

UNESCO
Chairs
in Germany

Scientific Research for Sustainable Development



United Nations
Educational, Scientific and
Cultural Organization

German Commission
for UNESCO

Scientific Research for Sustainable Development – UNESCO Chairs in Germany



Prof. Dr. Maria Böhmer, Minister of State at the Federal Foreign Office

The adoption of the 2030 Agenda by heads of state in September 2015 was a milestone of global policy formulation. Through the 2030 Agenda and its 17 Sustainable Development Goals, the United Nations addresses the many global and local challenges that we currently face. The 2030 Agenda integrates industrialised and developing nations into one overall policy framework, setting out clear goals until the year 2030. The extent to which these goals are achieved will be monitored closely using a set of indicators that will be adopted in autumn 2017.

I am convinced that the 2030 Agenda is both ambitious and realistic. The negotiation process was a shining example of international cooperation, demonstrating that global consensus can be reached on issues that are vital for our future. Many governments have already submitted voluntary national reviews of their sustainable development policies. Germany is among those governments. We have also recently adopted a new National Sustainable Development Strategy that is firmly linked to the 2030 Agenda.

The 2030 Agenda is not only the guiding framework for the United Nations, but also for all other multilateral organisations. The G20 adopted an Action Plan on the 2030 Agenda back in 2016 and took its implementation one step further during the summit in Hamburg in July 2017 under the German presidency. The 2030 Agenda is also the new framework for regions, districts, cities and communities, as well as for laboratories for sustainable development such as UNESCO Global Geoparks and UNESCO Biosphere Reserves. A concerted effort is needed to ensure its successful implementation. Individual citizens, associations, academia, the public and the private sector, parliaments and local and national governments have to work together. New values and attitudes are needed, as well as new incentives and regulation, new institutions and new technology. Sector-specific action has to be combined with new integration, overcoming traditional sectoralised policies and mechanisms. We have already witnessed the emergence of much of this new spirit.

Education, scientific research, technological development and processes of innovation play a particularly important role. Knowledge for sustainable development has to be generated and disseminated. Education has to address and reduce attitudes that favour unsustainable action. Knowledge for sustainable development is not only needed as regards individual global and local challenges such as climate change, poverty or biodiversity loss, but is also essential for uncovering the interdependence of such challenges, their mutual enforcement as well as conflicts of goals and interests.

With Sustainable Development Goal 4 and further goals and targets, education, including higher education, has a prominent place in the 2030 Agenda. UNESCO coordinates global cooperation regarding its implementation and monitoring. It also coordinates the Global Action Programme on Education for Sustainable Development, which is implemented in an intensive

and participative process in Germany. A shift to sustainable development is currently being addressed as a major priority in German higher education in particular.

UNESCO has also taken great steps to make the voice of the global scientific community heard in the negotiation and implementation of the 2030 Agenda. Based on the freedom of the sciences and on scientific responsibility, the global scientific community has much to offer. In May 2017, the German Government and the German scientific community launched the Science Platform Sustainability 2030, which will ensure that progress towards 2030 Agenda is independently monitored by scientists.

UNESCO Chairs are ideal partners for promoting education and research that will support efforts to implement the 2030 Agenda. Their work at the core of the UNESCO mandate is not only scientifically excellent, but is exemplary as far as international cooperation, in particular working with partners from developing countries, is concerned. More than 700 UNESCO Chairs worldwide cooperate with one another, with academia at large, as well as with stakeholders from society and from governments. They generate knowledge through scientific research that often integrates stakeholders from outside academia while co-implementing the results of their research.

Through this publication, the German Commission for UNESCO demonstrates the exemplary work of the German UNESCO Chairs for academic education and research that is geared towards the 2030 Agenda. I look forward to their future work supporting sustainable development and invite all readers to approach the UNESCO Chairs to discuss new forms of cooperation towards achieving our common goal – a liveable future for all.

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Foreword



Prof. Dr. Verena
Metze-Mangold,
President of the
German Commission
for UNESCO

Water scarcity, demographic change, flight and migration, poverty and climate change – without scientific research and higher education, it will be impossible to make the progress necessary to achieve the Sustainable Development Goals of the Agenda 2030. Scientists contribute to solutions by providing scientific analysis, monitoring the status quo, developing scenarios and policy options. The key challenge of science is to investigate the interplay and mutual reinforcement of the challenges reflected in the Agenda 2030 as well as the dilemmas posed by policy options.

The complexity and the scale of the challenges laid down in the Agenda 2030 require cooperation across societal and policy sectors and across geographic boundaries and scales. This is also true for scientific research. The divisions into traditional disciplines as well as the distinct separation of science from society have to be overcome. Also, global scientific cooperation – on a level playing field – needs to be increased. This will allow scientists to share both data and scientific approaches to different specific contexts. Together, and also working with societal stakeholders, they can make concrete contributions and have concrete impact. By making use of culturally different perspectives they can contribute to suitable solutions for the 17 Sustainable Development Goals.

Scientific cooperation is key to the worldwide network of UNESCO Chairs, a network of universities focusing on central topics in UNESCO's mandate in education, natural and social science, culture, and communication and information. Today, this global network involves over 700 institutions in over 115 countries, 11 of them in Germany.

