

# **SUSTAINABLE UNIVERSITIES IN AUSTRIA. BUILDING ALLIANCES AND CLARIFYING THE CONCEPT**

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## **ABSTRACT (250 WORDS MAX)**

Universities have different roles in promoting sustainability: as institutions for higher education, universities influence future decision makers; as research institutions they provide new models and knowledge; and as organisations they have a significant impact through their environmental and social performances. There evidently is a trend for universities to become a “sustainable university”, but the ideas behind this concept differ in regard to the scope and concepts. The paper contributes to this issue by presenting a Handbook for the Development of Sustainability Concepts at Universities that attempts to clarify the notion of sustainable universities. Moreover, the paper introduces the Alliance of Sustainable Universities in Austria and presents drivers and barriers found by participating universities when implementing concepts of sustainability.

*Keywords: green campus, network, sustainability in higher education, sustainable university, sustainability strategy, alliance, sustainability research;*

## **1 INTRODUCTION**

Within the next decades, universities will have to deal with massively changing societal, environmental and economic environments themselves. In order to sustain their key functions they will have to find concepts to remain resilient towards these global challenges: starting the transformation towards sustainability can help increasing universities' resilience. Moreover, universities play a leading role in the development of society, and they have a moral and ethical obligation to promote sustainable development. Based on this, it is the responsibility of universities to take a holistic approach to integrating sustainability issues into all levels of their activities.

In the past decade, more and more universities have become aware of the corporate responsibility to raise awareness of sustainable development among their students, researchers, lecturers and other staff members. This has been accompanied by a number of declarations such as the Talloires Declaration (1990) [1], the Agenda 21 (1992) [2], the CRE-COPERNICUS Charta (1993) [3], the Ubuntu Declaration (2002) [4], and global initiatives such as the Johannesburg World Summit for Sustainable Development and the Global Higher Education for Sustainability Partnership (WSSD & GHESP, 2002). In December 2002, the United Nations General Assembly adopted a resolution declaring a 'United Nations Decade of Education for Sustainable Development' (UN DESD)[5] from 2005 to 2014. This Decade should call for action all over the world to initiate programmes of sustainability at all levels of education, and to raise awareness about sustainability among people of all ages, groups and countries [6].

Within the last years, several universities have started to publish their efforts in regard to sustainability in sustainability reports. In Austria e.g. the University of Natural Resources and Life Sciences, Vienna [7] or the University of Graz [8, 9], in Germany e.g. the Hamburg University and Medical University

[10] or Leuphana University in Lüneburg [11]. But also in other parts of the world universities are becoming active and reporting their efforts, e.g. the UCLA which already started in 1989 [12]. These reporting activities show that principles of sustainable development are becoming increasingly important for universities and that they are challenged to act as important agents in promoting these principles within society. Traditionally, since the first efforts following the Stockholm Declaration on the Human Environment in 1972, the integration of sustainability into higher education has been mostly understood as so-called 'Greening Campus' initiatives, which concentrate on environmental activities on university campuses. With the dawn of the new millennium, sustainability issues have also been integrated into education, research and management of universities. Universities develop new knowledge in regard to sustainability and they have an important multiplier effect that carries knowledge and innovation outside the universities. Thus, research, teaching and knowledge transfer are also central fields of transformation and key issues of a university [13, 14]. These core tasks of universities indeed have a much bigger impact on society and therefore universities must succeed in promoting sustainability in these fields in order to further the societal transition towards sustainability. In regard to Education for Sustainable Development (ESD) the question is how to integrate sustainability in the curricula and which key competences students should acquire in regard to sustainability. A main challenge of ESD is to find ways of teaching new competences. ESD is not just about teaching sustainability topics, but it includes inter- and transdisciplinary approaches or teaching on how to prioritize actions after assessing benefits in all three sustainability dimensions [15]. Lecturers need to assess, how their field of expertise can contribute to train students accordingly and with whom they should collaborate in their teaching [15]. Barth et al. [16] stress the importance of formal and informal learning settings to promote key competences for sustainability in Higher Education.

