Visby Recommendations for enhancing ESD in Teacher Education

Agenda 2030: SDG 4.7
UNESCO GAP on ESD
Action Area 3
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Cover photo by Dag Lanestedt.
We wish to express a sincere thanks to the women and men from the 47 countries all over the world who so graciously participated in the Visby conference ‘Bridging the GAP - Educators and Trainers’. During the course of the gathering, we had invaluable intellectual dialogue and sharing of experiences in ESD and teacher education. Without them, the completion of this report with recommendations for enhancing ESD in teacher education would not have been possible. At SWEDESD, we thoroughly enjoyed the conference and learned much from the theoretical and practical experiences that we share with all of you.

We would like to express our deep gratitude to Pernilla Andersson and her team of rapporteurs. They have worked tirelessly during and after the conference to put this report together.

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<tr>
<td>BBCC</td>
<td>Baltic &amp; Black Sea Circle Consortium</td>
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<td>BUP</td>
<td>Baltic University Program</td>
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<td>BSRESDN</td>
<td>Network on Education for Sustainable Development within the Baltic Sea Region</td>
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<td>CAREC</td>
<td>Regional Environmental Centre for Central Asia</td>
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<td>CEMUS</td>
<td>Centre for Environment and Development Studies</td>
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<td>CSD Uppsala</td>
<td>Uppsala Centre for Sustainable Development</td>
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<td>ECE</td>
<td>Economic Commission for Europe</td>
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<td>EEASA</td>
<td>Environmental Education Association of Southern Africa</td>
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<td>EFA</td>
<td>Education For All</td>
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<td>ELRC</td>
<td>Environmental Learning Research Centre</td>
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<td>ESD</td>
<td>Education for Sustainable Development</td>
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<td>ESSA</td>
<td>Education for Strong Sustainability and Agency</td>
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<td>ICT</td>
<td>Interactive Communication Technology</td>
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<td>GAP</td>
<td>Global Action Programme</td>
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<td>GEM Report</td>
<td>Global Education Monitoring Report</td>
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<td>GTCS</td>
<td>General Teaching Council Standards</td>
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<td>INTEI</td>
<td>International Network of Teacher Education Institutions</td>
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<td>LTN</td>
<td>Learning Teacher Network</td>
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<td>MDG</td>
<td>UN Millennium Development Goals</td>
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<td>MESA</td>
<td>Mainstreaming Environment and Sustainability in Africa</td>
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<td>MIE</td>
<td>Mauritius Institute of Education</td>
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<td>MNE</td>
<td>Mongolian National University of Education</td>
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<td>MOOC</td>
<td>Massive Open Access Online Courses</td>
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<td>NYS</td>
<td>Nine-Year School project</td>
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<td>PERL</td>
<td>Partnership for Education and Research about Responsible Living</td>
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<td>RCE</td>
<td>Regional Centre of Expertise</td>
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<td>RUCAS</td>
<td>Reorient University Curricula to Address Sustainability</td>
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<td>SADC</td>
<td>Southern African Development Community</td>
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<td>SAIL</td>
<td>Sustainability Applied in International Learning</td>
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<td>SCIN</td>
<td>SARUA Curriculum Innovation Network</td>
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<td>SWEDESD</td>
<td>Swedish International Centre of Education for Sustainable Development</td>
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<td>TEI</td>
<td>Teacher Education Institutions</td>
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<td>TPS</td>
<td>Teacher Professional Standards</td>
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<td>UNDESD</td>
<td>United Nations Decade of Education for Sustainable Development</td>
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<td>UNCECE</td>
<td>United Nations Economic Commission for Europe</td>
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<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
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This report presents recommendations on how education can advance the Agenda 2030 and UN Sustainable Development Goals (SDGs). This entails advancing Education for Sustainable Development (ESD) by learning from and scaling the ESD initiatives that have been implemented worldwide during the UN Decade on ESD, 2005-2014. Overall, the recommendations include the development and implementation of ESD policies on different levels, as well as support structures for the implementation and follow up on such policies. The recommendations also include professional development in ESD on all levels in the formal education system, along with the development of standards that include ESD in accreditation of teacher education programs and certification of teachers. Moreover, the recommendations emphasize the need for a focus on how the relevance, meaningfulness and quality of existing subjects can be enhanced through the inclusion of ESD, rather than (or in addition to) separate ESD-courses. Many ESD initiatives in the past have been facilitated through different ESD networks and partnerships. However, these networks face difficulties in obtaining funding and therefore, it is recommended that funds be allocated to support ESD networks and partnerships. The recommendations also highlight the quality of existing ESD teaching and learning materials, critical research about ESD, and the need for innovative research methodologies to advance ESD. Lastly, a large share of the world’s population currently has access to internet through mobile phones. This presents an opportunity to reach out to the vast majority; hence, the recommendations include an increased use of social media channels and online platforms to promote ESD.

Scaling of ESD has been gaining a lot of attention in the development field and non-profit sector, and is more recently at the center of the United Nations Educational, Scientific and Cultural Organization (UNESCO) ESD Global Action Programme (GAP). Scaling ESD stems also from the widespread concern that the UN Millennium Development Goals (MDGs) were not achieved as quickly and as effectively as intended. Now, the SDGs face a similar challenge. Many intentions, projects or programs remain small and scattered and therefore have not had a significant impact on tackling the overall challenges. No matter how effective and successful small-scale initiatives are, they are ‘like small pebbles thrown into a big pond’ (Hartmann & Linn 2008). The national and international SDGs cannot be achieved without effective and ethically appropriate horizontal, vertical, functional and spontaneous scaling execution.

As there is no universally agreed definition of scaling found in the literature, ‘scaling’ is commonly used with reference to other terms such as ‘scaling up’, ‘replication’, ‘expansion’, or ‘going to scale’. However, all these terms usually imply moving from a small to a larger impact. Whereas scaling occurs along different dimensions and emphasizes both qualitative and quantitative aspects, scaling up implies scaling vertically and tends to emphasize the quantity dimension. Hence, a successful scaling of ESD should consider scaling as an expansive learning process that is enabled by various drivers, recourses and subjects. Furthermore, one should also consider the challenges and opportunities presented in how the scaling objects are re-contextualized in its new circumstances. This amounts to a carefully guided collaborative process of tending to sustainability, justice, and efficiency factors.
The recommendations on quality education and ESD suggested in this report are based on the knowledge exchange of 126 teachers, teacher educators, researchers and policy-makers from 47 countries at the conference ‘Bridging the GAP – Educators and Trainers’, hosted by the Swedish International Centre of Education for Sustainable Development (SWEDESD) at Uppsala University Campus Gotland, Sweden 2016.

The focus of the conference was on how teachers, trainers and teacher educators through education and the development of SDG Goal 4 – Quality Education can advance Agenda 2030 and thereby accelerate the work for the other SDGs. At the conference, participants shared successes and challenges in scaling ESD in teacher education and training as part of the Global Action Programme on ESD. The conference brought together the Swedish and the international Global Action Programme Priority Action Area 3. Both networks are coordinated by SWEDESD, the International Network of Teacher Education Institutions (INTEI) associated with the UNESCO Chair on Reorienting Teacher Education to Address Sustainability at York University in Canada, and the Learning Teacher Network (LTN). Conference participants were teachers, teacher educators, deans, education leaders and other representatives of teacher education institutions (TEIs), representatives of Ministries of Education and from NGOs.

All plenary sessions and group discussions were attended and recorded by the conference’s rapporteurs. This report is based on the documentation from the various sessions. Participants were given the opportunity to comment on a draft report during a period of two weeks before the conference committee made a final decision of the report.

The report consists of three parts: (1) Background information on ESD, Quality Education and the SDGs, and how they relate to each other, (2) Presentation of the Visby recommendations for reorienting teacher education and, (3) Examples on how ESD is addressed in teacher education institutions and what has been done by TEIs and others so far in advancing ESD.
In 2013, the 37th session of the General Conference of UNESCO endorsed the Global Action Programme on ESD as the follow-up to the UN Decade of ESD. GAP builds on the achievements of the Decade, and aims to generate as well as scale up concrete actions in ESD. During the UN Decade of ESD, four areas of emphasis were identified: (1) Improving access and retention in quality of basic education, (2) Reorienting existing educational programmes to address sustainability, (3) Increasing public understanding and awareness of sustainability, (4) Providing training for ESD to all sectors of the workforce (UNESCO 2012).

There is a growing international recognition of ESD as an integral element of quality education (UNESCO 2012, UNESCO 2014, Laurie et al. 2016). ESD can help to achieve other desired outcomes, such as improved student attendance and problem-solving skills, critical thinking and systems thinking while providing a deeper understanding of the topics under study. ESD increases the relevance of learning content, gives more meaning to the curriculum, as well as provides reason and purpose for developing historical and geographical knowledge. Furthermore, ESD contributes to innovative teaching approaches. This in turn increases the variety of assessment methods including the assessment of competencies and deeper knowledge (Laurie et al. 2016). Accordingly, it could be argued that the inclusion of sustainable development in education implies education of better quality. At the same time, education also contributes to sustainable development. This is emphasized in the 2016 Global Education Monitoring Report (GEM Report) where education was established in the heart of sustainable development and the SDGs (Benavot et al. 2016), in addition to where SDG 4.7 reflects UNESCO’s GAP on ESD.