Sustainable development and international cooperation are at the heart of all German UNESCO Chairs. For example, one German UNESCO Chair produces learning material on sustainable development in cooperation with partners in Egypt. Another German UNESCO Chair establishes intercontinental ties through practice-oriented research on musical traditions from Afghanistan and Ethiopia to Brazil and Cuba. Yet another German UNESCO Chair has been the driver for its university to create a mandatory entrance course for all university students that focuses on scientific responsibility and sustainable development, the only one of its kind in Germany and now in its tenth year. In September 2016, all German UNESCO Chairs declared their commitment to further strengthen their focus on the Agenda 2030.

With this publication I invite you to discover the research, working methods and teaching approaches implemented by the German UNESCO Chairs. I hope that they will inspire future scientific cooperation supporting sustainable development worldwide.

The Sustainable Development Goals

On 1 January 2016, the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development – adopted by world leaders in September 2015 – officially came into force. Over the next fifteen years, with these new Goals that universally apply to all, countries will mobilize efforts to end all forms of poverty, fight inequalities and tackle climate change, while ensuring that no one is left behind.

UNESCO Chairs in Germany



Scientific Research for Sustainable Development





Prof. Dr. Jörg Hacker,
President of the
German Academy of
Sciences Leopoldina
and member of the
former Scientific
Advisory Board of
the United Nations
Secretary-General
Ban Ki Moon

“Science is a Powerful Source of Global Change”

Professor Hacker, in which areas is scientific research indispensable for sustainable development?

Science plays a crucial role for sustainable development and is key to answering many of the questions facing countries across the world today – questions about food security and water management, questions about ocean sustainability, questions about eradicating poverty, ensuring health, and forging new paths to inclusive, sustainable development.

Promoting global action on climate change through the Paris Agreement on Climate Change is probably the most prominent example for the power of science. Scientists have tirelessly worked on increasing our understanding of the causes and impacts of climate change. However, it took years to work scientific knowledge into policy results, and a great deal of communication and advocacy was needed: The adoption of the Paris Agreement happened a full quarter-century after the global scientific community had met in Geneva to tell the world that climate change was indeed a significant threat, and largely caused by humans.

Does scientific research need to change in terms of methods and approach, in order to contribute to solutions supporting sustainable development?

Building a sustainable world requires overcoming disciplinary boundaries. Interdisciplinary cooperation, on the basis of disciplinary excellence, can contribute to developing an integrated scientific approach aimed at supporting sustainable development. It should be based on a broad understanding of science, covering the whole range of disciplines from natural sciences to engineering to social sciences

and the humanities, and address the social, economic and environmental dimensions of sustainable development.

In my opinion, the importance of basic science is sometimes overlooked in this respect. While curiosity-driven research may not be immediately utilized, it is indispensable for scientific innovation and a prerequisite for scientific breakthroughs towards a sustainable world. Examples for such transformational ideas are numerous: In medical history, the discovery of the bacterial origin of diseases allowed for the development of immunization methods thus saving thousands of lives. Currently, in the face of increasing antimicrobial resistance, new approaches and new methods of treatment based on fundamental research on both the origin of such resistances and on the development of new antibiotics and of also of alternative treatments are of critical importance to furthering human health and well-being.

The Scientific Advisory Board of the previous UN Secretary-General concluded its work at the end of 2016. Which of its recommendations do you consider as particularly urgent – for Germany and for the entire world?

Opportunities for scientists, national science academies and science organisations to engage meaningfully with the United Nations have been strengthened in recent years, including through the appointment of the first-ever United Nations Secretary-General’s Scientific Advisory Board on which I had the privilege to serve for three years. One of the Board’s major messages was that science is not an “add-on”, but an integral part of the response to global challenges. It was the Board’s understanding that decision-making processes have to be informed by best available scientific evidence and

knowledge, and that international scientific collaboration is a prerequisite to reach global sustainability. Science is a powerful source of global change and can become a game changer in dealing with nearly all of the most pressing global challenges. Therefore, political leaders should take science into account for in their decision-making. I believe this recommendation is important for international organisations such as the United Nations, but also relevant at the individual country level.

With the adoption of the Agenda 2030, the United Nations reinvented its institutions for sustainable development. For the area of science and innovation, the so called global Technology Facilitation Mechanism was launched. Are you content with these new institutions, in particular do they properly take into account the specific role of science? Do you see the need for a new mandate of the Scientific Advisory Board?

Science will be essential in the implementation for the Agenda 2030 and the Sustainable Development Goals. In this respect, efforts to anchor science as a reliable partner in the implementation and review architecture of the 2030 Agenda are crucial. The Technology Facilitation Mechanism was established in September 2015 to promote science, technology and innovation in the context of the 2030 Agenda, and to guarantee a better interaction of STI representatives and other stakeholders.

The specific role of science for sustainable development, however, goes well beyond issues like technology transfer and must not be limited to that of a tool only. The UN Scientific Advisory Board has repeatedly argued that achieving the desired outcomes by 2030 will require acknowledging and maximizing the contribution of science beyond being a ‘means of implementation’. While access to technology at an affordable price is without doubt important, raising investments in science in accordance with national priorities will contribute to long-term economic development and scientific progress. Many nations underfund any but the most applied research, perhaps understandably, but threatening thereby to widen the income gap even further and creating a scientific and economic dependence on countries that are scientifically more advanced.

