

SDG - Quality in higher education:

Developing a platform for sharing of ideas and practices within the universities

Report from working group, January 2020



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Abbreviations

BI	Norwegian Business School
ESD	Education for Sustainable Development
HESD	Higher Education for Sustainable Development
HVL	Western Norway University of Applied Sciences
NMBU	Norwegian University of Life Sciences
NSO	The National Students Organization in Norway
NTNU	Norwegian University of Science and Technology
SDG	Sustainable Development Goal
UiB	The University of Bergen
UiO	The University of Oslo
UiT	The Arctic University of Norway

Executive summary

At the SDG Conference 2019 in Bergen the Rectors of five Norwegian universities initiated a process aiming at creating a platform for sharing of best practice in the universities' work with the SDGs, with a particular focus on education. Based on this statement, a working group was established under *the National Committee for Cooperation with Agenda 2030 in the university sector* to develop the platform. The working group is presenting the platform and a report (this report) at the SDG Conference 2020.

This work represents an initiative from the universities to create a common public space for knowledge sharing and mutual learning and help promote further knowledge transformation in line with the SDGs. As a global network the universities have, not only a particular opportunity, but also a duty, following from their academic freedom, to engage with global challenges. All the sustainable development goals base their argument on knowledge, ask for new knowledge and suggest future change with reference to belief in science. It is a social responsibility of universities to bring science both to policy makers and to society in general. The wicked problems and complex challenges we are facing today, are expressed through the SDGs and all their interactions. While the SDGs are a whole, there are a number of unresolved conflicts within the framework. The interaction between knowledge types can help clarify some of these conflicts so that societies can make democratic and rational choices. In this lies the importance of recognizing the three pillars of Sustainable Development as set forth at the 2005 World Summit on Social development, namely economic viability, social equity and environmental protection. To create a more sustainable world, individuals and communities must become sustainability change-makers. They require the knowledge, skills, values and attitudes that empower them to contribute to sustainable development. Education is therefore crucial for the achievement of sustainable development.

In order to deal with the wicked problems, a new kind of pedagogy is called for, which in addition to securing a factual deep knowledge basis within a subject field or profession, also equips students with certain key competences. Higher Education for Sustainable Development (HESD) must ensure that students are equipped with a mindset and key competences for sustainability, which, combined with their factual knowledge base, make them ready to take action to ensure a sustainable future for our societies. Building on Education for Sustainable Development Goals: learning objectives (UNESCO) we promote a set of key competences for HESD. Together, and in addition to deep intra-disciplinary knowledge, these express the competence to transcend the traditional boundaries of disciplines, to rethink disciplines, to be open and empathetic to other perspectives; all in order to be creative and suggest innovative and sustainable solutions to the complex challenges we are facing. To educate for the sustainable development means to open for more inter-disciplinary interactions and for more problem-oriented and action-based teaching, where students contribute with ideas about what is relevant knowledge.

Through education universities have a particular opportunity to create change-makers for sustainability. The universities educate professionals, who again through their working life can contribute to the reduction of social inequality, prevent the destruction of the environment, animal habitats and the atmosphere. Professionals with knowledge and understanding of the interconnection between the social, environmental and natural worlds, can be the most

important change agents. Of these professions, the teachers have a crucial role. Fostering new generations, whose awareness of our global challenges is growing, makes the teachers educated from the universities key mediators of reliable knowledge about our global development.

Higher Education for Sustainable Development implies addressing sustainability at many levels, the most obvious being curricula content in courses and study programmes. Whereas the training of key competences and the focus on problem-based learning *per se* may be regarded as education *for* or *as* sustainable development, meeting the SDGs, their factual content and their synergies and trade-offs, as content of courses and curricula can be described as education *about* sustainable development. The SDGs can relate to all established curricula, but they will also transform the orthodoxies of disciplines and demand renewal of epistemologies in line with a new understanding of what is relevant knowledge.

Beyond addressing the SDGs in study programmes, awareness of sustainable development should be nurtured also at other levels, for instance by stimulating students to take responsibility and take collective action through their daily and professional lives. To build a sustainable future we need the energy, creativity, and initiative of the young people around the world, and the students need a global arena where they can discuss universal matters such as quality education, student rights and the SDGs.

The 2030 Agenda can only be achieved if different sectors and actors work together in an integrated manner. One of the greatest challenges in approaching the interconnected challenges today, is silo-thinking and a potential inability to overcome internal and institutional barriers towards solving the SDGs. In order to make substantial progress towards the fulfilment of Agenda 2030, academia must furthermore increase collaboration with all stakeholders of society. Higher Education for Sustainable Development requires dedicated leadership showing belief in the necessity of a transformative shift. This means that universities must be open for and support creativity and flexibility in ways of teaching and creating study programmes. At governmental level, law and regulations for higher education must not put restrictions that work as hindrances for this flexibility. On the contrary, quality evaluation systems, both institutional for self-evaluation and governmental QA systems, need to reward initiatives in higher education both *for*, *as* and *about* sustainable development, in addition to scientific disciplinary knowledge.

The best way universities can create a momentum for sustainable development is through collaboration and sharing of good practice on sustainability in education and research. We have collected examples of best practice from across the university sector in Norway, but the example list is far from exhaustive. Throughout this report examples from the platform have been given in example boxes to illustrate specific topics covered in the full report, but the complete data base of best practice examples will be available on the online platform.

