QUALITY ASSESSMENT BY EU PARTNERS (PARTNER P2: UNIVERSITY OF SALZBURG)

Revised course 2: "Climate Change Assessment and Mitigation"

QUALITY ASSESSMENT
Quality criteria 1: Number of credit units for lectures, practical sessions and self-learning are appropriate to the contents

- *Evaluation*

The number of credits devoted to lectures, practical sessions and self-learning is appropriate. Most part of the credit units are allocated to practical sessions and self-learning, while the percentage weight of theoretical lectures (i.e. of presentations by the lecturer) is kept to only 25% of the total workload. This is highly relevant for the training of highly capacitated professionals and, as such, very positively valued by the reviewers. The high ratio of practical sessions and self-learning activities ensures a better integration of the concepts, tools and strategies learnt by students during the theoretical lectures and the training of professionals not only knowledgeable of these concepts, tools and strategies but also capable of using them in real case studies. This is the reason why we resolve that the high weight in terms of the number of ECTS given to practical sessions and self-learning is very positive. The structure and organisation of the course proposed lead us to believe that highly capacitated professionals are trained.

- *Strategies for improvement*

As strategies for improvement, we would suggest converting part of the credit units devoted to theoretical lectures into credit units for in-class discussions. The conduction of the latter (in-class discussions) is not contemplated in the course schedule. In light of the importance of encouraging the building of a reflexive and critical way of thinking, the inclusion of in-class discussions replacing some theoretical lectures is highly recommended. This is especially relevant in a field as crucial for the present and future of our societies as climate change mitigation and adaptation and sustainability. In-class discussions have the potential to enable the development of a reflexive way of thinking among students, besides allowing them to better integrate their already existent knowledge with the new concepts taught. This can be barely achieved by merely involving students in a passive way in theoretical lectures. The attractiveness of the course and motivation of students might also increase, especially if in-class discussions are combined with quizzes and other sorts of interactive games.

On the other hand, it is advisable to involve local stakeholders in in-class discussions and during the fulfilment of the suggested assignments, if possible. For instance, it might be really enlightening to involve local stakeholders in the discussions about the Bhutanese approach to address climate change. This might include the involvement of both the local community and local professionals and constitute a very enriching experience for students. The latter is due to the fact that local stakeholders can provide additional specific knowledge on experiences, opportunities and barriers faced in practice/ in the reality. Their involvement might, thus, entail the training of better skilled future professionals.

As in the case of other courses, further strategies for improvement might be provided from our side if more in-depth information was offered in the syllabus on aspects that so far remain unclear to us. We would particularly really appreciate it if you could furnish more details on the following: 1) the way the provision of theoretical knowledge and the provision of practical knowledge are interconnected in the course timeline, and 2) the course assignments. While the interconnection among theoretical and practical knowledge appears as one of the key strengths of this course, it remains unclear to us the extent to which practice and theory are equitably interlinked in the course timeline. No information is provided in the course schedule on when and how each practical session, etc. takes place; only the topic of each of the sessions is highlighted. Additionally, the course schedule seems to suggest that all practical assignments are developed by the end of the course, which is not advisable, as the students' memory is limited and they might have already forgotten many of the concepts if they have to apply them in a practical case for the first time after several weeks of the start of the course. This should be clarified. Similarly, a more extensive description of the assignments might enable us to better identify the objectives and tasks to do in each of them. As an illustration, it seems that at least part of "assignment 1" consists of theoretical presentations by the lecturer,

which might entail that it can actually not be classified as an assignment. These improvements in the syllabus are highly relevant so as to making it possible for us to provide more precise additional recommendations for improvement, if any additional recommendation is needed.

Quality criteria 2: Total number of credit units in the course is correct and appropriate

- *Evaluation*

The total number of credit units awarded is correct and appropriate. This is illustrated by the number of hours devoted to the course (120 hours, including lectures, practical sessions and self-learning) and the fact that 1 ECTS equates to 20 hours in Bhutan.

- *Strategies for improvement*

None. Everything is deemed correct.

Quality criteria 3: Positioning of the courses in Curricula is appropriate based on the progressive level of difficulty

- *Evaluation*

The positioning of the course in the last year of the BSc in Environment and Climate Studies does not seem optimal. This is explained by the fact that the subject area addressed in the course (i.e. climate change mitigation and adaptation) constitutes one of the pillars of the bachelor's degree: the course is part of a bachelor's degree with a focal point on climate studies. Other more specialised courses should be built based on its contents, which becomes impossible if the course is taught in the programme's last year.

- *Strategies for improvement*

The course should be scheduled at an earlier point in time of the bachelor's programme (in the second year). It offers basic knowledge about climate change mitigation and adaptation, which might be pivotal for students in order to better follow the contents of assumingly more specialised courses about climate change that should take place during the last year of the bachelor's programme. One example of more specialised course in the bachelor's programme seems to be the course "Climate Resilient Agriculture". Additionally, it is assumed that the course builds on and goes deeper into thematic areas addressed in introductory courses during the first year of training, the reason why the positioning in the second year appears as the most suitable. These more introductory courses should broadly introduce the areas of climatology, climate change and environmental management. This seems to be the case, for example, of the courses "Introduction to Meteorology and Climatology" and "Climate Change", which are also part of the bachelor's programme.