With its active engagement in these debates, the UN Scientific Advisory Board has served a well-grounded foundation for providing interdisciplinary scientific advice to the UN Secretary-General and UN organisations. In the future, it will be important to continue to ensure that

up-to-date and rigorous science is appropriately reflected in high-level policy discussions within the system of the United Nations.

What do you expect from UNESCO with regard to scientific cooperation for sustainable development?

Through its multidisciplinary mandate in education, natural and social sciences, culture and communication, UNESCO is in a unique position to address global challenges in a holistic manner. UNESCO’s science programmes already contribute to the overall implementation of the SDGs, e.g. by providing assistance to support developing countries in strengthening their scientific and technological capacity. To further these activities, UNESCO should promote greater global collaboration among scientists, encourage the use of international science networks, and open up and ensure further avenues for science to inform decision-making.

Given the apparently growing trend to ignore scientific evidence: What do you think are the reasons for this trend? How can we rebuild trust in the scientific method among parts of the population, such that research results continue to be taken into account in decision-making?

At its core, science aims at better understanding the world. Science allows us to constantly expand and revise our knowledge, based on peer-reviewed evidence. In order to encourage people to appreciate and engage with science, I believe that we need to increase science literacy and science education globally. The critical thinking that comes with science education is vital in training the mind, understanding the world, and making sustainable choices. Access to and investments in science education and capacity-building in science at all levels need to be strengthened, especially where the appreciation of the benefits of science and the resources for sciences are less developed.

In the 21st century, science is more important than ever, and we can therefore not allow evidence-based knowledge to be discredited or scientific research to be restricted. Governments have to ensure that this will not happen, but the call is also on the scientific community to reach out to society at large. In times when science is increasingly under pressure in many countries around the world, it is encouraging to see that tens of thousands of people worldwide participated in the “March for Science” in order to voice their support for science that is open, inclusive and accessible.

UNESCO Chairs and UNITWIN Networks

UNESCO Chairs in Germany

Launched in 1992, the UNITWIN/UNESCO Chairs Programme promotes international inter-university cooperation and networking to enhance institutional capacities through knowledge sharing and collaborative work. The Programme supports the establishment of UNESCO Chairs and UNITWIN University Networks in key priority areas related to UNESCO's fields of competence – education, the natural and social sciences, culture and communication.

Through this network, higher education and research institutions all over the globe pool their resources, both human and material, to address pressing challenges and contribute to the development of their societies. In many instances, the Networks and Chairs serve as think tanks and as bridge builders between academia, civil society, local communities, research and policy-making. They have proven useful in informing policy decisions, establishing new teaching initiatives, generating innovation through research and contributing to the enrichment of existing university programmes while promoting cultural diversity. They also contribute to strengthening North-South-South cooperation. Today, the Programme involves over 700 institutions in over 115 countries, 11 of them in Germany:



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- UNESCO Chair in Arts and Culture in Education
Friedrich-Alexander-University Erlangen-Nürnberg
Chairholder: Prof. Dr. Eckart Liebau
- UNESCO Chair in Cultural Policy for the Arts in Development
University of Hildesheim
Chairholder: Prof. Dr. Wolfgang Schneider
- UNESCO Chair in Entrepreneurship and Intercultural Management
University of Wuppertal
Chairholder: Prof. Dr. Christine Volkmann
- UNESCO Chair in Freedom of Communication and Information
University of Hamburg und Hans-Bredow-Institute for Media Research
Chairholder: Prof. Dr. Wolfgang Schulz
- UNESCO Chair in Heritage Studies
Brandenburg University of Technology Cottbus-Senftenberg
Chairholder: N.N.
- UNESCO Chair in Higher Education for Sustainable Development
Leuphana University of Lüneburg
Chairholder: Prof. Dr. Gerd Michelsen
- UNESCO Chair in Hydrological Change and Water Resources Management
RWTH Aachen University
Chairholder: Prof. Dr. Heribert Nacken
- UNESCO Chair in International Relations
Technical University of Dresden
Chairholder: Prof. Dr. Dr. Sabine von Schorlemer
- UNESCO Chair on Integrated Marine Sciences
University of Kiel
Chairholder: Prof. Dr. Karl Stattegger
- UNESCO Chair on Transcultural Music Studies
Department of Musicology Weimar-Jena, University of Music FRANZ LISZT Weimar
Chairholder: Prof. Dr. Tiago de Oliveira Pinto
- UNESCO Chair on World Heritage and Biosphere Reserve Observation and Education
Pädagogische Hochschule Heidelberg
Chairholder: Prof. Dr. Alexander Siegmund



Water and Oceans

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UNESCO Chair in Hydrological Change
and Water Resources Management

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UNESCO Chair in Marine Geology and
Coastal Management

UNESCO Chair in Hydrological Change and Water Resources Management



Prof. Dr. Heribert Nacken, Chairholder of the UNESCO Chair in Hydrological Change and Water Resource Management

CV

The UNESCO Chair in Hydrological Change and Water Resources Management (HydroChange) is held by Professor Heribert Nacken, Director of the Academic and Research Department Engineering Hydrology at RWTH Aachen University, Germany's largest university for technical studies.