1. Background

Based on an initiative from the University of Bergen, the *National Committee for Cooperation with Agenda 2030 in the university sector* proposed to develop a platform for knowledge sharing of ideas and best practices, in line with the values and goals of the UN Sustainable Development Goals (SDGs). This is seen as a first step to strengthen the Norwegian higher education sector's commitment to the UN 2030 Agenda for Sustainable Development.

At the final session of the SDG Conference 2019, the rectors of UiB, UiO, NTNU, UiT and NMBU presented the following statement:

Last year we established the National Committee for Cooperation with Agenda 2030 in the Norwegian university sector. This year we want to take this initiative one step further by creating a platform for sharing of best practice in the universities' work with the SDGs, with a particular focus on education. This work will be coordinated by the National Committee, and the aim is that next year at the SDG Conference 2020, we will be able to present this platform to you all.

Based on this statement, the national committee established a working group tasked with the development of a platform for sharing of ideas and practices among universities¹. We hope this platform will promote our common interests as a network of universities. The platform promotes a common public space for knowledge sharing and mutual learning, and further knowledge transformation in line with the SDGs that might be useful both in a national and global context.

1.1. Mandate and members

The central focus of the working group has been to:

- Identify a research- and education- relevant understanding of sustainable development, where focus on the interconnectedness between the goals is paramount. This will be a qualitative statement about the dimensions that need to be present in an understanding of sustainable development in the university sector, such as: pedagogical aspects, knowledge-base, curriculum development, connection between research and education, and openness between disciplines.
- Develop perspectives and suggestions on the knowledge-ethics connections necessary to achieve a transformative shift.
- Reflect on the hindrances for an SDG-oriented transformation of higher education at universities, and how we might promote such a change.
- Build a digital platform for *dialogue*, for presentation of *best practices*, and the promotion of *ideas* for SDG-relevant teaching and disciplinary organization. The platform will be used to interact with actors in the sector, particularly those who are already engaged in SDG-relevant changes.

¹ For brevity «universities» is in this report implying all universities and university colleges in Norway.

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2. Understanding sustainable development in the university sector

2.1. Definitions of sustainable development

Creating a platform for sharing of best practices requires reaching a common understanding of the concept of sustainable development and its relevance in higher education. The 17 [Sustainable development Goals](#) are part of the 2030 Agenda, which recognizes "that eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development."



The 2005 World Summit on Social Development highlights the three pillars of sustainability that has served as a common ground for sustainability standards and certification systems in recent years. These are economic viability, social equity and environmental protection (Fig 1). The three pillars are seen as interdependent.

*Fig 1: The three pillars of sustainability
(<https://www.biosphere.org.au/sustainable-future>)*

When the interaction between ecological, environmental and social dimensions determine what is deemed economically acceptable, a new disciplinary framework and hierarchy evolves. This development model takes as its starting point the global – the earth – and all its interdependencies, and is usually called the eco-social model. Partial knowledges must relate to the survival of this wholeness. However, the earth, the whole, does not speak back to us with a clear voice, but rather puts conflicting demands on human behavior. At the same time as the human influence on the earth is everywhere, and lasting (even beyond our human existence, the Anthropocene), the influence of the humanly transformed earth on our existence has changed dramatically over a short period (the great take off). We can no longer talk of the "social" without reflecting on the "ecological". While the old development model was about expansion, the new development model should be about recomposition, limits, circulation, wellbeing, and based on knowledge about how human actions influence nature and vice versa. This development model, in other words, challenges the old development model of economic growth, so well served by the universities' disciplinary specialization and academic division of turfs.

2.2. The role of universities in a global perspective

Universities are part of a global academic community with shared values. In order to produce secure knowledge, academic freedom must be promoted and defended by the universities themselves. As a global network, academics and the institutions they work within have not only a particular opportunity, but also a duty, following from this academic freedom, to engage with global challenges.

The 2030 Agenda for Sustainable Development is an attempt by the international community, composed of political representatives from states, civil society activists and a large number of academics, to address challenges that are global in scope. All the goals base their argument on knowledge, ask for new knowledge and suggest future change with reference to belief in science.

In 2016 the UN asked 15 scientists to draw up an assessment of the state of sustainable development in the world. They recently published the report *“The Future is Now: Science for Achieving Sustainable Development”* to support decision-making and present an approach to, and a guide for a sustainable path forward. Highlighting the significance of research-based knowledge and multidisciplinary collaboration, the group argued that the sustainability dimension of science must be strengthened when setting targets and making decisions.

Higher education institutions are crucial actors for the production of knowledge about the SDGs, teaching in line with the SDGs, and transforming curriculum and teaching to prepare a new generation to address the global challenges. Given their privileged position as both national and global institutions, universities should cooperate based on the principle of shared but differentiated responsibilities, so that no university in the world is left behind.

Universities promote academic freedom and the right of free speech, and they are crucial in producing knowledge relevant to our understanding of the global challenges and offering science-based solutions. The SDGs challenge us to make explicit the kinds of knowledge relevant to the problems we face, from poverty (goal 1) to global cooperation for peace (goal 16), through a global dialogue (goal 17). Democratic principles are the most important ones to seek solutions that are equitable and fair. To contribute to these solutions universities should maintain their autonomy and freedom and should strengthen their own democratic practices which are currently under pressure across the world.