This implies that the agenda of the Education for All (EFA) and the agenda of the SDGs have merged in SDG Goal 4 – Quality Education. Furthermore, it is important to recognize that needs for development and basic needs such as school buildings and drinking water also is a requirement for successful implementation of ESD. These are needs linked to SDGs, where governments, industries, businesses, civil societies and individuals all are responsible. Every profession has an important role in educating a new generation entering the field of expertise. By taking responsibility to educate a future generation of teachers in ESD, teacher educators have the responsibility to both ensure quality education for all and to contribute to the achievement of all SDGs.

Future challenges for the implementation and broadening of ESD across countries were identified through interviews with education leaders in 18 countries. This emphasized the need to integrate ESD across the curriculum and professional development for teachers. Moreover, it is important to ensure ESD policy implementation and for school leaders to adopt ESD management practices to support ESD in the curriculum (Laurie et al. 2016). These challenges are addressed in the next chapter presenting a selection of ESD initiatives, recommendations for TEIs and concrete actions suggested by conference participants.
What is ESD?

ESD is holistic and transformational education that addresses learning content and outcomes, pedagogy and the learning environment.

ESD empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity. It is about lifelong learning, and is an integral part of quality education.

ESD refers to learning content, pedagogy and learning environments, learning outcomes and societal transformation.

ESD as learning content implies the integration of critical issues such as climate change, biodiversity, disaster risk reduction, along with sustainable consumption and production into the curriculum.

ESD pedagogies imply teaching and learning designs that are interactive and learner-centered enabling exploratory, action-oriented and transformative learning. Learning environments should inspire learners to think and act for sustainability.

ESD learning outcomes include core competencies such as critical and systemic thinking, collaborative decision-making, and taking responsibility for present and future generations.

ESD achieves its purpose by empowering learners of any age, in any education setting, to transform themselves and the society they live in. This involves enabling a transition to greener economies and societies. Moreover, it is about empowering people to be ‘global citizens’ who engage and assume active roles, both locally and globally, to face and to resolve global challenges and ultimately to become proactive contributors to create a more just, peaceful, tolerant, inclusive, secure and sustainable world.

(UNESCO Roadmap for Implementing the Global Action Programme on Education for Sustainable Development 2014)
Teacher Education and ESD

During the United Nations Decade of Education for Sustainable Development (UNDESD) from 2005 – 2014, ESD in teacher education had progressed greatly in terms of promotion, advancement, and implementation. Reorienting teacher education in TEIs required traversing several phases: building awareness, capacity development, experimentation, and implementation of good practices (McKeown & Hopkins 2014). The same sequence is applicable during the GAP for TEIs that have not undertaken the process to reorient teacher education to address sustainability. It is also possible that the experimentation phase could be shortened due to the availability of good practices in ESD that were published during the UNDESD. Progress during the UNDESD came at many levels. For example, at the national level in Scotland, the General Teaching Council for Scotland set professional standards for teachers that included considerations for sustainability, equity, social justice, and ecological diversity (The General Teaching Council for Scotland 2012). In Pakistan, elements of sustainability were included in the accreditation standards for TEIs (Mirza 2015). Much of the progress at the institutional level began with individuals working within their own spheres of influence to change their classroom practices. Some faculties of education included ESD in their mission statement. Others developed new courses, certificates and degree programs (McKeown & Hopkins 2014). The lessons learned from efforts during the UNDESD will serve as a foundation for scaling-up ESD in teacher education in the UNESCO GAP (2015-2020).

The Guidelines and Recommendations for Reorienting Teacher Education to Address Sustainability (Hopkins & McKeown 2005) contained recommendations for action on the following:

- Ministerial and national involvement
- Community and regional/provincial involvement
- Change within institutions of higher education
- Across IHEs
- Within Faculties of Education
- Related to engaging pre-service and in-service teachers
- Individual faculty member
- Funding and other resources
- Partnerships
- Research
- Communications
- Information technology

Hence, the recommendations stemming from the Visby conference are based on and categorized in a similar manner to the headings above. These recommendations complements the Guidelines and Recommendations mentioned earlier. At the end of the conference, participants made pledges for action to reorient teacher education towards addressing sustainability. Examples of the pledges are included in the text boxes throughout this report.

The Visby recommendations primarily address teacher educators and TEIs, but it is also relevant for other actors such as the Ministries of Education, primary, secondary and higher education teachers as well as international and non-governmental organizations that are actively involved in teacher education.
At the exhibition. Professor Pete Higgins, University of Edinburgh. Picture by SWEDESD.
2.1 Ministerial and National Involvement

On a global level, examples of national ESD policies are being developed and adopted. ESD has been integrated in curricula, as teacher education standards have been revised to include ESD, accreditation standards for TEIs amended to include elements of ESD and national ESD advisory groups have been established. Additionally, teacher educators have been involved in defining and clarifying the meaning of SD/ESD in different contexts.

Political and financial support is vital for the implementation of ESD. Financial support for ESD, national ESD policies and ESD policies on teacher institution level are vital to advance ESD, however, they still do not exist in all countries or institutions. Bottom-up processes are also important as they provide examples that can inspire and help politicians and policy-makers working for ESD. In some countries where ESD policies are already in place, the process has been top-down only and the practitioners do not have hands-on experience to implement ESD. A combination of top-down and bottom-up approaches has been successfully applied in Uganda and Finland, these cases can serve as inspiring examples for a successful development of ESD policies (see Box 2).

One of the challenges that have been identified in the implementation of ESD on a national level is that the responsibility for ESD and the SDGs often falls under different ministries (e.g. health, environment, commerce, maritime, etc.). National ESD-policies may exist under ministries of environment or under ministries of education. This is a legacy from the early 1990s when ministries of environment often were in charge of implementing Agenda 21. ESD-policies for non-formal education may best reside in other ministries; while ESD for formal education may best reside in ministries of education.

Furthermore, the need for ongoing clarification of the concept and philosophy of ESD, including the pedagogical framework, is particularly important in countries where ESD is not a well-known concept. In addition, where ESD policies have been written and implemented, there is a strong need to bridge the gap between policy and current practice. It is therefore recommended that:

**1A** Ministries of education, in collaboration with TEIs and other stakeholders, develop mechanisms and structures for implementation of and follow up on ESD.

**1B** Ministries of education, in collaboration with TEIs and other stakeholders, develop policy goals and objectives that incorporate ESD (as an important aspect of quality education) in primary and secondary curriculum as well as teacher education (where ESD has not been integrated). While the national policy goals need to be clear, it is also important that policies permit teachers and students to develop locally relevant content.

**1C** ESD is included in legislation for the formal education sector to ensure that all school policies relating to curriculum and examinations are harmonized with existing ESD policies.

**1D** Governments should formulate committees to analyze their existing education policies in light of the SDGs in order to identify ways in moving forward.
Accreditation and certification bodies in collaboration with TEIs develop standards that include ESD for initial and accomplished teacher certification as well as early-childhood teacher certification.

Accreditation and certification bodies in collaboration with TEIs develop standards that include ESD in accreditation of teacher education programs.

Teacher education is made visible in regional strategic policy documents.

Box 2

ESD and the Curriculum Reform in Finland 2016

Finland, a high-ranking PISA country, has recently reformed its curriculum to become more future-oriented, better address sustainable development and create better learning environments. The reform involved supporting municipalities and schools to develop as learning communities. It also emphasized inquiry-based, deep learning and multi-disciplinary learning modules. The main aim was to strengthen the active role of pupils and encourage a collaborative approach in teaching and learning, as well as to enhance the meaningfulness and joy of learning. In contrast to many other countries, teacher education is popular in Finland. In general, teachers are well educated, have pedagogical autonomy and are respected in the society, which also is reflected in media coverage of the education system. Trust is a cornerstone in the Finnish education system. This reflects a collaborative mindset with strong national goals and support systems, while local autonomy and responsibility is enabled as there are no school inspections or comparisons between schools. The reform process aims at building on these strengths to contribute to a coherent policy through a combination of top-down and bottom-up approaches. Frameworks, directions, resources and networks were provided from a state-level, while feedback, experiences and practical solutions were provided from a local-level. This process helped teachers to make sense of what was happening and understand how it could be beneficial to their work, at the same time as the state-level could benefit from teachers’ expertise, including contradictory views.

New national ESD policy in Uganda 2016

Makerere University is one of seven TEIs in Uganda that formed a task force to support the development of ESD national education policy in cooperation with the Ministry of Education. The task force approached different stakeholders such as local governments, teacher-training colleges, schools, and NGOs to generate more voices from the ground on what needed to be included in the new policy. The new national ESD policy was published by the end of 2016, and will provide a framework for reorienting informal and formal education towards ESD.
2.2 Community and Regional/Provincial Involvement

Some countries have a decentralized education system where different regions and provinces are responsible for primary and secondary education. In such circumstances, the recommendation for changes to curriculum, assessment, and teacher certification in the previous chapter also apply to regional and provincial levels.