Professor Nacken has been the UNESCO Chair holder since November 2010 and Director of the Hydrology Department since 2001. He is also the RWTH Aachen University-Rector's delegate for blended learning, a member of many professional and scientific committees, and has placed numerous publications in refereed journals and international conferences. Nacken received his PhD in Hydrological Modelling from RWTH Aachen in 1990.

In addition to his professional, practical and academic experience in the area of water resources and hydrology, he has wide experience in blended learning, soft computing modelling, Decision Support Systems (DSS), fuzzy and neuro fuzzy simulation tools, deterministic and coupled deterministic-stochastic rainfall-runoff modelling, flood risk management, and eLearning systems for media based learning in water management.

Freshwater is a key resource for human health, prosperity and security. It is essential for poverty eradication, gender equality, food security, and the preservation of ecosystems. Yet billions of people worldwide are confronted with serious freshwater challenges, from water scarcity, poor water quality and lack of sanitation facilities, to water-related disasters such as floods and droughts. Ensuring the availability and sustainable use of water has hence been recognized by the Agenda 2030 as a key for the sustainable development of our planet. SDG 6 is dedicated to making water and sanitation more sustainable, in interlinkage with all other sustainability challenges. The focus is not only on drinking water, but on the entire water cycle, including wastewater and ecosystem resources. UNESCO's intergovernmental research programme on freshwater, the International Hydrological Program, as well as the annual World Water Development Report published by UNESCO on behalf of the United Nations, are major instruments to promote water sustainability.

The UNESCO Chair in Hydrological Change and Water Resources Management (HydroChange) at RWTH Aachen, with Prof. Dr. Heribert Nacken as current Chairholder, contributes to achieving Agenda 2030 in multiple ways: through research and capacity building on water resources management, as well as through Education for Sustainable

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Development (ESD). The regional focus is the Arab region. Its hydrological change requires protecting and efficiently managing water resources, taking into account the social, economic and cultural dimension of water. The UNESCO Chair promotes North-South-South cooperation and knowledge sharing to enable the development of mitigation and adaptation strategies for the Water-Energy-Food nexus. It implements its "Water and Environmental Capacity Building Program for Lifelong Learning" in line with the World Action Program Education for Sustainable Development. Moreover, the UNESCO Chair raises awareness in the fields of water resources, hydrological and global changes. Finally, it supports the establishment of a North-South-South research network for hydrological change and water resources management.

Research Areas

In close collaboration with many European and Arab partners, the UNESCO Chair performs research on the Water-Energy-Food Nexus. The main focus is to contribute to achieving water, food and energy security in the Arab region, while minimizing impact on the environment and mitigating climate change. Activities are conducted at three different levels:

1. Regional exchange: the UNESCO Chair develops an online platform on the Water-Energy-Food Nexus to share knowledge and exchange experiences among experts and stakeholders from these three, hitherto separate sectors.
2. National policies: in Egypt, the UNESCO Chair contributes to the development of a national strategy for the Water-Energy-Food Nexus. This strategy can be transferred to and adopted by other countries in the future.
3. Technical research: the UNESCO Chair coordinates research aiming at minimizing the energy consumption of the desalination process and the usage of solar energy. This would enable production of water in large volumes needed for irrigation, not only drinking water. The produced water will be used for crop and fish production using aquaponics system. The byproducts are also used for food production, and in producing energy from biogas.

International Cooperation

The UNESCO Chair has coordinated and contributed to several international projects and initiatives involving many different partners from Europe and several Arab countries, among them UNESCO Chairs. Examples:

Knowledge Triangle Platform for the Water-Energy-Food Nexus

2013 to 2017
Within the framework of this project, a platform is developed that enables researchers and professional experts from Europe and MENA countries to collaborate in interdisciplinary research, education and innovation. Regular summer schools on the Water-Energy-Food Nexus are organized for PhD students from both regions. Research is conducted on integration of solar energy to produce desalinated water for irrigation and food production.

Development of a Green Innovation and Entrepreneurship Program

2012 to 2015
Within this project, a Master of Science programme in Sustainable Development has been developed at four different universities in Egypt, and in collaboration with three European universities.

Main achievements of EduCamp are

Development of ESD resource kits for schools, with offers of activities for teachers and students that link directly to the school curriculum.

Development of a School Teachers' Training Programme (STTP) to enable teachers to implement ESD and use the kits in their teaching activities.

Establishment of seven Centres of Excellence hosted at seven Egyptian Universities (Cairo, Zagazig, Fayoum, Alexandria, Suez Canal, American University in Cairo and Heliopolis University). They support the introduction of ESD into the education system and provide teachers' training and consultancy.

Education for Sustainable Development
Beyond the Campus

2009 to (ongoing)

The goal of this project, which uses the acronym EduCamp, is to introduce sustainability concepts into schools in Egypt. Partners includes universities and research institutions from Austria, France, Germany, Egypt, Ireland, Italy, Oman, and Portugal (see below).