Besides education, universities are primarily places of research and innovation. Research for sustainability can be seen as problem-oriented research for the grand societal challenges. Many research areas contribute with their findings to sustainable solutions and thus deal with sustainability – even when the term is not directly used in their context, e.g. projects that deal with the improvement of any renewable energy technology or with possibilities to reduce the use of synthetic fertilizers. Other research projects deal with sustainability as such or explicitly take into account the interrelations between ecological, economic and social aspects. Moreover, research itself can be performed in more or less sustainable ways, e.g. by flying thousands of miles by airplane in order to meet project partners versus virtual meetings. Application of strategies to enforce sustainability, e.g. by integrating a sustainability view in existing research (institutes), promoting sustainability related funding, need to be pushed in this area – to name a few examples how to encourage scientists to pay more attention to sustainable research.

The links between universities and sustainability in the fields of operations, teaching and research are manifold and diverse. But there is no generally accepted definition or criteria of what defines a “sustainable university”, which roles and fields of action should be taken into account and to what degree sustainability should be a holistic concept, covering all fields of university-activities.

Not everybody at universities will be interested in promoting sustainability at universities. Different people or groups may be involved in the implementation of sustainability activities at their institution or simply may have the power to enforce this process by the power of their office. This might be: the president or his/her deputies of a university, sustainability managers, regular staff members appointed to this task, study commissioners, department and institute directors, or student representatives. Students have an ambiguous role in this transformation. Lukman et al. [14] (page 112) state that they are “*difficult to organize, but easier to motivate*”. Nevertheless, many important initiatives at universities were driven by student initiatives, e.g. [17]. In this regard, the international students initiative oikos (“oikos”, the ancient greek word for house and the root for both “ecology” and “economy”), a global network to enrich students' curriculum at their respective universities with sustainability topics – with so-called local chapters in Vienna and Graz is particularly worth mentioning [18].

Experiences so far show that collaboration between universities support individual efforts by e.g. allowing for an easier start although each university needs to find its own position and strategy in order to take advantage of common projects [19] Moreover networking is an essential aspect of sustainable universities and other higher education institutions, for the scientific community but also for the global-local-interplay [20, 21].

In 2012 the Alliance of Sustainable Universities in Austria was founded, with the aim to bundle strengths, enforce synergies and cooperate in regard to sustainability at Austrian universities. This paper describes the Alliance's objectives, approaches and efforts. Among other activities, the Alliance compiled a handbook for the Development of Sustainability Concepts at Universities that helps to overcome the shortcoming of missing definitions of a "sustainable university" by proposing criteria, objectives and measures. Below the individual paths of four universities to achieve comprehensive and considerable steps towards sustainability are described. Finally, the authors discuss drivers and barriers they encountered and how efforts for sustainability can increase universities resilience.

## **2 THE ALLIANCE OF SUSTAINABLE UNIVERSITIES IN AUSTRIA**

The Alliance of Sustainable Universities in Austria was founded in 2012 as an informal network of universities that aims at promoting sustainability issues in Austrian universities and thus to contribute to a more sustainable society. Currently nine Austrian universities are members of the network: BOKU University of Natural Resources and Life Sciences (Vienna), Karl-Franzens-University of Graz, Graz University of Technology, Medical University of Graz, University of Music and Performing Arts Graz, Vienna University of Economics and Business, Alpen-Adria-Universität Klagenfurt, University of Salzburg and University of Innsbruck [22].

The Alliance strengthens sustainability issues through its common appearance and thus motivates its members – and especially those people within a given university who are/feel responsible to promote issues of sustainability within their organizations.

The main objectives of the Alliance are to exchange good practice-experiences and to start joint activities in the fields of

- research
- education
- operations
- society/knowledge transfer
- identity;

On a superordinate level, it generally aims at anchoring sustainability issues at universities and thus to contribute to a sustainable society.

A main success of the Alliance was that each participating university committed to developing a sustainability strategy. This aim was defined in the performance agreements for 2013-2015 that each university negotiates with the Austrian ministry for science and research. These strategies must include specific objectives and measures to promote sustainability within research, education and operations. A working group of the Alliance then elaborated a handbook for the development of sustainability concepts at universities – which is described in detail below (chapter 3).