2.3. The social responsibility of universities: Science to policy

The 2030 Agenda calls for a radical shift. It is the social responsibility of universities and the academic community these universities are creating to promote and protect, to reflect on and

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to show the challenges and consequences of these shifts. In line with the SDGs, these shifts must lead to a transformation in how we treat nature, how we produce and consume, how we distribute values and how we secure an inclusive, fair and equal society. We need a new development model building on a new understanding of how human and nature can and must interact. In this transformation academic knowledge can be decisive. It is

important that these missions of the universities are coordinated globally, and universities must come together to debate an action plan. We need to create a critical mass of members, to mobilize awareness also outside universities.

In order to succeed in making universities a vehicle for social transformation, we need to create open and collaborative institutions, and we need researchers and teachers to challenge the way we develop educational programs. Collaborative and global partnerships between universities are necessary, but also between academia and other sectors. We need to make sure that the research and education universities provide is generated for the future, and provide new ideas and possible solutions for sustainable social and economic systems. This could be achieved by establishing a global working group to create guidelines for the universities’ work with the SDGs in research and higher education along the lines of the Norwegian National committee (Box 1).

Box 1: The national committee for the Agenda 2030 in the university sector in Norway

The University sector in Norway has established a collaborative project entitled: “The National Committee for the Agenda 2030 in the university sector”. The focus is primarily on the establishment of dialogue about SDGs in higher education and in research and how partnerships between universities, but also with other sectors, can bring about the changes needed. We now want to move this initiative further to create a global dialogue about the role of universities in Agenda 2030.

Academic practices secure that academics have the authority to tell what constitutes relevant knowledge. Policies that are informed by knowledge strengthen democracy. Global actors have agreed that the ideal “leave no one behind” is part of the policy. To secure public control over an economy aimed to combat inequality, safeguard the environment and stop the emission of green-house gases, we need to guarantee academic freedom and strong democratic institutions. Universities need to be innovative and at the forefront in promoting dialogue between relevance and democratic action.

Our platform for sharing best practice examples is a contribution to such a dialogue. Education needs to mediate between truth telling and democratic value choices by teaching

students both to be global and local citizens at the same time. As global citizens, students need to know what challenges we are facing, as citizens of a country, with place-bound identities, they need to know how to act to counter the global threats.

Our platform will serve as a channel to spread good teaching practices. While education, research and teaching, particularly the last 70 or so years, have driven us towards a growing division of academic labor (perhaps 5000 disciplines today, more than 9000 specialties, many with ambitions of becoming disciplines), it is now time to think of academic innovations in light of the need to solve the bigger problems. While academic specialization has given us better health, economic growth and increased consumption, the compartmentalization of science is important in explaining the compounded crises we are facing today, though no academic specialist is responsible for the aggregated consequences of his or her knowledge production.

To address contemporary challenges, the interaction between academics and across faculties, the unity of the university, and the collaboration between academics becomes crucial. When technology solves a problem, but at the same time creates new inequalities, or block development for others, the academic community must speak up and take its ethical responsibility in line with the SDGs. While the

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SDGs are a whole, there are a number of unresolved conflicts within the framework. The interaction between knowledge types can help clarify some of these conflicts, so that societies can make democratic and rational choices. However, dilemmas and contradictions within the SDGs must be resolved through democratic decision-making processes.

3. Higher education for sustainable development, HESD

To create a more sustainable world, individuals and communities must become sustainability change-makers. They require the knowledge, skills, values and attitudes that empower them to contribute to sustainable development. Education, therefore, is crucial for the achievement of sustainable development. However, not all kinds of education support sustainable development. Education that promotes economic growth alone may well also lead to an increase in unsustainable consumption patterns. The approach of Education for Sustainable Development (ESD) empowers learners with a mindset for sustainability to take informed decisions and responsible actions for environmental integrity, economic viability and a just society for present and future generations. Building on ESD in general, Higher Education for Sustainable Development (HESD) must ensure that students are equipped with a mindset and key competences for sustainability, which, combined with their factual knowledge base, make them ready to take action to ensure a sustainable future for our societies. This calls for a transformation of higher education.

Education is crucial for the achievement of sustainable development.

3.1. Re:thinking:disciplines

To promote the transformative shift and to contribute to a new development model, we need an academic community that rethinks and recreates its disciplinary basis. We need institutions that support interactions and cooperation between academics that can grasp and promote new ways of linking knowledge across the disciplines. We may also need new types of disciplines (post-discipline) that show how the social, the environmental and the economic aspects must be linked in ways that protect nature, reduces inequality, secures decent work and leaves no-one behind. We need to teach candidates in different professions the knowledge of both the nature and the social, and most importantly; how they interlink. The professions must have skills that combine the social and eco-environmental knowledge needed to transform the world of work. With support in the academic authority of the Universities that educate them, strength to implement changes in line with eco-social ideals and ethical commitment to social equality may come about in time to reach the 2030 deadline.

The disciplinary transformations necessary to promote a new development model demands a common effort. A new way of valuing knowledge and institutions that promote such knowledge, can only be achieved through academic cooperation and sharing of ideas and experiences. This is how new knowledge grows, particularly in times when the orthodoxies of disciplines need to transform.

The “problems” the different goals evolve out of, are all multidisciplinary, and demands a broad academic cooperation to be both understood and acted upon.