Research Highlight: Water as
a Topic for Egyptian schools

Introducing the topics Water and Global Change into Egyptian Public Schools has been one of the most important initiatives of the UNESCO Chair. The main objective of a long-term and ongoing project is to implement Education for Sustainable Development (ESD) in Egypt nationwide and at all education levels. These activities started in 2009, at an early stage of the establishment of the UNESCO Chair. They are an example for the overall approach of the Chair when working in the MENA region.

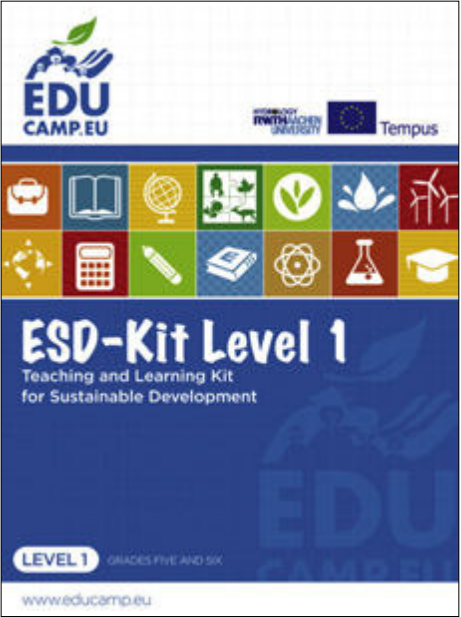
The UNESCO Chair has been a lead partner, working with other European and Egyptian universities, NGOs, the Egyptian Ministry of Education and the Ministry of Higher Education and Bibliotheca Alexandrina. The 'EduCamp: Education for Sustainable Development beyond the Campus' project is funded by the TEMPUS Programme of the European Commission.

The rationale for this project was as follows: although Egypt's economy was progressing well from 2005 onwards, millions of Egyptians did not perceive any improvement in their lives. They felt that the poor were getting poorer, the rich were getting richer and the middle class was disappearing. This situation pushed millions of Egyptians to participate in the revolution of the 25th of January 2011. They were looking for a better life, freedom and equality. The revolution was yet more proof that development which focuses solely on economic progress and neglects people and the environment in its core objectives cannot be sustainable. This type of development has increased water, air and soil pollution, caused health problems and endangered resources, as did careless disposal of wastewater and trash. Egyptians have been suffering for decades from such unsustainable development practices which, in an effort to increase economic prosperity, have caused tremendous damage to both society and the environment. Only sustainable development will enable Egyptians to attain a better quality of life and meet their current needs without compromising the ability of future generations to meet their own needs¹.

Education for Sustainable Development (ESD) enables learners to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future. Therefore, the United Nations had declared 2005-2014 as the UN Decade of Education for Sustainable Development, with a follow-up by the Global Action Programme on ESD. ESD entails including key sustainable development principles into teaching and learning; covering topics such as climate change, disaster risk reduction, biodiversity, poverty reduction, and sustainable consumption. It also requires participatory teaching and learning methods that motivate and empower learners to change their behavior and take action for sustainable development. ESD promotes competencies such as critical thinking, imagining future scenarios, and making decisions in a collaborative way. ESD sets out to achieve far-reaching changes in the way education is often practiced today².

To identify what is really needed to enhance formal school education in Egypt and introduce ESD, the EduCamp team conducted a needs analysis at an early stage of the project. Questionnaires were circulated among teachers (n=60) and students (n=120) in six different schools in Egypt. The needs analysis found that the majority of students (85%) viewed their exams as the main driving force behind their learning. Text books were identified by the teachers as the primary resource (90%) used in teaching. The needs analysis also identified the limited use of group work within the classroom, with only 16% of students engaging in such approaches (compared with 35% of teachers who believed they used such methods). Students were provided with limited opportunities to engage in discussion on challenging topics (32% of students, 26% of teachers) or in field trips (15% of students, 18% of teachers). While teachers tended to be more positive regarding the opportunities for students to interact with their community and environment, only 15% of students believed there was a relationship between their school experience and their community (compared with 39% of teachers). Only 12% of students believed there was a relationship between what they studied in school and their environment (compared with 43% of teachers).

The EduCamp team came to the conclusion that without substantive pedagogical change, a change in school practice is unlikely to occur. Pedagogical change was thus viewed as instrumental: teachers would need to start teaching according to the principles of ESD in order to effect changes in students' thought processes, behaviour and values. The project team also came to the conclusion that it was of vital importance to provide teachers both with the pedagogical tools needed to implement activities effectively as well as with an understanding of the benefits of using such strategies in the classroom and an opportunity to discuss the new teaching approaches with





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colleagues and assess how they compare with current practices.

The EduCamp contributed in developing novel student-centred teaching methodologies, as well as ESD resource kits that would assist teachers in enhancing their teaching activities. They produced a publication with five teaching kits entitled Our World, Biodiversity, Agriculture, Energy, and Water. All materials provided in the publication focus on student-centred pedagogical approaches in line with ESD, using methods such as experiments, class discussions, debates, role playing and games. The teachers are provided with the resources required to complete a given activity (or lesson), an overview of the tasks to be completed as part of the activity as well as the different forms of assessment that could be conducted.