Further working groups take care of a variety of issues related to sustainability at universities:

- The Working Group "Climate Friendly Climate Research" tackles the issue of carbon intensity of climate research. The 'climate-friendly climate research' project of the Alliance in cooperation with the CCCA (Climate Chance Centre Austria) is financially supported by the Austrian ministry for science and aims at reducing the carbon footprint of climate (and other) research, and thus increasing its credibility [23, 24]. From November 11-15, 2013 the JPI CLIMATE Online Conference – Climate-Friendly Climate Research was held to discuss and test climate friendly exchange. For further information go to: <http://ccca.boku.ac.at>.
- In 2013 the working group on environmental management won a large 5-year grant that will allow all participating universities to implement - or if they already have one, to extend - the EMAS program. EMAS is the European Eco-Management and Audit Scheme that aims at improving environmental performance of companies and organisations. BOKU established EMAS in 2006 and will implement further steps under the project; the universities of Graz (KFU), Klagenfurt, Salzburg and the Vienna University of Economics and Business will establish the EMAS management system within the next 5 years.
- The working group for sustainable mobility is built upon experiences at the Universities in Graz which are based upon a research driven concept including four phases to achieve sustainable mobility: (1) the project "alternative mobility at the University of Graz" focused on an improvement of the modal split of staff and students towards biking and walking, including a catalog of improvement measures. (2) this project was widened to all four universities in Graz

under the label „UniMobil4U“. (3) S. Janschitz [25] extended the concept of sustainable mobility by the aspect of barrier-free accessibility and the concept „Design for All“, with a strong focus on awareness raising and using a geographic information system for planning and application. 4) Finally a mobility concept was elaborated for the University of Graz and a „traffic avoidance strategy“ was implemented where University members can „trade“ their parking lot at the University for funded public transportation tickets (year, half year) or for a high quality city bike with the University logo, again funded by the University and therefore for a very low price.

- The working group for sustainable procurement which elaborated a guideline for sustainable procurement for the University of Graz and held a workshop on the issue.
- The Viennese universities collaborate within the Working Group Sustainability Entrepreneurship. They exchange information in regard to Social Entrepreneurship in Austria in general and how it can be incorporated in teaching activities. Their aim is to enlarge “spaces” for social entrepreneurship at universities.

### **3 THE HANDBOOK FOR THE DEVELOPMENT OF SUSTAINABILITY CONCEPTS AT UNIVERSITIES**

In order to support the development of sustainability concepts at the Alliance-universities, a working group created a handbook in 2013. The handbook intends to help persons in charge to develop, accompany and evaluate sustainability concepts. It is designed as a "living document" that will grow with the universities' experiences.

While the main part of the handbook is intended as a set of proposals that should assist the respective universities to choose their priorities, several quality criteria are spelt out in the beginning, that are considered essential for the success and acceptance of university sustainability processes by the Alliance's experts. The quality criteria for sustainability concepts at universities embrace the following points:

1. Consideration of all three pillars of sustainability (ecological, economic and social), i.e. for each column corresponding objectives and measures should be defined.
2. Smart, measurable, accepted, realistic and terminated (smart) goals should be defined for the short (1-3 years), medium (3-5 years) and long-term (> 5 years) and corresponding measures should be formulated.
3. Verifiability in terms of target achievement, i.e. defined objectives and qualitative or quantitative indicators;
4. Clear timetable for the introduction and implementation of the measures;
5. Institutionalized monitoring process that captures who or which bodies are responsible for the creation, monitoring, quality control and implementation, as well as for any necessary adjustments;
6. In terms of operations either the points raised in the handbook must be observed or a recognized environmental management system has to be implemented (e.g. EMAS [eco management and audit scheme]).

Moreover, the handbook describes an ideal form of a participatory process of all members of a university (students as well as employees) in order to develop a sustainability concept. A sustainability process should include the creation of structures, the development of binding goals and objectives, the implementation of a project team and an expert group, annual programs and monitoring of the process. This monitoring can be university-internal, but the Alliance also offers support.

The hand book also names several criteria that should be considered for sustainable universities. By listing these criteria it also clarifies the notion of sustainability in the context of universities. Sustainability means considering general criteria for sustainable development, like resilience, biodiversity, justice, participation, or ecological and social fairness of financial and commercial politics. In the case of education and research, the handbook also adds didactic or methodological criteria, respectively. It claims that for sustainable education it is not sufficient to teach sustainability as content, but to ask if the didactic methods are appropriate to teach critical reflection, to raise awareness of the strong interrelations between the topics or to demonstrate the high complexity of the challenges as well as possible solutions. Sustainability in the context of higher education and research includes criteria such as giving system-oriented, holistic pictures; inter- and transdisciplinarity,

problem- and project-oriented; allow for reflection on values, attitudes, non-sustainable paradigms; etc. (based on [26-33]).