Communities have been involved in ESD initiatives in different ways. A ‘whole school approach’ describes the collaboration between a school and TEIs with surrounding communities to address local sustainability issues. This approach also implies the integration of sustainable development throughout the curriculum, rather than being taught as a separate subject. Moreover, whole school approaches have also evolved during the last decade. Several examples of local sustainability issues being addressed by TEIs in collaboration with community actors were reported at the Visby conference. Examples involve initiatives to address disaster risk reduction and climate change adaptation gaps from the Typhoon Haiyan in the Philippines (see Box 3), water-quality monitoring in Zambia, capacity building for women in Botswana and environmental stewardship and holistic development in Ethiopia. These examples illustrate the diversity of local sustainability issues and how they can be addressed through collaboration between TEIs, NGOs and other community institutions.

Box 3

Students and Community involved in Climate Change Adaptation and Disaster Risk Reduction Strategies

After typhoon Yolanda struck the Philippines in November 2013, Leyte Normal University subsequently established various initiatives to address gaps related to disaster risk reduction and climate change adaptation. Both students and the community were involved in the planning and implementation processes. Additionally, both groups volunteered to rebuild houses and infrastructure (e.g. the construction of a flood-control water catchment basin and water recovery facility). This resulted in an increased use of renewable energy sources. The natural disaster significantly shaped and influenced the perception of sustainability amongst the entire community.

Pledge from conference participants:

‘I will inform and discuss with local politicians what their expectations of our pre-schools are.’
/School Principal
Student-led initiatives have played a significant role in the work to enhance ESD at higher education institutions. In Zambia, students have developed innovative ideas and projects after identifying sustainability problems at their university campus. In Sweden, students are coordinating interdisciplinary sustainability courses and programs. Moreover, students from several universities in Switzerland have established a 'sustainability week'. This bottom-up, student-led approach has also resulted in recommendations for how universities could enhance their work for sustainability. Other initiatives include workshops for faculty staff from various disciplines on how to integrate ESD in their work. Inter-disciplinary teaching and learning approaches are an important aspect of ESD, as the field is dependent on different disciplines. However, ESD in teacher education is often available only through separate elective courses rather than being systematically integrated in the program.

There is a need for professional development to address this deficit so that pre-service teachers, teacher educators and faculty members can integrate ESD within their specialties and working environment while using their disciplinary skills and knowledge. It is therefore recommended that:

3A **ESD is to be included in professional development for leaders at all levels (i.e. school heads and principals, deans and rectors at faculties of education and the vice-chancellors.)**

3B **ESD workshops/courses should be offered for teacher educators at all levels, with recognition for participation and incentives to implement what is learnt from workshops such as course credits or a certificate of attendance.**

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**Multi-Facultative professional development on ESD, Hashemite University**

Hashemite University in Jordan, conducted in-service professional development workshops on ESD for faculty staff from various disciplines. Different teaching approaches to promote tolerance and equity were also shared in the workshops. This has led to the infusion of sustainability in 20 courses within the Faculties of Educational Sciences, Applied Sciences, and Information Technology. The workshops were carried out as part of the RUCAS (Reorient University Curricula to Address Sustainability) project, initiated by the UNESCO Chair in ICT in Education for Sustainable Development, Department of Primary Education, University of Crete, and in cooperation with the RCE Crete (Regional Centre of Expertise on ESD). It was financially supported by the European Commission's Tempus program for a three-year period (2010-2013). RUCAS aimed to support the development of ESD in the Higher Education sector in Egypt, Jordan and Lebanon and to build capacity amongst university staff to embed ESD in curricula and pedagogy. The RUCAS model was developed as a tool to guide the revision, implementation and evaluation process of reorienting university curricula to address sustainability.

**Pledge from a conference participant:**

‘I will mobilize other staff in my college to develop a University ESD policy in line with the National ESD Policy and continue to scale up ESD activities and integration in teaching.’

/Teacher educator
2.4 Change within Faculties of Education

During the UNDESD, many ESD initiatives were undertaken within faculties of education in TEIs around the world. However, the progress of implementation differs greatly within countries and regions. Professional development in ESD for teacher educators is important to support progress, while the lack of monitoring and evaluation schemes of ESD implementation presented a challenge. The scaling of current ESD initiatives within institutions requires institutional transformation at faculty level. TEIs in Botswana have implemented ESD within their faculties through professional development and enhancement of institutional capacity (see Box 5). It is therefore recommended that:

4A TEIs further a systematic integration of ESD in teacher education. Rather than, or in addition to, introducing new courses, there should be a focus on how the relevance, meaningfulness and quality of existing subjects can be enhanced through inclusion of ESD.

4B Regional partnerships are strengthened and used in professional development of ESD for teachers and teacher educators.

4C ESD is included in professional development for leaders at all levels (i.e. school heads and principals, heads of disciplinary departments at TEIs, deans and rectors at faculties of education).

Box 5

Change-Projects to Support ESD Implementation in Syllabuses and Working Practices in TEIs in Botswana

Several TEIs throughout Botswana have undertaken change-projects to enhance sustainability and agency in their institutional practices and learning processes. The projects were based on the SWEDESD ESSA project, which aims to enable teacher educators and their institutions to introduce innovative methods and relevant ESD-related content in their syllabuses and working practices. The University of Botswana, in partnership with the Ministry of Education, is supporting these change projects in TEIs throughout the country. Concrete change projects were developed throughout a five-day workshop, resulting in projects mainstreaming ESD in the primary school curriculum, curriculum innovation, ESD material development, as well as rainwater harvesting for sustainable consumption.

Pledges from conference participants:

‘Establish, in collaboration with the Dean of the Faculty of Education, a Faculty ESD Steering Committee.’ /Teacher educator

‘Reorient a number of courses offered in the Faculty of Education toward sustainable development in collaboration with concerned staff members.’ /Teacher educator
2.5 Change Related to Engaging Pre-Service & In-Service Teachers

Pre-service and in-service teachers acquire ESD knowledge and experiences in different ways. Pre-service teachers, in-service teachers and teacher educators may all inspire each other. ESD materials and teaching approaches could be developed by pre-school, primary and secondary teachers as well as by teacher educators or researchers. Many ESD initiatives and activities within TEIs aim to infuse ESD into teaching practices, within-service teachers playing a significant role in such activities. Other initiatives include the integration of ESD in teacher education examination goals. In-service professional development, focusing on inter- and trans-disciplinary perspectives on complex sustainability issues, participatory teaching approaches and using ESD-materials, is important for the scaling of ESD initiatives. It is therefore recommended that:

5A TEIs collaborate with primary and secondary schools to provide continuous professional development in ESD to practicing teachers.

5B Professional development and national mentoring programmes in ESD for primary and secondary teachers is developed.

5C Professional development networking is strengthened.

5D TEIs/ESD researchers collaborate with teachers to carry out research about ESD/quality education in educational/classroom practice.
2.6 Recommendations on Partnerships

There are currently several active networks of TEIs undertaking collaborations, with the objective of reorienting their organizations to address sustainability. These include regional networks such as the Caribbean Network, Kazakhstan and Central Asia, Mainstreaming Environment and Sustainability in Africa (MESA), SADC - Southern African Region, the Baltic University Program (BUP) and Baltic to Black Sea, North-South partnerships such as Sweden – Southern Africa and Germany – Ethiopia as well as international networks such as INTEI (see Box 6). Active networks and partnerships play an important role in the scaling of ESD. In addition, the role of religious organizations working with ESD should also be recognized. By exchanging experiences, knowledge and best practices with each other, different TEIs can collaborate in research projects and tackle common regional sustainability issues. A collective voice has more power to call for change and inform decision-makers within the educational sector.

Box 6

The International Network of Teacher Education Institutions (INTEI)

INTEI was established in 1999 in association with the UNESCO Chair on Reorienting Teacher Education to address sustainability. It is comprised of teacher education institutions from approximately 60 nations around the world. The member institutions work to incorporate sustainability into their programmes, practices and policies. Each member institution addresses environmental, social, and economic contexts to create locally relevant and culturally appropriate teacher education programmes for both pre-service and in-service teachers.

Ethiopian Research Centre partners with Local TEIs and Churches

The Centre for Environmental Stewardship and Holistic Development was established in 2014. The centre supports Teacher Education and Theological Colleges in their efforts to integrate issues related to sustainable development into their academic and research programs. It provides training and education on environment, gender, health, development, conflict resolution and peace building. It aims to promote a culture of critical thinking among community development managers and practitioners through need-based awareness raising and skill enhancement seminars, workshops, symposiums, and development dialogues. It seeks to empower churches to address the needs of their communities.