This challenge to the established order can be overcome by focusing on the problems we are facing. The “problems” the different goals evolve out of, are all multidisciplinary, and demands a broad academic cooperation to be both understood and acted upon. Problem oriented education and basic research need a

new flexibility between disciplines. This flexibility is crucial due the fact that we – this time – have a very short time span to find a new development path.

The university, which historically has grown to combine faculties of knowledge, is the institution that may link our different types of knowledge across specializations. Only universities with their general responsibility for all faculties can also transform how these interact. Universities, as spaces for dialogue between faculties, can change how we interpret and act on the world we live in. Today there is a mis-match between how we organize the interactions, between disciplines on the one hand and the challenges we are facing on the other. As the history of universities show, disciplines are social conventions, not – as often argued retrospectively – created by a method, a theory, or an object of study. To build better dialogue between the social/human and natural sciences, scholars thus need to transform their social conventions about what a discipline is, and how they may interact in teaching and in curricula. This means to open-up for initiatives, experiments, and types of student interaction that combine the traditional disciplines and preferably also across the natural, social and human sciences.

3.2. Pedagogy for HESD

The challenges embedded in Agenda 2030 are highly complex in their nature, involving interactions and synergies, but also contradictions, dilemmas and conflicts between the goals. Many problems are so-called “wicked”, that is, they are ambiguous and chaotic, dynamic and resist being defined, have many interdependent elements, some hidden or unknown, and they may have many stakeholders with conflicting perspectives (based on definitions by Fox, M. and Gibson, R.). In order to deal with such wicked problems, a new kind of pedagogy is called for, which in addition to securing a factual deep knowledge basis within a subject field or profession, also equips students with key competences (so-called 21st century skills), such as systems thinking, normative-, transdisciplinary collaboration- and creativity competences, to deal with the complexity of the sustainability problems they are facing. To educate for the sustainable development (also) means to be problem- oriented in the approach, open for new interactions between disciplines, even new kinds of disciplines, and to be globally oriented as well as locally embedded.

Box 2: Key competences for Higher Education for Sustainable Development (HESD)

- **Systems thinking competency:** the abilities to recognize and understand relationships; to analyse complex systems; to think of how systems are embedded within different domains and different scales; and to deal with uncertainty.
- **Anticipatory competency:** the abilities to understand and evaluate multiple futures – possible, probable and desirable; to create one’s own visions for the future; to apply the precautionary principle; to assess the consequences of actions; and to deal with risks and changes.
- **Normative competency:** the abilities to understand and reflect on the norms and values that underlie one’s actions; and to negotiate sustainability values, principles, goals, and targets, in a context of conflicts of interests and trade-offs, uncertain knowledge and contradictions.
- **Strategic competency:** the abilities to collectively develop and implement innovative actions that promote sustainability at the local level and further afield.
- **Transdisciplinary collaboration competency:** the abilities to learn from others and to transcend the traditional boundaries of one’s own discipline or profession; to understand and respect the needs, perspectives and actions of others (empathy); to understand, relate to and be sensitive to others (empathic leadership); to deal with conflicts in a group; and to facilitate collaborative and participatory co-creation for problem solving.
- **Critical thinking competency:** the ability to question norms, practices, opinions and established theories; to reflect on own one’s values, perceptions, perspectives and actions; and to take a position in the sustainability discourse.
- **Creativity competency:** the ability to combine anticipatory, transdisciplinary collaborative and critical thinking competencies to be innovative and to think creatively about solutions to complex problems.
- **Self-awareness competency:** the ability to reflect on one’s own role in the local community and (global) society; to continually evaluate and further motivate one’s actions; and to deal with one’s feelings and desires.
- **Integrated problem-solving competency:** the overarching ability to apply different problem-solving frameworks to complex sustainability problems and develop viable, inclusive and equitable solution options that promote sustainable development, integrating the above-mentioned competences.

According to UNESCO (Education for Sustainable Development Goals: learning objectives) there is general agreement that sustainability citizens need to have certain key competencies that allow them to engage constructively and responsibly with today's world. These are cross-cutting competencies that are necessary for all learners of all ages worldwide, developed at different age-appropriate levels. These key competencies are here adopted and expanded to understand which competencies universities need to develop in the learners at university level (Box 2).

Students need to learn how the complexity of a problem defines the level of complexity of the approach needed to deal with the problem. Well defined (so-called "simple") problems may very well be solved in a most effective way within disciplines (intra-disciplinary competence), however, to ensure that the solutions contribute to sustainable development, the students need interdisciplinary competence to evaluate consequences of the solutions in the wide system context. Other, and more wicked problems may demand transdisciplinary collaborative approaches that create "a unity of intellectual frameworks beyond the disciplinary perspectives" (Stember, 1991).

Box 3: Collaboration across disciplines

Experts in Teamwork (EiT) is a master's degree course at NTNU (Norwegian University of Science and Technology) in which students develop their interdisciplinary teamwork skills. As part of interdisciplinary teams, students get an opportunity to sharpen their skills on major real-life challenges facing society. They also learn to take a meta-perspective on their teamwork cooperation during the project. The course is compulsory for all students in master's programmes and programmes of professional study at NTNU.

CityStudio Oslo is an inter-institutional innovation hub hosted by UiO (University of Oslo) and Oslo city. In this educational project, which is inspired by CityStudio Vancouver, students across several institutions (UiO, NMBU, BI, AHO, OsloMet) work together with staff and community to design experimental projects that make the city of Oslo more sustainable and liveable. The students get the opportunity to work directly with urban challenges, and the CityStudio is an example of transdisciplinary collaboration involving both academia and society.