The main body of the handbook lists examples of specific goals and measures along seven thematic areas (see table 1). These proposals can be adapted according to the universities' needs, specific strengths and possibilities.

*Table 1. Exemplary objectives and measures from the handbook for seven thematic areas*

Exemplary objectives	Exemplary Measures
<i>Thematic area: Education</i>	
More students dealing with sustainability issues	Establishing general sustainability courses
Cooperation between alliance members in regard to teaching	Establishment of a curriculum for complementary sustainability studies for students of all faculties
<i>Thematic area: Research</i>	
More sustainability in the implementation of research projects	Lobbying activities in funding agencies for sustainability research (national and European)
More research projects on sustainability issues	Measures for evaluating the social and sustainability relevance of research
<i>Thematic area: Operations</i>	
Reduced energy and resource consumption on campus	Internet platform for the collection of internal environmental innovations
Consideration of environmental and social sustainability into business decisions	Environmental report, sustainability report and certification
<i>Thematic area: Strategic development</i>	
Clear strategic orientation of the university towards sustainability and institutionalization of sustainability	Participatory development of a vision of a "sustainable university"
Intensification of cooperation within universities	Measures to significantly increase the participation of stakeholders
<i>Thematic area: Public relations / societal impact</i>	
Make reports and information for sustainability activities more accessible and transparent	Identification of internal and external stakeholders
Internal and external awareness raising for sustainability	Measures to strengthen networking (especially with and among students) in the field of sustainability
<i>Thematic area: Financial management</i>	
Identifying opportunities for emphasizing the selection of ecological financial instruments	Check opportunities to collaborate with eco-banks
Clarify possibilities how to integrate social standards in the selection criteria of financial instruments	Develop decision-making basis for eco-investment, preparation of first implementation steps
<i>Thematic area: Organizational culture and, if appropriate, social responsibility</i>	
Common responsibility of all university members for the university and its sustainable development	Reflection on implicit or explicit core values within the university and its departments/institutes/facilities
More transparency and participation in decision-making	Sustainability orientation / awareness raising through events and training for all university members

## **4 FOUR DIFFERENT APPROACHES TOWARDS REALISATION**

### **4.1 BOKU University of Natural Resources and Life Sciences, Vienna**

The BOKU was founded in 1872 and traditionally is a University of Forestry and Agriculture. Nowadays its focus is on providing the scientific basis for the security and the sustainable management of natural and renewable resources, for a secure supply of the population with food and

water, for the development of rural and urban areas and for innovative solutions in the field of biotechnology. Currently, the BOKU comprises about 1500 staff members and 11.000 students. As the “University of Life” is has a strong historical bias towards sustainability issues.

Sustainability initiatives have a long tradition at BOKU. In 2002, the university started reporting on its initiatives, since 2006 the sustainability report is compiled according to the Global Reporting Initiative (GRI)-standard. Moreover, sustainability is within the focus of many institutes and research projects. And it offers a bachelor and master program “Environment and Bio-Resources Management” that has a strong focus on sustainability. Also, the doctoral program on sustainability (dokNE) has to be mentioned.

Although sustainability projects have been supported by the university administration in principle, no binding strategy for implementation has been readily identifiable.

In 2013, in order to strengthen sustainability issues, the BOKU started a university-wide process to develop a sustainability strategy (<http://bit.ly/1jjqBoc>). The development of the strategy started in June 2013 with a kick-off workshop and was followed by four topic-specific workshops between October and December 2013 covering research, education, identity and society (organisational culture, strategy and interactions with society), as well as operations (environmental management and social responsibility).

Individual – subjective – appraisals of the status quo by the workshop participants were the starting point for further discussions that focused on objectives and measures that the BOKU could accomplish to reach the desired situation. The participatory process resulted in 39 objectives in regard to sustainability, which were consolidated from the results of the thematic workshops and ranked according to their importance and relevance by the participants of a synthesis workshop. Each objective has one or more corresponding measures (70 in total). A decision-making group then selected those measures that will be realized in the short, middle and long term. A sustainability core group and a reflection group coordinate the process and the realization of the measures.

