Report of the kick-off of Education for Sustainable Development and Sustainable Research 7/12/18.

Preface: Sustainable Research & Education at UM

Maastricht University has the ambition to be an inclusive, innovative and sustainable university. As part of the latter objective, the program "Sustainable UM 2030" has been launched. The program is divided into three pillars: Education, Research, and Operations. The pillar Operations started earlier in 2018. A joined kick-off meeting of the pillars Education and Research was held on December 7, 2018. This report is a summary of the discussion tables held during this meeting.

Wouter van Marken Lichtenbelt (project owner Sustainable Research)

The goal of Sustainable Research is that we will increase *sustainability research* and, in collaboration with the pillar Operations, increase doing research in a *sustainable* way.

We have started with an assessment of all sustainable research already taking place at UM. Key actions in the near future will address (1) research laboratoria (e.g. reducing (contaminated) waste) and (2) the built environment (making UM's buildings sustainable and ready for the future). Gradually the assessment and related actions will be extended to other research fields.

We aim to broadly integrate sustainability themes in current research programmes, and to stimulate initiatives and new research projects in the field of sustainability.

Ron Cörvers (project owner Sustainable Education)

The vision of Sustainable Education is to increase awareness about sustainability among students and staff, to promote sustainability education at Bachelor, Master and PhD level, to strengthen learning for sustainability through research-education (link with Sustainable Research), and to offer education in a sustainable way (link with Sustainable Operations).

The ambition for the period 2018-2021 is to provide a proper overview on the UM website for all sustainability courses and programs, to enlarge UM's sustainability education portfolio, to promote sustainability competencies in education, and to contribute to capacity building for sustainability.

Therefore, we want to facilitate and support different activities such as the idea for an UM-wide minor on sustainable development (example 1) and sharing good experiences with sustainability research-education for external clients (example 2). These examples and others will be discussed at the discussion tables.

Short summaries discussion tables

UM Minor in Sustainability (Group 1)

Facilitated by Ceren Pekdemir

Knowledge for sustainable development is valuable for and across educational disciplines. What should be the aim and scope of an UM wide minor on sustainable development for bachelor students? How to ensure that all six faculties contribute to such a new program?

In the group, there were participants who study minors, as well as staff members who teach minors at UM. This gave interesting insights in the positive aspects of interfaculty minors (e.g. "students are provided an

opportunity to get out of the bubble of their own program") as well as negative aspects of some minors (e.g. "administratively, the faculties do not cooperate effectively in some interfaculty minors").

Within the overall UM set-up for minors for Bachelor programs, the minor should cover a scope of around minimum 24 and maximum 30 ECTS. In terms of staff, a committed team of coordinators with backgrounds in sustainability topics was considered essential.

Regarding the content of a minor in sustainability, the group acknowledged that there would be different approaches possible: It could be defined and taught in narrow or broad terms. Overall, the group sided with the broader interdisciplinary approach as this would allow better to address the intricacies of sustainability, as well as make the course valuable for students across different disciplines and faculties.

Courses, it was argued, would be most interesting and useful if these are interdisciplinary. This may involve the following: different methodologies, invitation of different stakeholders to sessions, making students aware of different perspectives, self-reflexivity, allowing for different types of assessment on for instance attitudes, reflections, and competencies.

Next to the question of the content of the minor, the question was posed how to make the minor appealing to students? The following points were raised as a first brainstorm for promotion and framing strategies:

- Communication must clear, informative, and motivating;
- Students may find the minor useful for admission to Master programmes;
- The minor may be useful in terms of enhancing employability, e.g. "how to understand and deal with sustainability challenges?"

Students' Competencies for Sustainable Development (Group 2)

Facilitated by Herco Fonteijn

Competencies and skills development are an essential part of learning at Maastricht University. What competencies are central for students to understand the complexities, uncertainties, trade-offs and risks related to sustainable development? How to integrate key competencies for sustainable development in programs?

This group chose to apply the UN's education for sustainable development competencies as formulated in UNESCOs publication (2018, pp. 44-45) in their discussion. The competencies are as follows: *systems thinking competency, anticipatory competency, normative competency, strategic competency, collaboration competency, critical thinking competency, self-awareness competency, and integrated problem-solving competency.* Participants in the discussion table considered that interdisciplinarity was missing/not visible enough in the list.

The group focused on the following discussion points. First, it was considered essential to answer the question why we want education for sustainable development before targeting these competencies. Secondly, due to the generic nature of the sustainability competencies (as they overlap strongly with global citizenship competencies), it is desirable to include specific content to these competencies (e.g. environmental, social or economic sustainability). Furthermore, these competencies can be further decomposed in knowledge, skills, attitudes, values, virtues. Here attention should be given to intended learning outcomes related to sustainable development goals.