Pledges from conference participants:

‘Work with the Steering Committee for development of an ESD Network of the Americas.’
/Researcher and Teacher educator

‘In my country a network for TEIs for primary school teachers is in place, but not for secondary schools. I will analyze where these TEIs meet and introduce the subject of ESD.’
/Teacher educator

‘I will work for a stronger partnership between local municipalities and education/school leaders and faculties to promote ESD.’/Teacher
New partnerships and the strengthening of existing partnerships are needed, as well as new national and regional centers working for ESD. Nevertheless, it must be recognized that several challenges have been experienced in the past, during the processes of establishing and maintaining regional or international ESD Networks. These challenges include a lack of financial resources in several regions, which affects the capacity to coordinate networks and the communication amongst its members. Many of the existing networks are currently being run with volunteer labor or institutions supporting regional networks with in-kind contributions of human resources, communications, office space, etc. It is therefore recommended that:

6A *Regional networks for ESD are created (where these are currently missing) to foster networking and resource sharing among TEIs.*

6B *Funds are allocated, eg from Governments, to support ESD networks and partnerships.*

6C *Involve other organizations such as religious organizations working for sustainable development in ESD partnerships/networks.*

2.7 Research

Research on the contribution of ESD to quality education is important for the long-term success of ESD. A research base can support ministries and governments working for quality education and therewith towards a more sustainable future. Thus, there is an ongoing need for research on the impact of ESD. Furthermore, the current context for ESD research requires diverse research perspectives and approaches, which calls for research that provides a better understanding of local and regional sustainability issues. This can help to secure that ESD is locally relevant and culturally appropriate. There is also a need to understand how ESD research is, and can be, carried out as a community. Given the multiple modes of ESD research internationally, there is need for a comprehensive mapping of research methodologies. Furthermore, ESD research on values education is a priority.

During the UNESCO decade, a vast amount of ESD teaching and learning materials have been developed and disseminated, however there is a lack of knowledge regarding the quality of these resources. As with other fields of research, a continual relationship with research and practice continuously informing each other is vital. Collaboration between ESD researchers and ESD-practitioners is therefore in the interest both to evaluate the vast amount of ESD teaching and learning materials, and to develop new education materials. It is therefore recommended that:

7A *Guidelines will be developed for creating and evaluating ESD-materials through a research process of consulting and surveying teacher educators and curriculum developers globally.*

7B *Critical research focusing on the imperative of localization of the SDGs, in the context of local communities, is promoted (e.g. the meaning of poverty in different geographic locations and contexts to understand what it means).*
7C Researchers work closer together with other academic disciplines currently conducting research on the meaning of values within the context of ESD.

7D Regional professional development in ESD research and quality education for teachers and teacher educators is developed.

7E Research partnerships are strengthened and developed to support teacher educators and teachers in developing a better understanding of quality education, in relation to local and regional sustainability issues.

7F TEIs collaborate closer with other stakeholders in ESD within different areas of research on both a local and global level.

7G A review of innovative research methodologies (i.e. inter- and transdisciplinary research) and approaches from different parts of the world that draw upon different knowledge systems are compiled, used and disseminated.

7H Strategies are developed to engage policy-makers in ESD research and consult networks of teacher educators in order to present policy suggestions and recommendations in an accessible manner.

Box 7

Indigenous and traditional knowledge within ESD

The University of Zambia has implemented a Master Program on Zambian culture and traditions. Within the program, students explore approaches of conducting indigenous-related research in line with quality education.

The Mongolian National University of Education has been involved in the National Health Program on ‘Recalling indigenous knowledge and Traditional Medicine’. The program promotes indigenous knowledge and traditional medicine, with the aim of raising public awareness on sustainable lifestyles.

A network in Guatemala specializes in education to promote ESD in society. The network aims to preserve Mayan traditional knowledge and includes it in different departments and curricula such as engineering and astronomy. Since 2015, more than 100 teachers of higher education have participated in courses on the Mayan cultural heritage. The network’s slogan is ‘University without walls, classrooms without limits’.

Pledges from conference participants:

‘Carry out case studies on ‘Whole-school development’ and other relevant research on ESD.’ /Teacher educator

‘Strengthen research capacity in each level of education.’ / Teacher educator

‘Forming learning communities of teachers who will design for ESD, conducting research on how they work together and what that may contribute to ESD.’ /Teacher educator
2.8 Communications

Communicating ESD initiatives to the wider audience is essential and of high importance to inform decision makers on all levels. Communication is also important for scaling ESD in teacher education. Today, there are many different and creative ways of how ESD initiatives can be communicated around the world in an accessible way.

The ‘Sustainability week’ in Switzerland is an example of an ESD initiative that has grown in interest and popularity through communication in mass media and online presence. Another example is the student-led and edited online magazine CeMuse, which features blogs, articles and discussions about sustainability issues and documents student activities on sustainability (see Chapter 3.3).

Internet access, especially through mobile phone technology, is increasingly advancing around the globe in both urban and rural areas. It allows more people to receive information online and to take part in discussions and debates. This opportunity can be used for the scaling of ESD. Social media can help to connect with peers and to establish online networks, to exchange experiences and ideas. Videos, animations and pictures are examples of tools with the potential of overcoming language barriers. It is therefore recommended that:

8A Social media channels such as Facebook, Twitter, Instagram, WordPress, YouTube and other media resources are used for networking, blogging, video and photo sharing. These channels can facilitate connection with partners worldwide and a broader online community, sharing of ESD news, projects and experiences.

8B Research and scientific evidence is communicated in an accessible way to enhance communication between researchers and policymakers as well as other stakeholders, especially practitioners of ESD.

8C Regional networks are used to communicate research findings on ESD practice in ESD journals like the Southern African Journal of Environmental Education, Journal of Education for Teaching, Journal of Education for Sustainable Development etc.

Pledge from conference participants:

‘I will develop and share a resource book with best practices from TEIs in my country.’
/Teacher educator

‘I will document change projects in the schools – video clips and use them as advocacy tools in other schools.’/Teacher educator
The use of information technologies in ESD has increased during recent years. However, online platforms for ESD are presently not yet widely implemented. Several of the needs expressed by conference participants could be met by online platforms in combination with blended learning models (see Box 8). Such needs are for instance: introductory courses to ESD, inter- and transdisciplinary ways of addressing SDGs, international teacher-education courses, refugees need for education, and educational materials in many languages. When it comes to developing online platforms, there is a specific challenge concerning funding. Funding agencies are often focused on specific SDGs and are less willing to fund initiatives embracing SDGs in a holistic manner, which is the idea with ESD. Furthermore, considering that there is an abundance of ESD resources available online today, there is also a need for quality assurance through peer-review of online materials and standards or guidelines for reviewing existing materials. Follow-ups on outcomes from ESD and teacher education conferences would also be beneficial.

Despite the challenges and barriers associated with the scaling of ESD using ICTs (hardware, connectivity, bandwidth, ICT literacy, etc.) that need to be addressed, it is recommended that:

9A TEIs collaborate with other TEIs to develop online learning platforms that are free of charge, of high quality and with peer-reviewed resources.

9B Online platforms for teacher education to scale ESD practice are developed. The platforms should enable the sharing of pre-service teachers and teacher educators – between institutions and between countries in – South-South, North-North and North-South collaboration.

9C Postgraduate materials for online professional development of teachers and teacher educators are developed.

9D Existing university courses and course materials are modified for online platforms.

9E Regional courses, which can be accredited by Universities within the region, are developed for online platforms.

9F Online platforms (accessible for all TEIs) are developed, where results and outcomes from conferences can be shared. An online platform could facilitate a common presentation that representatives of TEIs could use for advancing ESD.
Experiences from the conference participants show that it is generally more difficult to receive financial support for ESD-related projects compared to core educational subjects (e.g. science, reading, and mathematics). Furthermore, ESD funding often depends on the current national education policy and national education agenda. The time frame for a change in education policy is often short due to a periodic change of government based on election cycles. In contrast, education is a slow area to impose change. Accordingly, the scaling and expansion of ESD is a challenge because of funding problems. It is therefore recommended that:

10A An enabling environment for partnerships between TELs, i.e. North-South and South-South collaboration is created to make joint applications for funding opportunities from different regions across the globe.

Pledge from conference participant:
‘I will convince policy makers to have special funding for ESD especially ESD research.’ /Teacher educator
EMPOWERING THE TEACHER OF TOMORROW

THE LEARNING TEACHER NETWORK is an international platform for education progress.

- We empower and build capacity of ‘The Teacher of Tomorrow’ as agents for sustainable education and training.
- We unite professionals in education and training to share and learn from frontline teaching and learning.
Bridging the
Educators and

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The 1st Swedish International Programme on ESD Coordination
The 9th Biennial Meeting of the Network of Teacher Educators in the UNESCO Global ESD Network
This chapter presents a selection of different ESD initiatives that were presented at the international ESD conference “Bridging the GAP” in Visby, Sweden in August 2016. The selection of cases reflects the diversity of conference participants and their work. Moreover, it gives an overview of the significant efforts that have been taken towards reorienting educational systems around the world. At the same time, it provides the reader with information about current challenges and questions raised, concerning an inclusive and holistic implementation of ESD within the educational landscape and beyond.

### 3.1 Ministerial and National Level

The following section introduces various reports and practical cases where ESD has been implemented and mainstreamed on national or ministerial levels in line with policies, curriculums or subject syllabuses. In addition, cases of introducing ‘Professional Standards in Teaching’ are presented, which highlight another powerful way to institutionalize ESD. The following examples highlight the strengths and importance of close collaboration between TEIs, practitioners and the ministry or government to facilitate a successful implementation of ESD from policy into practice. An analysis of national ESD policies is first discussed, as listed in the 2016 Global Education Monitoring Report.