*Table 2. Exemplary results from the BOKU process*

<b>Exemplary BOKU Objectives</b>	<b>Exemplary BOKU Measures</b>
<i>Thematic area: Society</i>	
Change of mind-set to emphasise the relevance of public communication of sustainability issues	Development of an incentive scheme
<i>Thematic area: Research</i>	
Increase visibility of / assess to sustainability related research at BOKU	Develop sustainability and social impact as alternative evaluation criteria
<i>Thematic area: Operations</i>	
Improve nutritional situation at BOKU in regard to sustainability	Intensify regional, seasonal and organic food supply at BOKU locations

## 4.2 Karl Franzens University of Graz

The Karl Franzens University of Graz pursues an integrative process of sustainable development with a responsible university management serving as a role model for students, staff and the society. Social networks for knowledge transfer as well as the involvement and participation of committed students and staff in the sustainability process guarantees high-quality in education and training for future decision makers and lifelong learners. The research is characterized by its social relevance and the wide application of transdisciplinary approaches.

*Table 3. Selected sustainability milestones of the University of Graz*

1991	Development of an interdisciplinary curriculum “Environmental Systems Sciences”
1993	Signing of the COPERNICUS Charta
2002	Foundation of oikos Graz Chapter at the University of Graz
	Starting Point of the Sustainability Library
2004	Integration of “Sustainability” into the University’s strategies and goals
2006	Sustainability Reporting” started - as one of the first Universities in Austria
2008	The 4 universities in Graz connected to “Sustainability4U” (potential of approx. 10,000)

	employees and 60,000 students)
2009	Foundation of the COPERNICUS Alliance, the European Network on Higher Education for Sustainable Development – initiated and chaired by the University of Graz

Currently the University of Graz offers several Master programs focused on Sustainability, e.g. Environmental Systems Sciences (with specialisation options on Economy, Geography, Physics, Chemistry and Natural Sciences), Sustainable Urban and Regional Development, Gender Studies, Global Studies, Joint Degree Sustainable Development and Erasmus Mundus Master in Industrial Ecology etc. And there are numerous international research projects with a strong focus on sustainability like: ConSus - Connecting Science-Society Collaborations for Sustainability Innovations, UE4SD - University Educators for Sustainable Development, SUSTAINICUM Collection - Teaching materials for education for sustainable development; (details on: <http://rce.uni-graz.at/en/research/projekte-partner/>)

With regard to the future, the development plan of the University of Graz 2013 - 2018 defines the following projects:

- The ecological sustainable University: „Sustainability and climate neutrality“. Specifically targeted measures include the use of energy saving instruments, the thermal optimization of buildings and the use of roof spaces to implement solar energy facilities for heating and cooling. The University will publish a sustainability report and a climate protection report on a regular basis in order to evaluate and communicate the effect of the above mentioned measures and to plan further steps. Furthermore the University of Graz started to implement “EMAS III” in September 2013 at all levels with the goal to reduce environmental impacts of the university, to increase the environmental performance and to guarantee legal compliance concerning environmental issues. Based on the environmental review the university’s environmental policy and goals will be set and finally the environmental management system will be implemented and validated in fall 2015.
- The economic sustainable University: „Facility Management, green office and energy management“; pilot projects and pilot units are implemented.
- The social sustainable University: „Strengthening sustainable education, training and life-long learning“.
- Improvement and coordination of all activities at the University dealing with sustainability issues.

### 4.3 University of Salzburg

In June 2011 Heinrich Schmidinger, president of the University of Salzburg, invoked the sustainability program named PLUS Green Campus. PLUS stands for the name of the university “Paris Lodron University Salzburg” but also implies that this movement wants more than just to fulfil environmental legal requirements. From the very beginning students were involved in the development of the program.

The name PLUS Green Campus was developed as a brand name with its own logo marking all sustainability related activities of the university and as such, guaranteeing high recognisability. Furthermore the University uses the official webpage of the university [www.uni-salzburg.at/plusgreencampus](http://www.uni-salzburg.at/plusgreencampus) as well as a monthly electronic newsletter during the semester to update and inform employees as well as students about the latest developments or events of PLUS Green Campus. This again helps to get the message out and remind people – on a monthly basis – that sustainability is an important issue not only for the operations of the university but also for the daily life of all of us at the work or study place.

While the start of PLUS Green Campus was marked by unrelated actions and events it soon turned out that a management structure and strategy was needed. For this reason a sustainability core group was formed including all stakeholders of the university who define aims, plan, act, evaluate and push forward sustainability measures. This group reports to the president of the university on one hand and hands over the operational agenda to a group of so called coordinators for areas like mobility, sustainability, operations and facility management, green meetings, health, or public relations on the other. At the level of departments sustainability appointee’s connect the coordinators with all members of the university.