The Sustainable entrepreneurship course at NMBU (Norwegian University of Life Sciences) is aiming to change the curriculums and teaching methods to empower students with the ability to solve complex problems through innovation and entrepreneurship in an interdisciplinary context using design thinking and user-centred learning. Through cross-disciplinary creative idea generation and concept development the students learn, by using the sustainable business concept, to find innovations that can contribute to new and disruptive solutions that can make a difference.

Bergen Global is a meeting arena where UiB (University of Bergen) host more than one hundred lectures, seminars and debates annually. All events are free and open to the public, and many are streamed and available online. Every summer, Bergen Summer Research School welcomes 100 PhD candidates from all over the world, to spend two weeks with some of the best researchers in Bergen to discuss and explore some of the biggest challenges facing the world. Forum for Science and Democracy, SDG Bergen and Bergen Global arranges monthly university wide meetings to discuss the global challenges, the SDGs and the role of university-based knowledge.

The transdisciplinary approach may, typically through a design thinking process (e.g. Razzouk, and Shute, 2012), not only lead to the co-creation of new solutions to and perspectives on a problem, but also transform the perspectives on the involved disciplines themselves. Furthermore, training student's transdisciplinary competence may also support academic and social values as openness, tolerance and unbiasedness in the way they learn to acknowledge different perspectives and become aware of the traditional biases of scientific disciplines and cultures. In Box 3 are some examples of how universities engage at training collaboration and trans-disciplinary competence in their studies.

The students face the global challenges through a desire to acquire relevant knowledge for problem-solving. The SDGs expects such engagement to be encouraged and promoted through teaching at the universities. Teaching must not only open up for more inter-disciplinary interactions, but also for more problem-oriented and action-based approaches, where students contribute with ideas about what is relevant knowledge (Box 4). Problem-oriented basic research often means revising established theories due to shifting circumstances. Disciplines have been shaped by societal interaction over time and may thus also be changed by new ways of interacting with society. Students of the future will influence how disciplines change as society changes and can exert this influence the best by learning about *how* the disciplines have been shaped by certain socio-political goals. This calls for a close linkage of the courses in philosophy and sociology of science to the epistemological challenges expressed through the SDGs (Box 5).

Box 4: Problem-oriented and action-based learning

UiT (The Arctic University of Norway) is developing game-based learning in fishery and aquaculture management through the SimFish Model. The enrolled fisheries and aquaculture candidates are multi- and interdisciplinary minds who can fulfil the expectations of both the industry and the society at a large, with focus on sustainability. The objective of the SimFish project is to boost the potential of the FHV (Fisheries and Aquaculture) program at UiT through implementing an innovative approach to interdisciplinary vocational education and training. The Model is committed to the quality standards of teaching and learning through student-centered and active learning, and information and communication technology (ICT) enhanced research-based education.

Educating the future professionals in the agrifood system necessitates a shift in primary focus from lecture and theory to learning and learning communities. Since 2000 agroecology education at NMBU has developed a phenomenon-based and action-oriented approach to how students can learn to become agents of change for sustainable development.

At the UiB Collaboratory, students are in the driver's seat in the design of courses, research projects, journals, and conferences. They organize the Bergen International Student Conference (BISC) and are working with student-led higher education. The UiB Collaboratory is hosted by the Centre for Climate and Energy Transformation (CET) at UiB.

Higher education for the UN 2030 Agenda also means for universities themselves to be sustainable in all its actions. This includes staff awareness of the Agenda, and the ability to promote and act accordingly both in professional as well as in private roles. University institutions need to be examples for society at large, through their own practice. This will inspire the further education of the students. Both in general introductory courses, as well as

later specializations, students must meet teachers/professors with broad understanding of the interlinkages between the goals of Agenda 2030 and interdisciplinary dialogue. Every academic should know and address the consequences of his/her disciplinary viewpoint on the interactions between the social, environmental and economical pillars of the Agenda.

Box 5: Changing the role of disciplines

Examen philosophicum is a mandatory introductory course in philosophy, ethics and the methods of science at many Norwegian universities. At the faculty of mathematics and natural sciences at UiB, this course has been moved toward the end of the bachelor's programme and will focus on ethical and sustainability perspectives in the context of the student's disciplinary context.

At NMBU a new pilot course for BSc, MSc and PhD students will address challenges of interdisciplinarity and expert's disagreements in sustainability research. Every subject matter is situated within a paradigm where the scientific framework is set: theories, concepts, methods, research agenda, etc. Such boundaries are easy to stumble on within any multi-disciplinary institution or collaboration. The students will learn how to transform such controversies into constructive dialogue across disciplines.

3.3. Teacher's education

The universities educate professionals, who again through their working life can contribute to the reduction of social inequality, prevent the destruction of the environment, animal habitats and the atmosphere. Professionals with knowledge and understanding of the interconnection between the social, environmental and natural worlds, can be the most important change agents. Teachers play a particular important role in educating new generations with a growing awareness of our global challenges. Teachers educated within the university sector are key mediators of reliable knowledge about global developments, and their effect on the daily life of local communities. The university curriculum of teachers needs to synthesize different types of knowledge and disciplines, and is the professional education that most strongly require reflection on the interactions (and contradictions) between SDG's. Teachers not only mould future generations, but also act as «public intellectuals», and as models for the rest of the academic community. The teaching profession also may be pioneers in the creation of new way of interacting between those who produce knowledge and those who use it to act and change (Box 6).