**National ESD Policies – An Assessment by the Global Education Monitoring Report 2016**

The 2016 Global Education Monitoring Report is the first of a new 15-year series with the mandate to monitor and report on SDG 4 on education and education targets within the other SDGs. In addition, it analyses various national curriculum documents on their inclusion of sustainable development and global citizenship education through a coding scheme. Countries with a high rate of key terms (more than 40%) related to Sustainable Development included in their national curriculum framework are listed below. It shows that within the past UN decade of ESD, many countries have made an effort to reform their national curriculum on education, as well as to implement values of Sustainable Development. Some examples can be shown from the following countries: Europe: Croatia, Estonia, France, Iceland, Malta, Portugal, Serbia and Sweden. Sub-Saharan Africa: Gambia, Mauritius, Namibia, Rwanda and Zambia. Latin America and Caribbean: Chile, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, Panama and Peru (UNESCO 2016 p.294).

**Further reading**

http://en.unesco.org/gem-report
The Global Education Monitoring Report:
http://unesdoc.unesco.org/images/0024/002457/245752e.pdf

This evaluation report summarizes the progress, challenges and achievements of Economic Commission for Europe (ECE) member states from 2005 – 2015 in implementing the Strategy for ESD. Various initiatives of integrating ESD within formal, non-formal and informal education are highlighted.

Further reading
See also the Framework for the future implementation of the UNECE Strategy for Education for Sustainable Development (2016).

National ESD Policy, Uganda

Makerere University in Uganda is one of seven TEIs that formed a task force to support the development of ESD national education policy in cooperation with the Ministry of Education. The task force approached different stakeholders such as local governments, teacher training colleges, schools, and NGOs to generate more voices from the ground about what is needed to be included in the new policy. The new national ESD policy will be published by the end of the year 2016, and will provide a framework for reorienting informal and formal education towards ESD. This case is an example of how practitioners can contribute to the development and implementation of ESD policy.

ESD Mainstreaming in School Curricula and Subject Syllabus, Mauritius Institute of Education (MIE)

The MIE is an acting arm of the Ministry of Education and Human Resources, Tertiary Education and Scientific Research in the Republic of Mauritius. MIE conducts educational research as well as coordinates teacher education and the curriculum development. A nine-year school (NYS) project was recently embarked on and the NYS Basic Education document (2015) was developed to mainstream ESD. The National Curriculum Frameworks for pre-primary, primary and secondary levels include relevant content areas, pedagogies and competencies of ESD. Teaching material and teacher manuals for all subjects at primary and secondary level have been developed. The MIE has been working closely with international bodies such as UNESCO and regional organizations to provide quality education and ESD involving a democratic process and participation approach.

Further reading
www.mie.ac.mu
ESD in Teacher Professional Standards (TPS) - Examples from Zimbabwe, Scotland and China

The Government of Zimbabwe included ESD within the Handbook on Teacher Professional Standards, which is used for in-service training for teachers. The TPS provides teachers with a better understanding of Zimbabwean culture to apply the ubuntu/hunhu philosophy in the classrooms, workshops and fields of practice. This example demonstrates how local culture and philosophy is implemented within Teacher Professional Standards through an infusion into teaching practices both within and outside of the classroom.

Further reading

Since August 2013, the General Teaching Council for Scotland provides and maintains Professional Standards for teachers built on themes of values, sustainability and leadership, in line with the wider agenda of Learning for Sustainability.

Further reading
www.gtcs.org.uk/professional-standards/professional-standards.aspx


Further reading
http://www.esdinchina.org/

Ministerial Advisory Committee for putting ESD into Practice, Scotland

In 2011, Scottish Ministers established a Ministerial Advisory Committee on Learning for Sustainability, of which the University of Edinburgh was an active participant. The advisory group delivered a report with 31 recommendations to the ministry in 2012, which was then subsequently accepted by Scottish Ministers in March 2013. The report introduced Learning for Sustainability as a concept and process, which weaves together sustainable development education, global citizenship and outdoor learning into a unifying vision of learning. The group continued the work together with representatives of various organizations and the Scottish Government to implement the recommendations that are now fully integrated into all Professional Standards. These recommendations relate to all Scottish schools, teachers and education professionals. This case represents an example of how ESD policy can be put into practice.

Further reading
Report ‘One Planet Schools Working Group’:
http://www.gov.scot/Topics/Education/Schools/curriculum/ACE/OnePlanetSchools


National Regulation on Curriculum Reorientation, Pakistan

The supreme court of Pakistan has ordered that all educational institutions at all levels will include curriculum on religious tolerance and peace, with a timeline given for implementation.

3.2 Addressing Local Sustainability Issues
The following examples demonstrate how TEIs incorporate their local surrounding and specific contexts with ESD learning and their understanding of sustainability in form of student projects, community-based research or cooperation with local NGOs or other organizations. Local concrete examples often help teachers and teacher students to understand the complexity and interconnection of sustainability issues, as well as to apply and connect it to their teaching subjects.

Implementation of Climate Change Adaptation and Disaster Risk Reduction Strategies at Leyte Normal University, Philippines

After typhoon Yolanda struck the Philippines in November 2013, Leyte Normal University established various initiatives to address disaster risk reduction and climate change adaptation gaps within the university. Both students and the community were involved in the planning and implementation processes and volunteered in rebuilding houses and infrastructure such as the construction of a flood control catch basin, water recovery facility and an increased usage of renewable energy sources. The natural disaster significantly shaped and influenced the perception of sustainability amongst the whole community.

Water Monitoring Project with Local Community Engagement, University of Zambia

The University of Zambia is involved in a water quality monitoring project in cooperation with the government. The goal is to raise awareness and to inform local communities about a more sustainable use of water and enhance water conservation practices. The close work with the community has led citizens to realize how they are part of the problem and at the same time, how they can contribute to change. As there is currently no monitoring system for water quality in place, the PhD students are helping to develop a standardized monitoring system for the community.

Local NGOs and Community Initiatives as Learning Resources for Teacher Students in Botswana

The University of Botswana is involved in community-based research with local communities such as Kgetsi Ya Tsie, a Women’s NGO that focuses on capacity building for women whose livelihoods are based on natural resources. Community activities are used as teaching resources for student teachers, such as establishing and maintaining small-scale businesses with micro-finance, training programs for women in capacity development and sustainable farming. Youth Development Councils at TEI’s conducting Community Services

In Pakistan, policies on ESD exist but implementation remains a challenge. TEIs have taken the initiative to manage and implement Sustainable Development and ESD through bottom-up initiatives. For example, universities in Pakistan have established youth development councils where students are engaged in civil society to conduct community services.
3.3 Change within and across Institutions of Higher Education

This section introduces various examples of how TEIs have implemented Sustainable Development not only within the faculty of education, but also within different other disciplines and institutions across the campus and beyond. The following examples demonstrate how schools and universities work for ESD through interdisciplinary and cross-institutional research collaboration, student-led initiatives and the implementation of sustainability policies throughout the campus.

Master Program on Sustainable Development, University of Education Lahore, Pakistan

The University of Education in Pakistan implemented a Master Course in Education for Sustainable Development in 2007, which is offered at all 10 campuses of the Punjab Province. The Masters’ Program has an area of specialization in Environment and Sustainable Education and offers three courses: (1) Active Citizenship and Cultural Preservation through ESD, (2) Leadership and Sustainable Development and (3) Peace Education for a Sustainable Future. The pedagogies and didactics for the course are interdisciplinary, holistic and value-driven, while addressing fundamentals such as anti-harassment, harmony and peaceful co-existence that are included as fundaments within the training program.

Sailing Course to Learn About Regional Sustainability Issues, Baltic Sea Region Universities

Sustainability Applied in International Learning (SAIL) is an international summer course of the Baltic University Program. It includes a 14-day on-board cruise where course participants become crew members of the ship. Different sustainability and environmental problems, as well as skills and knowledge transfer on the issues facing the Baltic Sea Region, frame the curriculum during the cruise. The learning outcomes are driven by lectures, group work, reading, data collection and sailing duties. Students also prepare presentations for on-board discussions. Submissions of post-sailing assignments are then required for a passing grade. The Program also offers a sustainability applied international Learning & Teaching seminar for teachers from Baltic Sea Region Universities.

Further reading
www.balticuniv.uu.se/sail/?page_id=26

Sustainability week in Switzerland

In 2013, students from several universities in Switzerland have established a Sustainability Week in Zurich. This event is held on a yearly basis, with growing participation and media coverage each year. During the week, different events, discussion rounds and workshops are organized around the theme of how a sustainable future can be shaped with concrete actions. Students organize the event each year on a voluntary basis. Moreover, a position paper was published by the organizers with concrete SD implementation demands that were addressed to all universities in Switzerland. More universities are becoming increasingly involved in the project. This sustainability week had also recently received the award for Student Leadership from the International Sustainability Campus Network.
Student-led Education at Uppsala University, Sweden

The Centre for Environment and Development Studies (CEMUS) is a student-initiated, trans-disciplinary center at Uppsala University and Swedish University of Agricultural Sciences. It offers a wide range of transdisciplinary courses within the topics of environment, development and sustainability, which fulfill degree requirements across disciplinary faculties. The courses are built on a close collaboration between students, course coordinators, teachers, researchers, university administrators and other actors in society. The student-led learning approach makes CEMUS a unique education and learning environment, which fosters critical thinking and a more holistic view on sustainability issues.