The University of Salzburg quickly recognized the need for a strategic instrument which would help to organize and manage its sustainability program. EMAS was chosen as the guideline to: a) manage the

sustainability agenda professionally, b) progress constantly and c) most important to do this in close communication with the members of the university as required by EMAS. The university aims to be EMAS certified by 2015.

The next step at the University of Salzburg is to implement a further strategic component adding research and education to its already existing operational strategies. Thus, EMAS helped us to set up a basic environmental strategy, which will be extended to the areas of research and education to cover these main duties of a university in close cooperation with the Alliance of sustainable universities in Austria.

#### **4.4 Vienna University of Economics and Business (WU)**

The Vienna University of Economics and Business (WU) has, in its current development plan, committed itself to the goal of sustainability. Following several initial workshops and the formation of a Competence Center for Sustainability in the summer of 2013, WU's sustainability process continues with a focus on participation of faculty, staff, and students. Workshops focused on issues such as "quality of work and social issues", "environmental protection and green operations". "Research in the area of sustainability at WU" brought together many members of the WU from a wide array of fields. It was easy to see and feel the huge interest in this issue. The workshops provided a good introduction to and overview of the sustainability related research already underway at WU. All the workshops generated many ideas for how the role of sustainability could be strengthened in the different fields. An electronic consultation process will take place to give as many university members as possible an opportunity to take part and so to expand the support base for the process.

Besides the idea-generating process, there are already concrete measures under way. The Competence Center for Sustainability is active in the areas of research, teaching, university management and stakeholder dialogues. It supports scientists, provides information on sustainability topics, co-operates closely with the campus management and several student organizations. It is also actively networking with other institutions, for example in the context of the "Principles of Responsible Management Education" and the aforementioned Alliance of Sustainable Universities in Austria.

### **5 DISCUSSION**

The four universities have found different, albeit similar, ways to introduce or strengthen sustainability efforts in their institutions. First, success factors and barriers in regard to the process development will be discussed; second, the discussion will focus on the three roles of university: research, teaching and operations.

The University of Salzburg has mainly focused on environmental issues to date, but aims to develop a broader approach. Besides efforts in regard to environmental issues, BOKU and the Graz University introduced several educational programs that highlight sustainability several years ago and also follow an approach that aims at widening their efforts. The WU has just recently made a shift towards sustainability – following a holistic approach from the very beginning. The pathways of the four universities differ, according to the historical background, the thematic focus of the university and are also very dependent on the initiators of the process, but each of the four universities follows a sustainability pathway in a holistic way. The pathways described above, show that the decision of a university to become sustainable need not be a 180° turn, but it can be an evolving process by accepting challenges step by step and gaining one stakeholder after the other for the sustainability goal. Such pathways keep resistance low and allow for flexibility and openness for new ideas.

All four universities show that it is important to have a "sustainability core group" that feels responsible for the further development of sustainability on a strategic and practical level. This group can have different compositions and status within the university. Its central responsibility is to observe, accompany, coordinate and initiate the process and to make sure, that goals that are set out in strategic papers are realized (monitoring, self-reflection and evaluation). Sharp [13] (page 132) states that *"Universities are multi-structured, complex organization that exists without any single observation point or any single control center from which university wide changes can be programmed and implemented."* This complex structure of universities poses specific problems at those who are interested to promote sustainability in universities and makes a top-down approach difficult. It calls for a successful cooperation of the management, (scientific and administrative) staff as well as students. This stakeholder management also needs to be coordinated and steered by a core group in order to ensure that all main groups are represented:



First, students' participation is a key factor for the success of any sustainability program at a university for many reasons like the fact that students are the vast majority of persons at any university outnumbering employees and most important they will be the future opinion leaders who have to make decisions which may in one way or another affect our environment more or less substantially. Nevertheless, the high turnover of students makes it difficult to start continuous processes. All four universities aim to integrate students in projects, whereas the students clearly act more or less proactively. This might have to do with their disciplinary background (e.g. students who chose to study at the BOKU often have a strong affinity to the environment, and thus to sustainability), but also on the individual interest of students or how active the official students representation at a particular university is in this area.