The shift towards education for sustainable development which is seen in the teacher's education for primary, secondary and tertiary education is also required in higher education for sustainable development (HESD). Courses given in university pedagogics to give scientific staff teacher training must increase the focus on effective pedagogy for HESD. Teachers at higher education institutions should learn how they can promote a sustainable mindset among the students through their teaching and how to facilitate the students' acquisition of key competences for sustainable development (Box 2). Universities should also consider emphasizing pedagogical competences aimed specially towards HESD in future recruitments of academic staff.

Box 6: Teacher's education for ESD

Since 2005, the teacher education at NMBU has continuously worked towards a coherent, integrative and contextual approach to how a teacher education can support pre-service teacher students' learning and engagement to enact education for sustainable development (ESD) in schools. Throughout the teacher education the students are exposed to contexts, assignments and teaching methods that are relevant to increase their competence in teaching sustainability

Sustainable development by involvement (SDI) is a course in early childhood teacher education at HVL (Western Norway University of Applied Sciences) in Bergen. The course is based on a holistic understanding of sustainability, based on linkages and interdependencies between social, political, environmental, and economic dimensions. The course aims to empower the future teachers, and help them to perceive children as agents of change, as being and becoming eco-citizens.

At UiT, sustainability is included in kindergarten teacher's education using biodiversity and harvesting of local wild food resources as a tool for addressing the SDGs, not only from an environmental, but also from socio-economic and political point of view.

3.4. Student engagement

Students are showing their ability to take responsibility and action towards climate change, inequality and the causes of these crises. They need to be heard across the globe. To support students' collective action it is necessary to cooperate across institutions, governments and borders, and universities play an important role in strengthening and developing broad partnerships for action. To build a sustainable future we need the energy, creativity, and initiative of the universities and young people around the world. Students need a global arena, along the lines of the Norwegian National Students Organization (NSO) (Box 7), where they can discuss universal matters such as quality education, student rights and the SDGs. We need to facilitate the ongoing global discussion among students through the establishment of a global forum, a global student voice.

Box 7: Students' voice

The National Students Organization in Norway (NSO) is comprised by 30 member unions from higher education institutions across Norway and is the country's largest student organization. NSO is a forum for the discussion of topics such as student finances, quality of education, internationalization of higher education, equality and student solidarity. NSO's international representation of students is strongly related to the active membership of the European Students' Union (ESU).

The student's role in the transformation of the higher education sector towards a more sustainable future is crucial. In many cases students are drivers of change and take responsibility towards action when their educational and democratic institutions fail to do so. Universities have an important role to play in putting students on the right path towards creating a sustainable society. Universities must act as role models for students and make sure their values are reflected in actions. Universities should facilitate collaborations towards sustainable development among students and promote a mindset for sustainability (Box 8). This can, for instance, be done through the mentorship systems that exist at Norwegian universities today.

Box 8: Student engagement

At UiT four students are each year employed in part time internships as *sustainability pilots*, one at each of the four main campuses of UiT. The sustainability pilots are working towards a stronger focus on sustainability among the students, for instance by creating events with focus on specific SDGs. The pilots have mentors appointed from the university to guide their work throughout the year.

Similarly, in 2019 UiB employed five students who were tasked with integrating the student perspective in the work towards becoming a climate neutral university.

At BI (Norwegian Business School) BISO Impact (a new body in the BI Student Union) was established to support the new BI sustainability strategy and develop increased student engagement on sustainability. BISO Impact works as a support function for all other units by encouraging and helping them to focus on sustainability. In addition, it works to set sustainability on the agenda for BI, companies, and the students. To strengthen this initiative BISO Impact has developed the BISO Environment Compliance Certificate (BISO ECC) where student units can be certified as so-called Green Units.

3.5. Knowledge base and curriculum development

Whereas the training of key competences (Box 2) and the focus on problem-based learning *per se* may be regarded as education *for* or *as* sustainable development, students should also meet the SDGs, their factual content and their synergies and trade-offs, as content of course curricula. Such education *about* sustainable development may be organized in many and complementary ways, such as

- Creating and/or demanding learning outcomes related to the SDGs
- Making SDGs part of course examinations in some degree programs
- Including perspectives on the SDGs in the PhD programs
- Including SDG relevance in textbooks and course curricula
- Organizing (mandatory) introductory courses in the SDGs for all students
- Creating Bachelor and Master programs in SDGs

As can be recognized from the above list, there are two main approaches to this, 1) include SDG relevant topics in existing courses or programs, and 2) create new courses or programs with direct focus on sustainability. Some examples from Norwegian institutions are given in Box 9.

Box 9: Education about sustainability

At NTNU the sustainability perspective is central in the Master program in Urban Ecological Planning. Urban Ecological Planning (UEP) is a practice-based program that enables students to develop skills and knowledge to address complex urban issues in rapidly changing social, cultural, political and environmental contexts. The program focuses on the complex interdependencies between people, institutions and the built environment in pursuit of equity, efficiency and sustainability in the Global South.

Doing Sustainable Business in Africa is a Master level course at BI which raises awareness and provides knowledge related to corporate responsibility, from a social and environmental perspective, to ensure a sustainable development in Africa. The course looks at what has worked and what has failed – and why – from a business and sustainability point of view.