Initiative for Clean Learning Environment, Zambia University

The University of Zambia has implemented a project called 'Initiative for Clean Learning Environment', where students from different subjects are in charge to clean the campus in groups, followed by discussion and reflection rounds. Students are encouraged to come up with innovative ideas and projects after identifying problems related to ESD during the project. Examples for innovative ideas by students in line with the initiative are a school-based rainwater harvesting system, where a pilot model has been successfully installed, and a school-based allocation model for participatory litter picking.

The Green Office Movement in Europe – Winner of the UNESCO-Japan Prize on Education for Sustainable Development

The Green Office is a student-led and staff-supported sustainability hub that can be applied within all universities. It coordinates and initiates a dynamic change process towards a more sustainable campus. The model can be applied in all institutions by following the six Green Office Principles. The organization 'Rootability', based in Berlin, Germany, provides assistance and facilitates the implementation of sustainability changes within universities or colleges through trainings, tools and workshops. It also connects the different Green Offices around Europe by providing a platform and organizing events. The Green Office Model is an effective tool that helps to institutionalize sustainability by involving students, teachers, researchers, staff and employees within the whole institute. The website also highlights inspiring cases of different universities that have implemented their own Green Office Hub.
3.4 Change within Faculties of Education

Change-Projects to Support ESD Implementation in Syllabuses and Working Practices, TEIs in Botswana

Several TEIs throughout Botswana have undertaken change-projects to enhance sustainability issues and agency (ability to take action) in their institutional practices and learning processes. The projects were based on the SWEDESD ESSA project, which aims to allow teacher educators and their institutions to introduce innovative methods and relevant content related to ESD in their syllabuses and working practices. The University of Botswana, in partnership with the Ministry of Education, is supporting these change projects in TEIs throughout the country. Concrete change projects were developed throughout a week-long workshop, which included topics such as mainstreaming ESD in primary school curriculum, curriculum innovation, ESD material development and rainwater harvesting for sustainable consumption.

The Power of the Individual

Efforts to address sustainability challenges and create change are carried out by many people on a personal level within their areas of responsibility. Although these efforts may be perceived as a collection of small initiatives in the short-term, over the long run these efforts can lead to a significant impact. One personal experience shared by a participant at the conference showed how a child, through picking up litter, challenged the norms surrounding litter at its school. The conference participant had taught the child that it was a good thing to pick up litter. When this resulted in the child picking up litter at the school, the teacher reacted since this behavior was out of the norm. This eventually led to a change of norms at the school and a policy to ban litter was implemented. Hence, in line with previous INTEI conferences, participants have made pledges of actions that they planned to carry out as individuals working for ESD when returning home to their institutions.

3.5 Change Related to Engaging Pre-Service and In-Service Teacher Education

Multi-Facultative professional development on ESD Implementation, Hashemite University, Jordan

Hashemite University, Jordan, conducted in-service professional development workshops on ESD for faculty staff from various disciplines. Different teaching approaches to promote tolerance and equity were also shared in the workshops. This has led to the infusion of sustainability in 20 courses within the Faculties of Educational Sciences, Applied Sciences, and Information Technology.
The workshops were carried out as part of the Reorient University Curricula to Address Sustainability (RUCAS) project, initiated by the UNESCO Chair in ICT in Education for Sustainable Development, Department of Primary Education, University of Crete, and in cooperation with the Regional Centre of Expertise on ESD (RCE) Crete. It was financially supported by the European Commission’s Tempus program for a three-year period (2010-2013). RUCAS aims to support the development of ESD in the Higher Education sector in Egypt, Jordan and Lebanon and to build capacity amongst university staff to embed ESD in curricula and pedagogy. The RUCAS model was developed as a tool to guide the revision, implementation and evaluation process of reorienting university curricula to address sustainability.

Further reading
http://www.ictinesd.org/unescochair/rucas/rucastoolkit/module-1/the-rucas-model/

Training of Teachers Across all Areas of Schooling, Malmö University, Sweden

Malmö University educates teachers across all areas of schooling. Learning combines pedagogies, education, science and practice in order to strike a balance between subject and didactic related content. The institution has 27 goals on content and skills for student teachers, which includes global challenges, citizenship, sustainability and intercultural themes. Teacher students for upper secondary school undergo the course ‘Global challenges in a subject context’, which aims to provide the student teachers with skills and awareness on how to implement ESD within their teaching practices.

Professional development for Teachers within Faculties of Education, University of Edinburgh

The University of Edinburgh developed a course entitled ‘Connecting Classrooms’ in collaboration with the UN Centre for ESD and the British Council. The course aims to devise and deliver professional development opportunities in ESD for Scottish teachers to meet the Scottish Government commitments and General Teaching Council Standards (GTCS Professional Standards). Teachers that complete the course will gain Professional Recognition. The course is free to participate in and delivered three times a year in a mixed-mode (face-to-face and online) 10-week block, in various locations across Scotland. Details are being finalized to develop and deliver a fully online version of the course to make it accessible to all Scottish teacher and education professionals. This in turn will be used as a basis for free to access University of Edinburgh MOOC available in the UK and internationally.
3.6 Partnerships and Active Networks

The work of the partnerships and networks presented below include research, professional development, organization of conferences and workshops, dissemination of ESD-related information and teaching materials, exchange of experiences and best practices, as well as cooperation between TEIs across different regions.

The Education for Strong Sustainability and Agency (ESSA) Partnership, Sweden and Southern Africa

The ESSA partnership mainstreams ESD in teacher education in Southern Africa and Sweden. Partners aim to enable teacher educators and their institutions to introduce innovative methods and content related to ESD in their syllabuses and working practices. Between 2012 and 2015, the Southern African Development Community (SADC) and SWEDESD collaborated in mainstreaming ESD in teacher education. SADC REEP and SWEDESD are the lead organizations coordinating the ESSA Programme, which is a multi-year collaborative partnership between 42 universities and teacher education institutions within the SADC region.

Further reading
www.swedesd.uu.se/education/essa/

Network on Education for Sustainable Development within the Baltic Sea Region (BSRESDN)

In 2012, partners from Belarus, Estonia, Finland, Latvia, Lithuania, Russia, Ukraine and Sweden formed the BSRESDN Network to strengthen and foster multi-stakeholder collaboration at the Baltic Sea Region level to promote ESD. There is an open membership for all stakeholders, from an individual to the governmental level, who are interested and active in ESD. The aim of the network is to share learning and research, to provide spaces for exchanging knowledge and experiences, to advocate for scaling ESD on a national and international level, to promote local ESD hubs and to foster ESD research within the Baltic Sea Region.

Further reading
www.bsresdn.com

COPERNICUS Alliance

COPERNICUS Alliance is a European Network of Higher Education Institutions that promotes transformational learning and change for sustainable development within the higher education sector. This is achieved by exchanging good practices and enhancing knowledge within ESD, informing higher education policy makers in Europe and globally, developing tools and materials for professional development and build partnerships with businesses, government agencies and civil society to progress sustainability at a local and a global level.

Further reading
www.copernicus-alliance.org
The International Network of Teacher Education Institutions (INTEI)

INTEI is associated with the UNESCO Chair on Reorienting Teacher Education to address sustainability. It is comprised of teacher education institutions from about 60 nations around the world. The member institutions work to incorporate sustainability into their programmes, practices and policies. Each member institution addresses environmental, social, and economic contexts to create locally relevant and culturally appropriate teacher education programmes for both pre-service and in-service teachers.

Further reading


Mainstreaming Environment and Sustainability in Africa (MESA) Universities Partnership

The MESA Partnership Program is one of UNEP’s initiatives with universities to support the UN Decade of Education for Sustainable Development. Its members currently comprise of approximately 85 African universities. The initiative aims to support the mainstreaming of environment and sustainability concerns into teaching, research, community engagement and management of universities in Africa.

Further reading

http://staging.unep.org/training/programmes/mesa.asp

SARUA Curriculum Innovation Network

The SARUA Curriculum Innovation Network (SCIN) connects universities within the Southern African Region with external stakeholders and contributing individuals to strengthen curriculum innovation through the development of an Open Access Master’s curriculum and courseware in climate change and sustainable development. Following the development of the curriculum, capacity-building workshops are held to support participating universities in planning for the implementation of the curriculum in a local context.