It was considered that teachers could use these competencies as a template for their courses, to assess to what extent these competencies are covered, and if they are not, to look for action-oriented, transformative pedagogical methods. In terms of assessing the achievement of these competencies, it was suggested that informal feedback mechanisms could be used rather than formal grading schemes.

Sustainable Development Capacity Building for Staff (Group 3)

Facilitated by Astrid Offermans

What toolkit (e.g. information, advice, training) would be helpful to support staff in their daily work to contribute to sustainable development? Are there important differences in needs from staff involved in operations, research and education?

Information on three aspects was considered crucial as a starting point for capacity building:

- Where do we stand now? How (un)sustainable are we in our work and operations? E.g. in terms of the amount of energy consumed in different buildings (for lights, computers, heating), the production method of our energy supply (coal, wind etc.), the type and amount of paper being used, the efficiency of use of space (large rooms need to be heated and illuminated for a small amount of people).
- Why do we sometimes behave unsustainably? Some practices may be more sustainable (e.g. printing less) but may negatively affect the quality of our education, which was considered undesirable. Answers to this question may also reveal (unexpected) root causes for unsustainable practices.
- What are options to become more sustainable, what alternatives are available and what is the impact of alternatives compared to current practices? Is a shift from using paper to reading digitally really more sustainable?

Information is meant to inform people, not to prescribe. It may allow staff to better distinguish between core and periphery (i.e. where does sustainability stop). Information is partially available within UM and may be provided via (mini) lectures on various topics, or trainings (for example on how to use alternatives). What seems to be lacking is information on the cumulative or "downstream" effects of actions. Some actions may have both positive and negative effects in terms of sustainability; what is the net effect? The idea was to check master thesis and capstone options for performing Life Cycle Analyses of different products. The outcome of these assessments could then be integrated in trainings or mini-lectures again.

The ultimate goal is to create more awareness and ownership regarding sustainability. The use of the concept as a "boundary object" was considered useful (i.e. as a concept that binds people, creates a common identity, but leaves space to provide different interpretations). The composition of the group was very diverse, but there did not seem to be substantial differences in needs.

Built Environment (Group 4)

Facilitated by Rick Kramer

How can UM's research contribute to more energy-efficient, healthy, and empowering buildings? Besides new buildings that need to be fit for the future, UM faces a great retrofitting challenge of its beautiful historic buildings. How can transdisciplinary research efforts contribute?

This group took place amongst participants with various positions at the UM including ICT, Facility Services, the executive board, and FASoS. First, the discussion was structured in different scales of built environment, namely room, building, and city.

UM has both historic and new(er) buildings, which provides an important opportunity for efficiency. UM owns its buildings, hence, a higher market value after investments in sustainability is not a convincing argument in this context. To make the built environment sustainable is then based on UMs societal engagement and responsibility.

The group continued by acknowledging that sustainability of buildings does not only consist of considerations about energy efficiency, but also includes productivity, well-being, and comfort.

The group appreciated UM's rather high ambitions, also for retrofitted buildings like the ones at Tapijn. Some considerations for these processes involved striving for Breeam certification, Well-Building Standard, and

secondary/grey-water system. The latter was considered too expensive as an option, which actually entails that in the Netherlands toilets are flushed with drinking water because it is currently less expensive than grey water.

The Faculty of Psychology and Neuroscience, it was surmised, could help studying behaviour, awareness and motivators and, thereby, motivate design choices. It was stressed that ICT could empower people more in this regard, through for instance the room reservation system at Minderbroedersberg, controlling lights, etc.

Some examples of sustainability plans mentioned were:

- Solar panels at Belvedere
- Waste heat from SAPPI
- Living labs, e.g. Tapijn
- Creating awareness among students and staff
- Consideration of disabled people in new plans

Sustainable Laboratories (Group 5)

Facilitated by Mark Post

UM now recognizes the significant environmental impact of their laboratories and is willing to reduce resource utilization, pollution, and improve interior environments. How do we create such sustainable laboratories? How do we integrate such an approach with sustainable research?

The smaller group of discussion table indicates, according to the facilitator, the lower awareness about this topic in general. There is much room for improvement and it should go hand in hand with cross-linking the operations and research pillar of sustainable development. As acknowledged during the discussion, there seem to exist many ideas at executive level, but lacking at faculty level.

The group discussed and got inspired by the Japanese Kaysen model, currently used in factories and labs in Japanese corporations (e.g. Toyota), which have seen unprecedented levels of efficiency and decreased production of waste. Many small incremental actions initiated both from the bottom up and from the top down have the power to become a viable road to sustainable laboratory practice. Central regulations can be combined with decentral action and implementation to allow for freedom and ownership “on the ground”. Eventually, the group considered that making a change also means taking risks. If trial and error leads to preliminary negative results, it is something UM would have to incur as another step on the way to achieve greater efficiency. An example of a step forward was to introduce a cap on hazardous material waste, produced from laboratory processes at UM.