Quality criteria 4: Tests are suitable and appropriate to support transferable skills

- *Evaluation*

The grading system is appropriate to support transferable skills. This is shown by the fact that the awarded grade is entirely derived through the evaluation of the quality of practical assignments and self-learning activities. Remarkably, the activities submitted to evaluation do not only enable to assess the extent to which students have integrated the theoretical knowledge, but, most importantly, their ability to use it in practice. They also make it possible to assess other important more general skills of students needed in the professional world, such as the ability to write reports. Very positively valued is also the interrelation existent between the two suggested assignments in the course (the later one builds on the results of the former one), constituting a large project.

The acquisition of practice-oriented knowledge, through the reflection and application of the theoretical concepts and tools learnt during the lectures, constitutes, thus, the main subject of evaluation. This is very positively valued by the reviewers, as a very good procedure to make the skills acquired transferable in practice. The main weakness appears to be in the evaluation of the formation of a reflexive way of thinking by students: the extent to which this is evaluated through the suggested evaluated activities becomes questionable.

- *Strategies for improvement*

The suggestions for improvement made here are related to those pointed out under "quality criteria 1". We would basically suggest including two additional activities for evaluation and, thus, in the calculation of the final grade: 1) participation in in-class discussions, and 2) oral presentations. The former would allow explicitly assessing the level of formation of a reflexive way of thinking among students, whereas the latter refers to a relevant skill in the professional world (oral communication skills), which should also be considered in the evaluation process. This would imply, however, the conversion of some theoretical lectures into in-class discussions (see suggestions under "quality

criteria 1") and the incorporation of a session for the oral presentation of results as part of the suggested assignments. The extent to which the latter is already the case remains unclear through the provided descriptions in the syllabus. Indeed, in line with the comments made for other courses, we would strongly recommend to furnish more details in the syllabus on the assignments proposed. This might allow us to provide you better targeted and precise suggestions, if any additional improvements are required. For example, it remains unclear to us, what the categories "project work" and "written assignment" mean and how they differentiate from each other. It is also unclear how each of them are connected to the 2 assignments that you describe at the end of the syllabus. In any case, it is advisable that the focus in the assignments is not only put on the analysis of impacts of climate change (as the syllabus suggests) but also on the possible mitigation and adaptation strategies that might be implemented ("mitigation" and "adaptation" side of the course).

Quality criteria 5: TLM and assessment strategy support students in undertaking the course i.e. prerequisites are helpful and relevant, assessments helps gauge students understanding etc.

- *Evaluation*

On the one hand, prerequisites should be defined for attending this course, which has not been done. The required previous knowledge about climatology and environmental management asks for a listing of prerequisite courses that all students should have attended so as to being able to follow the contents of the course smoothly. On the other hand, no evaluation can be conducted of the e-learning materials, as we do not have access to them.

- *Strategies for improvement*

Prerequisite courses should include any course held during the first year of the BSc in Environment and Climate Studies offering basic knowledge in the fields of climatology and environmental management. This might encompass, among others, the two following courses listed in the bachelor's programme: the course "Introduction to Environmental and Climate Science" and the course "Introduction to Meteorology and Climatology". Importantly, all prerequisite courses should be held in a point in time preceding the semester of instruction of the present course (course "Climate Change Assessment and Mitigation").

Regarding the learning materials, our suggestions are similar to those made while evaluating the other courses produced by partner P9 (Royal University of Bhutan). Although we do not have access to the e-learning materials, we hope that these comments can be useful in order to further improve the materials created. To start with, we would strongly recommend to upload the slides and videos of the theoretical lectures on the e-learning platform, so as to enabling students to re-watch and review the learnt concepts and tools anytime and as many time as required. Also interesting would be the creation of an online chat, in order to ease the communication among students and between students and the professor. It might be created as a space for discussion and for the clarification of any doubts related to the contents or organisation of the course. Finally, the provision of additional complementary readings and interactive practical online exercises might be considered, so that all those students that are interested on the topic and want to learn more on it have the chance to do it. This can additionally increase the attractiveness of the course and the learning experience.

Quality criteria 6: Theory/Practice-oriented components are sufficient to cater the learning outcomes and skills development

- *Evaluation*

Theory/Practice-oriented components are sufficient to cater the learning outcomes and skills development. Through both theoretical and practical sessions all relevant theoretical and practical themes are covered for the acquisition of the promised learning outcomes and skills.

- *Strategies for improvement*

Everything is deemed correct. However, further clarifications should be offered in the syllabus in order to be able to provide a more accurate evaluation (see suggestions under quality criteria 1).