Further reading

http://www.sarua.org/
http://www.acdi.uct.ac.za/research/sarua-master%2080%99s-curriculum-development-and-capacity-building-project

Caribbean Regional Network for the Reorientation of Teacher Education to Address Sustainability

The Caribbean Network (Caribbean Islands and Florida) was established in 2004/2005 to serve as a sub-network of the UNITWIN/UNESCO International Network for the Reorientation of Teacher Education to Address Sustainability. Its aim is to strengthen and promote ESD in the region and to continue dialogue for clarifying the concept of ESD with an emphasis of the cultural relevance as an integral part of its strategy. The network consists of 30 Teacher Education Institutions in 28 countries. A handbook on SD has been published and workshops have been organized for teachers.
The Regional Environmental Center for Central Asia (CAREC) ESD Program

In 2003, the Regional Environmental Centre initiated a regional ESD program for Central Asia. It promotes education for sustainable development principles, methodologies and key themes of sustainable development for the education systems of Central Asian countries. A mobile team of teachers and trainers travels around the region to give workshops and trainings on ESD. There is an advanced network of NGOs, universities, schools and teachers to share ESD practices within the Central Asian Region. Work achievements include the development of educational resources such as the ‘Green Pack for Central Asia,’ which includes various topics on sustainable development. Green Pack includes three themes specifically relevant for Central Asia: desertification, radioactivity and mountains/glaciers. In 2011, the Ministry of Education and Science of Kazakhstan approved Green Pack and recommended the program for the national education system.

Further reading

The Baltic University Program (BUP)

The Baltic University Program is a network of approximately 225 universities and other institutes of higher learning throughout the Baltic Sea region. The network is coordinated by the Baltic University Program Secretariat, a part of Uppsala Centre for Sustainable Development (Uppsala CSD) at Uppsala University, Sweden. The Program focuses on questions of sustainable development, environmental protection, and democracy in the Baltic Sea region. The aim is to support the key role that universities play in a democratic, peaceful and sustainable development. This is achieved by developing university courses and through participation in projects in cooperation with authorities, municipalities and other stakeholders.

Further reading
www.balticuniv.uu.se

Partnership for Education and Research about Responsible Living (PERL)

PERL is a partnership of educators and researchers from over 140 institutions in more than 50 countries, working to empower citizens to live environmentally responsible and sustainable lifestyles.

Further reading
https://eng.hihm.no/project-sites/living-responsibly
Ethiopian Research Centre partners with Local TEIs and Churches

The Centre for Environmental Stewardship and Holistic Development was established in 2014. The Centre supports Teacher Education and Theological Colleges in their efforts to integrate issues related to holistic and sustainable development into their academic and research programs. It provides relevant training and education on environment, gender, health, development, conflict resolution and peace building. It aims to promote a culture of critical thinking among community development managers and practitioners through need-based awareness raising and skill enhancement seminars, workshops, symposiums, and development dialogues. It seeks to empower churches to address the needs of their communities. The Centre also conducts research for publication on issues facing the Church and Society in Ethiopia.

Further reading
http://egst.edu.et/center-for-environmental-stewardship/

Baltic & Black Sea Circle Consortium (BBCC)

BBCC is an international network that unites researchers and practitioners in the fields of teacher education and ESD. It serves as a platform for exchanging experiences among its members from more than 20 countries around the world. The international scientific conference entitled ‘Sustainable Development. Culture. Education’ is hosted every year by a different member state. BBCC was created based on the cooperation network of the Journal of Teacher Education for Sustainability.

Further reading

The Learning Teacher Network

The Learning Teacher Network is a non-profit, European network and association that brings together professionals in education and training at all levels of education. The Network has individual and institutional members in 43 countries within and beyond Europe. Under the mission of ‘Empowering the Teacher of Tomorrow’ and with ESD-focused action, the activities concentrate on capacity building of educators through international conferences and seminars, European training courses, and publications, as well as supporting members and associates to implement ESD in institutional policy and practice.

Further reading
www.learningteacher.eu
3.7 Research

The following section presents different cases of research projects, which have been carried out to implement and scale ESD. Different cases on the integration and promotion of indigenous and traditional knowledge within TEI’s are presented in this section as well.

**ReSolve**

SWEDESD has developed a scaling model called ReSolve to support the mainstreaming of ESD in teacher education with integrated action research. A research network is developing and investigating the usability of the ReSolve Tool for scaling ESD projects/programmes in the SADC Region. This tool is used for self-reflection, monitoring and evaluation of ongoing ESD projects with a specific focus on scaling. Network Partners include SWEDESD, the Environmental Learning Research Centre (ELRC) at Rhodes University, the Environmental Education Association of Southern Africa (EEASA) and the SADC ESD network.

**Pilot Program on Professional Development for Educators in Ethiopia**

The Ethiopian Graduate School of Theology, in collaboration with Leuphana University Luneburg, Germany, carried out a research study on a pilot program on professional development. The pilot program sought to implement and mainstream ESD among Ethiopian Colleges of teacher education and theological colleges. The research provides a comprehensive training curriculum with approaches that effectively manage to engage professional educators in higher education with ESD in Ethiopia. The project can be considered as one of the first efforts in Ethiopia to engage theological institutions in sustainability issues. As one of the outcomes of the project, two local networks have evolved for teacher education.

The research paper ‘Engaging Teacher Educators with the Sustainability Agenda: A Case Study of a Pilot Professional Development Program from Ethiopia’ will be published in the International Journal of Sustainability in Higher Education.

**Student Research on ESD Implementation in Science Curriculum, Copperbelt University of Zambia**

The Copperbelt University of Zambia implemented a scheme where students have the opportunity to research and analyze gaps and opportunities when integrating ESD in the science curriculum. They have tested innovations to integrate climate change education concepts in their teaching. Furthermore, a teacher-researcher based at Mufulira College of Education is conducting action research to integrate climate change education concepts into the chemistry curriculum.
ESD in China

The Chinese National Working Committee for UNESCO Project on ESD has developed teaching and learning materials while conducting research on different ESD topics within specific experimental districts and schools each year since 2003.

Further reading
www.esdinchina.org

Integration and Promotion of Indigenous and Traditional Knowledge within ESD, Cases of Zambia, Mongolia and Guatemala

The University of Zambia implemented a Master Program on Zambian culture and traditions. The program encourages its students to examine what factors should be considered when conducting indigenous-related research in line with quality education. The Mongolian National University of Education (MNE) has been involved in the National Health Program on ‘Recalling indigenous knowledge and Traditional Medicine’. The program promotes indigenous knowledge and traditional medicine, which has been used by Mongolian nomads for many centuries. The program also aims to raise public awareness and promote a sustainable lifestyle in a harmonious relationship with nature. Lecturers from MNE have implemented aspects of the program in their trainings for ESD. A Network in Guatemala that specializes in education to promote ESD in society aims to preserve Mayan traditional knowledge by including this knowledge in different departments and curricula such as Engineering and Astronomy.

Guidelines for Designing Education for Sustainable Development

In 2016, Aeres University of Applied Science in Wageningen, The Netherlands, published a report entitled ‘Just do it! Guidelines for designing Education for Sustainable Development’. The report provides an understanding on how to prepare students for active participation in sustainable development and formulates sustainable development-oriented criteria to implement and evaluate learning activities.

Further reading
https://issuu.com/stoas-hogeschool/docs/160825_education_for_sustainable_de

Situational Analysis of Education for Sustainable Development at School Level, Mauritius

The UNESCO-funded ESD research project ‘Situational Analysis of Education for Sustainable Development at school level in Mauritius’ aims to map national institutions, agencies as well as programs in ESD at a school level. This project analyses and assesses the strengths and weaknesses of curriculum implementation (from pre-primary to secondary level) with reference to ESD. The project further surveys and documents existing teaching practices and management tools referring to ESD at schools. It also maps partnerships with civil society organizations in formal settings. Lastly, it provides recommendations on follow up strategies and actions that would help the education sector to mainstream ESD teaching tools and management practices.
3.8 Communication

This section lists examples of how ESD is communicated through different channels to a wider audience to advocate for change. A link to a Social Media Guide is provided for more information on the use of different social media channels.

CeMuse Magazine – Eco Blog, Sweden

A group of master students in a sustainability program has initiated a magazine entitled CeMuse. CeMuse aims to bring new insights to contemporary environmental issues and sustainable development. The online magazine offers an opportunity for students to further the discussion regarding sustainable development. The magazine is also a tool for students to communicate their thoughts and reflections on course content to a wider audience to raise awareness about sustainability issues.

Further reading
www.cemuse.se/ Twitter: @CemuseM

Compiling and Dissemination of ESD Best Practices for TEIs in Zambia

The Copperbelt University of Zambia is currently working on the project ‘Implementing the GAP on ESD in Zambia: Country Sensitization, Identification and Dissemination of Best Practices in ESD for Quality and Inclusive Education’. The project is supported by the National Commission for UNESCO and the Ministry of General Education. The process of collecting best practices in ESD is ongoing. There will be three provincial workshops and one national workshop for TEIs and teachers where the compiled best practices will be presented and disseminated. By February 2017, a final document of the project will be shared with other ESD practitioners and researchers.

Social Media Guide

This document serves as a reference guide for civil society organizations using social media. It is a local capacity-building tool to strengthen the ability of an organization or institution and their staff and members to deliver greater impact while using social media.

Further reading
3.9 Interactive Communication Technology (ICT)

The following section provides an overview of different cases where Interactive Communication Technology has been used as a tool for ESD. Examples include the creation of Massive Open Access Online Courses and online teaching and learning platforms, which can be used on different devices and web portals.