The EduCamp team was aware that without the engagement of teachers, limited change would happen in the classroom. Special consideration was thus given to the inclusion of teacher development. To empower teachers and contribute to their professional development, the EduCamp project implemented a 'Train the Trainers' Program, with the participation of 39 academics and teachers (linked to the seven Centres of Excellence established in the process). The EduCamp 'Train the Trainers' Program included nine training modules and focused specifically on the meaning of sustainable

development as well as on innovative teaching methodologies linked to ESD. The training focused specifically on the meaning of sustainable development as well as on innovative teaching methodologies linked to ESD. The training focused on the five main clusters covered by the teaching kits (Our World, Biodiversity, Agriculture, Energy, and Water).

Following the 'Train the Trainers' sessions, trainers began working with a certain number of schools in their vicinity, where they assisted the teachers in exploring how ESD could be integrated into their schools. These sessions covered pedagogical content, innovative approaches to teaching and learning, and cultural factors of successful schools such as developing collaborative relationships between teachers. Around 150 teachers participated in these first training sessions. Their overwhelmingly positive feedback assured the EduCamp team that their work adds value and meets teachers' needs. Subsequently, the trainers coached the teachers in school visits during sessions to implement activities from the EduCamp resource kits. The teachers reported afterwards that their students were much more attentive than during usual lessons and they were delighted about the interactive approach.

Within the EduCamp project, all work with schools, including the 'Train the Trainers' sessions, was based on interactive and partici-

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patory teaching, and encouraged trainers and teachers alike to develop and share their own understanding and experiences of engaging in innovative methodologies.

Finally, each of the seven Egyptian partner universities established a Centre of Excellence for ESD. The centres are fully equipped and ready to host teacher training sessions and provide ESD consultancy services to schools and educators. These bodies, the trained trainers and their training materials have been accredited by the Professional Academy of Teachers which is the accreditation body of the Egyptian Ministry of Education. The EduCamp team is currently working on the third phase of this project which includes pilot implementation and developing an Egyptian School Model for Sustainable Development – "School 2030". All of these efforts were accomplished by a large interdisciplinary team of experts who are convinced that ESD can help Egypt and the entire world to attain a better future.



Footnotes

1 United Nations. 1987."Report of the World Commission on Environment and Development." General Assembly Resolution 42/187, 11 December 1987. Retrieved: 2007-04-12

2 UNESCO Website (http://www.unesco.org)

UNESCO Chair in Marine Geology and Coastal Management



Prof. Dr. Karl Stattegger, Chairholder of the UNESCO Chair in Marine Geology and Coastal Management

CV

The UNESCO Chair for Marine Geology and Coastal Management is held by Professor Karl Stattegger. Since 1990, Stattegger has held the professorship in Sedimentology in the Institute for Geosciences at Kiel University, placing strong focus on coastal and shelf geology. Since 2013, he has been the holder of the Kiel University UNESCO Chair in Marine Geology and Coastal Management. He has intensively studied deglacial sea-level rise and flooding history in the South China Sea and on the northeastern Brazilian coast, and has compared this to the Holocene flooding history of the Baltic and North Seas. Recent studies on river-mouth systems comprise the Mekong Delta in Vietnam, the São Francisco and Parnaíba deltas in Northeastern Brazil, and the Incomati Estuary in Mozambique.

In 1986, after completing a Humboldt fellowship from 1983 to 1985, he earned his Habilitation in Mathematical Geology at University of Graz, Austria. Professor Stattegger studied Geology and Paleontology at University of Graz. He earned his doctorate in Geology and Paleontology in 1977.

The Cluster of Excellence “The Future Ocean” is a joint institution of Kiel University, the Kiel Institute for the World Economy and the GEOMAR Helmholtz Center for Oceanography in Kiel. This interdisciplinary marine research group has been funded by the German Research Foundation since 2006.

The world’s oceans are the key drivers of global systems that make the Earth habitable for humankind. Rainwater, drinking water, weather, climate, much of the world’s food, the oxygen in the air and coastlines are all provided and regulated by the sea. Three billion people depend on marine and coastal biodiversity for their livelihoods. Careful management of this essential global resource is a key feature of sustainable development. Many coastal regions are already intensively and negatively affected by the effects of global climate change, inter alia by the rise in sea level and the increased frequency and intensity of storm surges, resulting shoreline retreat. Combined with its intensive use by humans, the coast is subject to rapid restructuring. It is of critical importance to understand the dynamics of coastal zones, and especially the roles played by the interfaces between land and sea, between water column and sea floor, and between freshwater and saltwater.

With the Agenda 2030 and specifically SDG 14, the international community has pledged to sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, and to take action for their restoration by 2020 in order to achieve healthy and productive oceans. UNESCO makes significant contributions to

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achieving this goal through the work of its Inter-governmental Oceanographic Commission on research, monitoring and capacity building.

