviewing the list of intended learning outcomes to better reflect the requirements of the EQF. Greater consideration of Bloom's taxonomy might be helpful in this regard.
4. Digital platforms and tools as well as information channels should be simplified, streamlined, and used more efficiently to ensure students are informed about all aspects of their programme.

5. To ensure transparency in equality and diversity goals, the consortium should develop and communicate goals for the expected proportion of male, female, and non-binary students as well as clear guidelines on the expected student intake from countries other than India and Germany.
6. Hybrid learning should only be considered for additional learning and not as a set delivery method to ensure that students benefit from studying abroad.
7. Course/Module descriptions should be of comparable quality across the academic offer assuring that learning outcomes, assessment methods and main contents are transparent and clear to students. This minimum level of transparency also applies for expected language levels and study fees in the programme descriptions.
8. The module handbook and the examination regulations should be made available on the ABCD Centre's website or at least linked from there.
9. The experts suggest announcing more clearly which equipment will be used in which course, especially for lab work.
10. The experts recommend involving the students more intensely in the quality management of the programme to assure that issues can be dealt with in the short term.