Good Health and Well-being (Group 6)

Facilitated by Wouter van Marken Lichtenbelt

The sustainable development goal 3 (SDG3) is to ensure healthy lives and promote wellbeing for all at all ages. How can research contribute to this goal? What are the potential future research areas linked to sustainable health and how can research and education cross-benefit?

The group started from the question whether, by itself, all research on health and well-being is also sustainability research… and answered, “not necessarily”. There are instances in which health and well-being research oppose sustainability, including:

- drug development, which can produce enormous hazardous waste;

- drug use, as in the effects of antibiotics on the bacterial environment and, then, cumulative effects on humans;
- techniques (scanners, etc.) which are not always environmentally sustainable.

Hence, better health is not always better for the environment. Nutrition, it is suggested, could potentially replace drugs in many situations. The group discussed that there is a lot of focus on humans (health) and less on the ecological aspects (environmental issues). The topic of health is not approached holistically.

In addition, the group discussants deemed that not enough attention is being given to preventive methods, as for instance doctors are not prepared for promotion of healthy lifestyles. Three key points stood out in this debate for facilitating health and well-being, namely: promotion, prevention and cure.

It may be unreasonable to limit research on good health and well-being to SDG3 only (*Ensure healthy lives and promote well-being for all at all ages*). This may be counter-productive, as the SDG appears to suffer from the following: no 'planet' included, focus seems to be on developing countries, welfare diseases are largely missing, the problem of overpopulation is not addressed, adheres to a "medically oriented" approach (prevention and mental health receive less attention), and too little attention paid to life style (obesity – health problem/environment). In conclusion, greater emphasis should be placed on mental health, western lifestyle problems (metabolic health) and on prevention.

Sustainable Research at UM (Group 7)

Facilitated by Stef Kremers

UM conducts already quite some sustainable research. What motivates researchers to include and even center their research around sustainability themes? Should we increase sustainable research and to what extent?

The group discussion started by acknowledging trends, both positive and negative, in relation to sustainability of research activities within UM. One participant remarked that researchers fly a lot, which is not sustainable. Is this always necessary? One rather cheap and effective method proposed was the increased use of video-conferencing. On the positive, more modelling with input from experiments is now being conducted than before. This stands in contrast with the lavish use of resources needed for a trial and error type of research of earlier years. Participants also agreed that competition among groups is not sustainable.

Eventually, the group agreed that currently UM is "not doing a bad job" in terms of sustainable research practice. Interdisciplinary research remains to be conducted at particularly a high level. However, some structures impede sustainability. For instance, there is an apparent lack in top-down stimulations (until now), which would be needed to ensure sustainable research development. Furthermore, a broadening of translational research (with society and other stakeholders) would be desirable to implement long-term transnational sustainability goals.

Research-education for Sustainable Development (Group 8)

Facilitated by Hans Savelberg

At Maastricht University, several courses integrate research and education. How to integrate research in education for sustainable development? What are good examples of research-education on sustainable development issues at UM?

The discussion group defined sustainability specifically as relating to the Sustainable Development Goals in order to prevent confusion or contradictory interpretations. They agreed on the importance of interdisciplinary research-education: Students from different programs ought to be taught to cooperate in

such a way that communication with practitioners from other fields becomes a valid and naturalised skill. Eventually the idea was embraced to extent a 'Premium project' type of approach for sustainability issues, so inter-faculty teams of students working for 'real-life' clients in the city or university, mentored by two researchers from different faculties/ disciplines with knowledge on the project topic. Such 'Community Service Learning' was seen as a way to link education and research through practical tasks involving sustainability promotion or preservation.

Conclusion: The way forward within the Sustainable UM 2030 agenda

Ron Cörvers

The kick-off meeting of Sustainable Research and Education marks the start of a long-term process that requires the involvement of many students and staff members. The interesting and lively discussions discussed during the kick-off show that the sustainability theme is alive. Now we have to take the next step, and therefore we need your input and support. Although we have limited today's meeting to 8 discussion tables, it does not mean that other topics are not welcome. On the contrary, you can always contact us if you have a sustainability related idea in mind, and we will see how we can help you to put it on the UM sustainability agenda. For all information about the Sustainable UM2030 program, see the website.

Last but not least, we want to thank all discussion tables hosts for their great contribution today, and the organisers of this event Ceren Pekdemir, Rick Kramer and the GreenOffice students Mathias Weidinger and Arienne Schulz.