The UNESCO Chair for Marine Geology and Coastal Management at Kiel University, established in 1997, focuses its research on coasts and adjoining shallow water areas. The current Chairholder is Prof. Dr Karl Stattegger, Head of the Working Group on Sedimentology, Coastal and Shelf Geology at the Institute of Geosciences. His research investigates changes in river-mouth systems that are caused by slow processes such as sea-level rise, changes in sediment supply, coastal erosion and short-term extreme events like strong storms. The work of the UNESCO Chair involves among other things, training courses and summer schools that introduce young scientists to the methods of marine and coastal geology, thus making a tangible contribution to implementing Agenda 2030.

Research Areas

Since 2012, the UNESCO Chair in Marine Geology and Coastal Management has been a joint endeavour of Kiel University’s Cluster of Excellence, “The Future Ocean”. Since the Cluster of Excellence was founded in 2006, Prof. Stattegger has been a member of The Future Ocean. He has been the UNESCO Chairholder since 2013. In line with the overall mission of the Cluster of Excellence, geared towards multidisciplinary scientific research on the past and present ocean and its interaction with society to predict the future of the Earth’s marine environment, research of the UNESCO Chair concentrates on sea-level change, coastal and shelf evolution, river-mouth systems and coastal morphodynamics. Central research questions include:

- Which factors influence regional sea-level change and to what extent?
- How can we explain the highly accelerated sea-level rise in the early Holocene?
- How do coastal systems respond to changes in sea level, storm occurrence and river discharge?
- How resilient are shorelines to sea-level rise?
- How can we detect early phases of instabilities in subsiding deltas from offshore changes in morphodynamics?

International Cooperation

In several projects, the UNESCO Chair works on coastal and shelf areas around the world. Main research locations are Brazil, Mozambique, the German Bight, Malaysia, Morocco, the Baltic Sea, Thailand and Vietnam. Research is carried out in close cooperation with national and international teams, sharing access to coastal regions on land and at sea, as well as to data. International partners include the University of Colorado Boulder and Rutgers University, both in the US, the Geological Survey of Japan in Tsukuba, Tongji University in Shanghai in China, and the Federal University of Rio Grande do Norte in Brazil.

The UNESCO Chair conducts training courses and summer schools that introduce young scientists to the methods of marine and coastal geology, coastal hydro and sediment dynamics. Annual summer schools were held between 2013 and 2016 in Maputo, Mozambique; Natal, Brazil; Hanoi, Vietnam; and Kuala Terengganu, Malaysia. Each summer school included a week of theoretical training and a week of practical exercises at sea. The UNESCO Chair has also provided scientific support for establishing a Master’s course in coastal and environmental geology at the

Eduardo Mondlane University in Maputo, working closely with the local UNESCO Chair in Marine Sciences and Oceanography, with Chairholder Dr. Antonio Mubango Hogueane.

Recently, together with several colleagues from the University of Kiel’s Cluster of Excellence, the UNESCO Chair contributed to the “SDG Academy” Massive Open Online Course on the Oceans. This course is part of a larger series of courses run by the Sustainable Development Solutions Network. The Online Course on the Oceans is funded in part by the International Ocean Institute.

Current and recent research projects

2013 – 2018 The South China Sea Deep Program (National Natural Science Foundation of China)

2015 – 2018 Holocene evolution and present-day dynamics of the Parnaiba Delta: Response of a natural delta to climate change and sea-level rise (CAPES, Brazil)

2011 – 2014 ‘Land-Ocean-Atmosphere Interactions in the Gulf of Tonkin, Vietnam-China’ (BMBF)

2009 – 2012 ‘Atlantic Margin Integrated Basin Analysis, Morocco’ (RWE)

2009 – 2012 ‘Northern Brazilian River Deltas: River Impacts versus Pristine Discharge’ (DFG, DAAD)

2008 – 2012 ‘TRIAS – Tracing Tsunami Impacts Onshore and Offshore in the Andaman Sea Region’ (DFG Joint project)

2003 – 2011 ‘Land-Ocean-Atmospheric Interactions in the Coastal Zone of SE Vietnam’ (DFG-Joint project, BMBF)



Knowledge Societies



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UNESCO Chair in Freedom of
Communication and Information

UNESCO Chair in Freedom of Communication and Information



Prof. Dr. Wolfgang Schulz, Chairholder of the UNESCO Chair in Freedom of Communication and Information

CV

Professor Wolfgang Schulz has been director of the Hans-Bredow-Institut for Media Research since 2001 and has held the professorship for “Media Law and Public Law including Theoretical Foundations” at the Faculty of Law at the University of Hamburg since 2011.

The UNESCO Chair in Freedom of Communication and Information was established in February 2014 as a joint initiative of the Hans-Bredow-Institut and the University of Hamburg.

In February 2012, Professor Schulz was appointed director at the Humboldt

Institute for Internet und Society in Berlin. Before completing his Habilitation at the Faculty of Law at the University of Hamburg in July 2009, which granted Venia Legendi in public law, media law and legal philosophy, Professor Schulz taught information and communication at the Faculty of Law at the University of Hamburg since 1997.

Professor Wolfgang Schulz studied Law and Journalism in Hamburg.