Second, the commitment of university decision makers guarantees the (financial, but also the "ideological") support and empowers the staff and the students to take action. The presence of and contribution by the university's management in the participatory process at the BOKU was recognized and appreciated very much by the participants of the workshops and made sure that their contributions were heard by the management. Third, the support of the administrative staff is needed to realize objectives and measures, set out in a sustainability plan or strategy. Operational issues are mainly carried out within this group. Last but not least, the scientific staff encompasses those persons who can make a change in universities research and teaching activities. Since academic freedom is a very important value also for sustainability, changing the focus of research or teaching relies on inspiring people and supporting those interested integrating sustainability in their work. The dialog with these groups needs to take into account the different attitudes and (disciplinary) backgrounds of the partners in order to be successful ([34].

Those, who support the idea of sustainable development and who are willing to take responsibility can be found at each university and in each of the groups mentioned above. A participatory process can help to turn followers into leaders, by giving them the opportunity to participate, join forces with others or simply by getting information about initiatives that are going on. Nevertheless, participatory processes can fail if no success stories can be seen by those who invested their time and energy. Therefore, the communication of activities is a central issue [34]. Among the universities described here, the BOKU and the WU have already started participatory processes that include staff and students and are supported by the rectorate – the next months will show in how far the positive spirit that was started by these processes will be kept alive.

Another issue, observed at all four universities is the fact that time investments for sustainability at the university are hardly rewarded and there is little recognition for those who participate. There is hardly additional budget available and most activities are based on voluntary engagement. This can lead to the situation that those people who are very enthusiastic and motivated in the beginning lose their motivation over time or that people, who would be interested in sustainability in general, cannot participate despite their wish to contribute. As a person responsible for the sustainability process it helps to recognize that it is not necessarily a lack of a sense of responsibility if university members do not support one's efforts, but due to other restrictions in regard to time or different priorities of staff (high pressure of teaching load and research needs...).

The Alliance of sustainable universities in Austria is another structure that proved helpful, by being an excellent forum for mutual support as well as an exchange platform for good practice examples. Regular meetings were used to exchange on current activities and possibilities to overcome barriers. The participatory processes at the WU and BOKU may now serve as models for other alliance universities that want to start such a process.

Moreover, the chance to apply for public reward and recognition through (international) institutions through prizes or press releases fuels the support within the university.

The experiences at the four universities have shown that the operational part is easier to tackle, while the core agenda of a university – research and education – are more difficult to define as sustainable and/or to organize in sustainable ways. EMAS is an accepted standard of environmental reporting and is or will be followed by all four universities. This measure meets with very little resistance. In contrast, it is much more complicated to support changes in the fields of education and research.

Moreover, alternative ways have to be found to integrate sustainability topics into teaching and research. Rusinko [35] presents a matrix of options to integrate sustainability in higher education. She distinguishes between (I) the integration into existing courses or programs, (II) the creation of new, discipline-specific sustainability courses or programs (III) the integration into common core

requirements and (IV) the creation of new, cross-disciplinary sustainability courses or programs. While the creation of specific programs might arouse resistance, the integration into existing courses might be easier if lecturers can be motivated who are interested in the topic of sustainability. Moreover, the approaches differ in regard to the share of students who can be reached. BOKU, for example, follows a multiple strategy, by assessing possibilities to develop (blocks of) elective courses accessible for all students or to introduce a basic sustainability course for all students regardless of the program they follow.

Education should have the biggest weight in this respect since it allows for the greatest indirect environmental effects, as it influences the actions of its graduates for the rest of their lives and the decisions they make later as opinion leaders or CEO's in respect to a better environment. Here universities have a great responsibility to educate and teach students how to live and act in agreement with a sustainable environment. In other words universities need to convey sustainability values to their students so they are in a position to shape the future in a responsible and sustainable manner.

## 6 CONCLUSION

The Alliance of Sustainable Universities in Austria helps to strengthen, develop and push forward sustainability within university policy, public perception, and promotes several intense collaborations. The jointly developed *Handbook for the Development of Sustainability Concepts at Universities* supports the process of introducing sustainability concepts at universities, by presenting quality criteria, sustainability criteria and various exemplary measures for implementation. By providing a broad approach towards the guiding principle of a sustainable university it ensures the implementation of sustainability programs within universities' key roles of, namely education, research, operations, and knowledge transfer. The experiences so far show that these efforts are very fruitful as well as gainful despite low/no extra budgets or timely limitations of university sustainability stakeholders.

## 6 REFERENCES

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