UiB is in the process of developing a Master's Degree in Sustainability, in order to support ongoing work and new initiatives on sustainability in the Master's education. The university also address sustainability challenges directly in various courses. An example is the course Causes and consequences of Climate Change, which introduce some of the consequences of climate change, such as geohazards, rising sea level, and societal impact. The course will give the student perspective to discuss the UN's Sustainable Development Goals in the context of the ongoing changes in climate. UiB also offer courses addressing SDGs 14 and 15 specifically.

The Master program in Development, environment and cultural change at UiO addresses a range of questions. What are the key systemic causes of the so-called Anthropocene era? How are different lives lived under this new planetary condition? What are the main challenges in creating more sustainable futures? Among the learning goals for this course is a deep understanding of ethical challenges involved in researching sustainable development, including corresponding academic dilemmas and responsibilities.

Since 1986 Noragric at NMBU has addressed sustainability issues like poverty, livelihoods, gender, property rights, environmental management, conflict, peace building and post-conflict development in the Global South in the study programs. Today Noragric offers three Master programs and one Bachelor program within the field of international environment and development studies, covering sustainability issues at a broad scale

The pedagogical challenges of integrating the basic ideas of the UN 2030 Agenda in the teaching and curricula of established disciplines is formidable, but it is even greater in interdisciplinary fields of study and in potentially new disciplines. Problem-oriented basic research on the SDGs produces knowledge that can be integrated in established curricula, but may also open up for new kinds of teaching and certification of students that challenge established routines, academic titles, and expectations about how education and work relate.

While the SDGs can be integrated with established curricula, they will also transform the orthodoxies of disciplines and demand renewal of epistemologies in line with a new understanding of what is relevant knowledge. The SDGs can be part of the curriculum as such, as a way of educating all students about the UN 2030 Agenda. They can inspire the renewal of disciplines (like in economics and the turn towards resource economics, environmental economics, circular economics or de-growth economics), towards a redefinition of the purpose of a discipline (like the shift in political science from nation-state to the global, or in

earth sciences, with the shift from the study of matter to the study of the mutual configuration of human/matter), to mention a few aspects.

4. Promoting an SDG-oriented transformation in higher education

4.1. Dedicated leadership

The role of the University is to protect the academic freedom and to secure good working conditions for university professionals, as well as upholding the social power to present to the world what academics see as the most relevant knowledge to the problems we are facing. In seeking to make knowledge relevant for the SDGs, the academic community need the support from the university leadership, especially when new knowledge challenges the old disciplinary and administrative order, the established systems of evaluation and rewards, and the established ways of linking relevance to actors of society. The leadership of a university must show that they trust the rationality of creative actions, as these actions relate to the SDGs. This means opening for creativity and flexibility in ways of teaching (as discussed in section 3), types of knowledge evaluation, curriculum changes, academic mobility between disciplines, greater student mobility between disciplines and faculties and between universities and society (lifelong learning), and acceptance of new types of disciplines where students and teachers get together to explore combinations of knowledge. At governmental level, law and regulations for higher education must not put restrictions that work as hindrances for this flexibility.

The university organization, which today rewards specialization and academic achievements based on highly structured and traditional orthodoxies, needs to reward academic creativity differently if knowledge for the SDGs is to evolve. We also have to take responsibility for the use of knowledge, an ethical responsibility that follows from our accountability to the SDGs. The disciplines as they work today, supported by the university leadership and administration, supported and inspired by funding, a multitude of evaluations, rankings, ratings, quality assurance agencies, and criteria of excellence (from citation-indices to journal status), promote disciplinary orthodoxies. The structure of disciplining academics and the institutions they work within, tend to undermine the collaboration needed to transform the very same disciplines.

Re-shuffling and reprioritizing resources demand a dedicated leadership at all levels. The academic leadership carries a heavy responsibility for enabling the disciplinary transitions seen as necessary for promoting the SDGs. Without a dedicated leadership, in close interaction with the academic community and the many small initiatives from below, changes will be hard to realize.

4.2. Multi-sectorial collaboration and silo breaking

According to UN, no government or stakeholder will be able to address the multi-sectoral, cross-pillar global challenges of today alone. We can only achieve the 2030 Agenda if different sectors and actors work together by pooling financial resources, knowledge and expertise ([2030 Agenda Partnership Accelerator](#)). One of the greatest obstacles in approaching the interconnected challenges today, is silo-thinking and a potential inability to overcome internal and institutional barriers towards solving the SDGs. Silo-thinking is a hinderance for transdisciplinary collaboration within universities, typically reflecting thematic, organizational and financial structures, which again are promoted by governmental financing systems, research funding organizations, and approved publication channels rooted in scientific culture. We need more innovative, multisectoral and multi--thematic support systems and partnerships that can be brought to scale quickly, engaging all parts of society, and particularly the young people who will be key to the success of the 2030 Agenda.

Furthermore, in order to make substantial progress towards the fulfillment of Agenda 2030 academia must furthermore increase collaboration with all stakeholders of society, both in public and private sectors, with policy makers and NGOs, as well as the business sector. Academia must provide the knowledge and competence required by society to take sustainable choices and actions. This calls for a closer and more flexible flow of knowledge and competence between academia and society at large, where education is viewed in a lifelong perspective and challenges are faced in a joint effort between all sectors. In this picture it is crucial still that universities remain independent and autonomous institutions providing basic research and education to secure an unbiased knowledge base upon which the best decisions can be made for a sustainable future.