MOOC in Learning for Sustainability, University of Edinburgh

The Moray House School of Education, University of Edinburgh, Scotland developed a MOOC in Learning for Sustainability. The course was free to access and was launched in the summer of 2015 through the Coursera Platform. The programme was divided in two parts – the first was about developing a personal ethic and the second about engaging in communicating.

Further reading
http://www.ed.ac.uk/studying/moocs/subjects/humanities-social-sciences/learning-for-sustainability

Online Undergraduate Option Course in Understanding Sustainability and Social Responsibility, University of Edinburgh

Over the past two years, the University of Edinburgh developed jointly with the School of Geoscience an online undergraduate option course. The course seeks to build understanding of sustainability and social responsibility and will be piloted with 50 students in 2016-2017. From 2018, the course will be available to all students and subsequently to staff and all alumni to access. In parallel, the University is now developing a shorter optional online course with a practical focus for all staff (administrative, technical and support) to foster professional development.

Swiss Web Portal for Education for Sustainable Development

This online platform provides information and resources to ESD in different languages. During the Visby conference, a working group was built that will work further on the platform.

Further reading
www.education21.ch/en

TheGoals.org – Free Global Education and Learning Portal

TheGoals.org offers a unique open crowd-learning platform, free for everybody around the world to participate and contribute. It aims to build understanding and foster cooperation about the UN Sustainable Development Goals. The portal highlights international engagement and stories of local challenges and successes in innovative solutions for pursuing sustainable development.

Further reading
www.thegoals.org
Halinen, I. (2016). Quality Education: Finnish way to Sustainable Well-being. Presentation at the conference of Bridging the GAP – Educators and Trainers, Uppsala University, Campus Gotland by the Finnish Head of National Curriculum Development.


Appendix I - Selected ESD Teaching and Learning Resources

Regional Collection of Good Practices – Millennium Development Goals & Education for Sustainable Development in Asia and the Pacific Region (UNESCO Associated Schools)
http://unesdoc.unesco.org/images/0018/001873/187337e.pdf

ESD Good Practices in UNESCO Associated Schools.

ESD Good Practices using the Earth Charter

Good practices in the UNECE Region

Good practices in education for sustainable development: teacher education institutions

ESD Good Practices in addressing Biodiversity

ESD Good Practices in addressing Climate Change

ESD Good Practices in ECCE

Good Practice Stories on Education for Sustainable Development in India.
http://unesdoc.unesco.org/images/0023/002325/232544E.pdf

Education for sustainable development and global citizenship (ESDGC): good practice case studies in teacher education (UK)
https://www.heacademy.ac.uk/system/files/resources/esdgc_casestudiesinteachereducation.pdf
Appendix I - Selected ESD Teaching and Learning Resources

Professional development of university educators on Education for Sustainable Development in European countries.

The ‘Teaching and Learning for a Sustainable Future’ program by UNESCO contains several modules of professional development for use in pre-service teacher courses and in-service education.
www.unesco.org/education/tlsf/

Climate Change Education Kit, Mauritius Institute of Education

CAREC – The Regional Environmental Centre for Central Asia developed innovative educational resources for secondary education

MESA-Mainstreaming Environment and Sustainability in Africa (MESA) Universities Partnership
ESD Innovations Course Toolkit, contains modules, activities and case studies.
http://unep.org/Training/mesa/toolkit.asp

University Educators for Sustainable Development – A network of expertise and collaboration in ESD across Europe. It provides ESD professional development resources.
http://platform.ue4sd.eu/pathways.php

Eco Schools Program: An international program scheme, which can be adopted by schools, following a seven-step change process.
www.eco-schools.org

Pacific Community – Learning about Climate Change the pacific way. A picture based education resource for students, teachers and facilitators.
www.spc.int/cc-project

Paryavaran Mitra – An Indian initiative for young leaders from schools across the country. They provide teachers handbooks and case studies in different languages.
www.paryavaranmitra.in
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Sunday 21 August

I. Opening Ceremonies
Session Chair - Professor Charles Hopkins, UNESCO Chair, York University
Olle Jansson, Advisers to the Vice-Chancellor, Campus Uppsala - Uppsala University
Mats Djurberg, Secretary General, Swedish National Commission for UNESCO
Björn Jansson, Mayor, Gotland Municipality
Magnus Persson, President, The Learning Teacher Network
Elisabet Nihlfors, Dean of faculty of Educational Science, Uppsala University
Eva Friman, Director, SWEDESD, Uppsala University

II. Opening Plenary
Session Chair - Magnus Persson, Learning Teacher Network
Connecting quality education, ESD and the SDGs
Dr Aaron Benavot, Director of the Global Monitoring Report UNESCO. Addressing quality education and ESD, and how it is linked to the Sustainable Development Goals.

III. Group Discussions by Geographic Regions
Updates on ESD in TEIs. Sharing experiences on what teacher education institutions have done in ESD since 2014. What is working well? What are the areas of development? What are your recommendations?

1. Asia Pacific Region | Chair - Tomonori Ichinose
2. Africa & Mediterranean Region | Chair - Rosemary Moyana
3. Europe | Chair - Pete Higgins
4. North America, Latin America and the Caribbean | Chair - Lorna Down
5. AA3 Sweden | Chair - Ingrid Engdahl
Monday 22 August

IV. Plenary – Quality Education
Irmelie Halinen, Head of curriculum development with Finnish National Board of Education. Addressing curriculum development and ESD and how this can contribute to quality education.
Session Chair - Shepherd Urenje

V. Small Group Discussions on Quality Education
Special interest discussions on state of the art and major issues specific to the groups.

1. Curriculum: content, skills, and competencies | Chair - Kerstin Sonesson
2. Pedagogy | Chair - Lorna Down
3. Policy | Chair - Munawar Mirza
4. Research | Chair - Victor Nolet
5. Primary & Secondary | Chair - Tungalag Baljir
6. Early Childhood Education | Chair - Jenny Ritchie

VI. Panel – Online platform Teacher Education and ESD
Examples of scaling teacher education through online platforms at institutional, regional and global levels. Chair - Rosalyn McKeown

Torvald Jacobsson, TheGoal.org, YMP - Young Masters Programme on Sustainable Development
Victor Nolet, Western Washington University, USA
Pete Higgins, University of Edinburgh, Scotland
Shepherd Urenje, SWEDESD

VII. Poster Session
Posters displayed in the following themes:
Tuesday 23 August

VIII. Small Group Discussions
More than sustainability content: addressing SDGs, pedagogies, ESD competencies, and whole school approaches. How has ESD changed in your region since the beginning of the Decade in 2005? What is currently being emphasized? What has been de-emphasized?

1. Asia Pacific Region | Chair - Eng Tek Ong
2. Africa & Mediterranean Region | Chair – Manoah Muchanga
3. Europe Region | Chair - Victoria Thorenson
4. North America, Latin America & the Caribbean | Chair - Henderson Nurse
5. AA3 Sweden | Chair – Ingrid Pramling Samuelsson

IX. Open Space/University
1. Teachers’/Teacher Education Students – Values/ Beliefs/ Dispositions about ESD: How to measure program impact? | Chair – Teresa Harris
2. Technology + Pedagogy | Chair – Michele Estes
3. Africa Region Reports. Complete our reporting to each other’s | Chair – Rosemary Moyana
4. Creating guidelines for ESD material development + evaluation: An INTEI project | Chair – Rosalyn McKeown
5. ESD in China: 5 pillars of ESD training, ESD cases, Introduction of handbook on ESD | Chair – Shi Gendong & Zhang Jing
6. Online platforms for teacher education | Chair – Stefan Baumann & Shepherd Urenje

X. Plenary Panel – Professional Development for Faculties of Education
This session highlights research in education to provide professional development opportunities for participants. Session Chair - Dzintra Ilisko
Kerstin Sonesson, Associate Professor in Environmental Education and in Ecology, Malmö University, Sweden
Dr Lorna Down, School of Education, University of the West Indies
-Reflections from the UNESCO Chair and Rapporteur

XI. Field trips
- Solberga School, Upper secondary school
- Biogas Gotland
- Agricultural school, Lovsta
- Fenomenalen, Science center for children (and adults)
- City tour on foot
- Own choice of the Gotland Art Week program
Wednesday 24 August

XII. Group discussions on Scaling up ESD in TEIs
How can we increase the number of TEIs offering ESD in their teacher-preparation programs and in-service professional development?

1. Asia Pacific Region | Chairs - Intzar Butt & Jude Duarte
2. Africa & Mediterranean Region | Chairs - Ravhee Bholah & Philemon Mukisa
3. Europe | Chairs - Jana Doulha & Gerben de Vries
4. North America, Latin America and the Caribbean | Chairs – Eduardo Sacayon & Lauren McClanahan
5. AA3 | Chair – Carl Lindberg

XIII. Closing Session
Summary of the enablers, barriers, and action items of scaling-up ESD in the countries in their region. Sessions Co-Chairs – Charles Hopkins & Rosalyn McKeown

- Reporting back from regional groups
- Complete evaluation forms
- Complete pledges
- Visby Recommendations on ESD and Teacher Education
- Closing business