4.3. A revised view on quality of education

To change a university disciplinary structure takes time, dedication and sometimes financial resources. The SDGs, as a global commitment, needs universities at the local level to commit the necessary resources to make our knowledge society prepared to tackle the global

The notion of quality in education should encompass not only high scientific standards within any given discipline, but also the training of key competencies for HESD as well as sustainability knowledge.

challenges. This means that universities must give professors time to create new curriculum, interact across disciplines, reflect on how to present learning outcomes and mediate student qualifications to a working life now asking for “sustainability knowledge”. And the academic community must be given autonomy and time to justify this kind of knowledge within our own qualification

framework, but also in relation to the qualification criteria developed by government. The notion of quality in education should encompass not only high scientific standards within any given discipline, but also the training of the key competencies for HESD (as given in Box 2) as well as sustainability knowledge. That is, quality evaluation systems, both institutional for self-evaluation and governmental QA systems, need to reward initiatives in higher education both *for, as* and *about* sustainable development, in addition to scientific factual and disciplinary

knowledge. This is necessary to integrate the discourse on the global challenges and the SDGs in the curriculum of the different disciplines, and open for new types of academic interaction. On a platform like this, initiatives from below can be spread to inspire other disciplines and universities in their attempts to promote SDG quality in curriculum development and teaching. Both the variety of initiatives and the initiatives that gain common support within the sector may inspire the broader (global) debate about how SDG quality in education and curriculum development may progress.

5. Platform for sharing of best practice

5.1. Typology of best practice examples

This working group was given the task of building a digital platform for dialogue, for presentation of best practices, and the promotion of ideas for SDG-relevant teaching and disciplinary organization. Furthermore, the platform will be used to interact with actors in the sector and other stakeholders. We have collected examples of best practice from across the university sector, but the example list is far from exhaustive. Throughout this report a few examples from the platform have been given in the example boxes to illustrate specific topics covered in the report, but the full data base of best practice examples will become available on the online platform.

Box 10: Typology for best practice examples in HESD

General categories:

- Higher education *about* sustainable development
- Higher education *for* sustainable development
- Higher education *as* sustainable development

Types of activities at the institutional level:

- Over-arching institutional activities
- Mobility and collaboration between institutions; nationally, internationally.
- Quality criteria for sustainability
- Lifelong learning
- Student involvement and overall engagement
- Societal interaction for SDG relevant knowledge; from public mediation to skill-formation.
- Demands on research for the production of new knowledge for curriculum development

Activities at faculty and disciplinary level:

- Course development and learning outcomes
- Program development
- Curriculum development
- Pedagogical development
- Skills-formation and linkages to working life
- Student driven activities
- Demands on research for transformation of curriculum, teaching and interaction with society through skill (trans)formation.

On the platform the examples may be filtered using optional keywords from what is referred to as a typology for best practice examples in HESD. The typology has three main categories with keywords as given in Box 10. Each example is categorized according to one or several keywords from this typology.

5.2. Further platform development

The delivery of the working group is this written report and the platform, which, as of today (the day of report finalization) is situated at a temporary site. It remains to find the optimal placement and “owner” of the platform to secure the necessary competence for further platform development. It is crucial that the universities continue to collaborate to enhance the quality of higher education for sustainable development by sharing examples of best practice. The working group therefore recommends that the platform is governed as a cross-sectorial collaboration, either through a completely shared responsibility comprising both funding, content and technical operation, or with a university as owner, securing funding and technical operation, but where a national cross-sectorial committee is securing content and quality. Furthermore, the National University Committee for cooperation on the UN 2030 Agenda for Sustainable Development should consider further action to make this national initiative into a global initiative, for instance, in collaboration with UNESCO.

6. Final remarks

The issues raised by the Global agenda asking for a “transformative shift” and a new development model, cannot be realized unless all actors in society move in the same direction. Universities, through their roles as producers of the knowledge base for a society (research) and through dissemination and spreading of knowledge, are the most important change-agent. Our platform for best practice based on collaboration between universities, show how universities *together* can drive these changes. A mutual learning process through continuous exchange of ideas and experiences makes us leapfrog. The best way to reach a “transformative shift” within the short timeframe we have is through collaboration and sharing of “best practice”.

Strengthening the collaboration between the universities (as in this platform) will also strengthen the role of the universities in society and make the universities a more influential voice when we interact in different ways with the economy, politics and public administration. The collaboration between universities will not just be important in changing other parts of society, but also give the university sector a stronger voice and increased responsibility for these changes. The use of knowledge within the economy and the political system becomes an arena for discussion between universities and other societal sectors, based on an ethical commitment to the changes we must go through. Thus, by steering this process together, universities

A “transformative shift” within the short timeframe we have, can best be reached through collaboration and sharing of “best practise”.

take a greater ethical responsibility for how knowledge penetrates society and how we educate students, professions, or the general public. Furthermore, we have a common responsibility to strengthen the independence and freedom of academic voices in their different interactions with other institutions of society. This will influence how we interact with funding sources at all levels, the content of agreement on applied research, etc. But, first of all, it is a question of developing a common profile of the academic community, the academic profession, which through its teaching, curriculum and choice of topics for research, show that we are a voice within society taking responsibility for the “transformative shift” the SDGs seek to drive us towards.

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