Knowledge and information have significant impact on people’s lives. The sharing of knowledge and information, particularly through Information and Communication Technologies (ICT), has the power to transform economies and societies. UNESCO works to create inclusive knowledge societies and empower local communities by increasing access to as well as preserving and sharing information and knowledge in all of UNESCO’s domains. Inclusive Knowledge Societies are the way forward, as they build on the sum of human ingenuity, technical innovation and the power of information and knowledge. They have the potential to achieve lasting, positive impacts on education, economic prosperity, social inclusion and environmental protection, and thereby work towards peace and sustainable development. Knowledge societies must build on four pillars: freedom of expression; universal access to information and knowledge; respect for cultural and linguistic diversity; and quality education for all. The Internet plays a particular role in fostering Knowledge Societies. In order to do so UNESCO has emphasized that it must be Human-rights-based, Open and Accessible, and governed by Multi-stakeholder participation (ROAM principles).

UNESCO Chairs in Germany

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Research Areas

The UNESCO Chair in Freedom of Communication at the University of Hamburg and the Hans-Bredow-Institut for Media Research engage in research around the topic freedom of communication and information with a special focus on Asia and the Pacific region to develop innovative concepts for ensuring and promoting the inclusion of all and the diversity in knowledge societies.

The human rights perspective – particularly freedom of expression and information, but also education as a human right: Not only the individual freedom for all, but also the structural side thereof are relevant once again, especially in the form of independent media and professional journalism. Independent and professional media is thus of utmost importance, because it uncovers the shortcomings, mistakes and abuses within a democracy. In turn, this helps to ensure the strengthening and the emergence of democracy. Free media and especially free press are correctives that reveal imbalances and contribute to correcting them.

Participation of all in Knowledge Societies: When most parts of the world’s population have full access to the world’s knowledge, it becomes more difficult to violate human rights and to maintain knowledge monopolies. In addition, the participation of all in the knowledge society permanently increases the body of knowledge itself. The potential offered particularly by the Internet for access to the world’s knowledge can only be tapped into if certain conditions exist; these result from the structural conditions of access (openness), but also the ability of each individual to develop the content independently. This aim can also be found in strategic programme objective 12 (Enhancing universal access to information and knowledge).

Preservation and promotion of cultural diversity: The knowledge society requires structures that ensure the diversity of content, and not just of the transmissions and platforms. Public-service broadcasting thus continues to play an important role in many countries, and especially in emerging democracies.

International Cooperation

The UNESCO Chair in Freedom of Communication and Information builds and sustains a network of collaboration around the topic of freedom of communication and information with a special focus on Asia and the Pacific region. The UNESCO Chair engages jointly with partners in research in this field to accomplish goals in the respective research areas.

To be able to work with a stable research network with global outreach, Professor Wolf-

gang Schulz was one of the initiators of the Global Network of Internet and Society Research Centers (NoC), which currently includes 76 research centres in the field of internet and society worldwide.

As the UNESCO Chair in Freedom of Communication and Information has a regional focus on Asia and the Pacific region, it organizes events and partnerships with several partners in the region. One such international partnerships to promote progress in the fields of freedom of communication and information has been entered into with the National Law University, Delhi, India. The collaboration activities include periodically organized summer schools to support and promote young researchers. The most recent summer school took place in March 2017 in Delhi, India.

In October 2016, a collaboration with the Hong Kong University led to a “Symposium on Big Data and Data Governance” which was also part of the German-Hong Kong-DAAD Joint Research Project. The symposium was accompanied by a workshop for young researchers from China and Germany.

Research Highlight: Human Rights and Encryption

In the course of recent decades, encryption has proven uniquely suitable for use in digital environments. It has been widely deployed by a variety of actors to ensure protection of information and communication for commercial, personal and public interests. From a human rights perspective, there is growing recognition that the availability and deployment of encryption by relevant actors is a necessary ingredient in achieving a free and open Internet. Specifically, encryption can support free expression, anonymity, access to information, private communication and privacy. Thus, limitations on encryption must be carefully scrutinized.

UNESCO Chair Holder Professor Schulz together with Dr. Joris van Hoboken from the University of Amsterdam published their research on “Human rights and encryption” in the UNESCO Series on Internet Freedom in 2016. The publication follows UNESCO’s Internet Universality principles. The study outlines a global overview of the various means of encryption, their availability and their potential applications in the media and communications landscape. It explains how the deployment of encryption is affected by different areas of law and policy, and offers detailed case studies of encryption in selected jurisdictions. The study also conducts an in-depth analysis of the role of encryption in the media and communications landscape, and its impact on different services, entities and end

users. Building on this exploration and analysis, the research provides recommendations on encryption policy that are useful for various stakeholders.

Case Study: Germany

As part of the global debate on encryption in the late 1990’s, a debate also took place in Germany about the need and legitimacy of imposing a general ban on the encryption of communications because of the impact on criminal investigations. Unlike for example in the United Kingdom, such a ban is no longer being seriously considered. There are profound doubts regarding the constitutional legitimacy as well as concerns about the negative factual consequences of such a ban. In qualitative terms, a number of fundamental rights are considered to be affected by restrictions on encryption: Telecommunications secrecy, the expressions of the general right of personality and, indirectly, all communicative freedoms that are exercisable over the Internet. That is why the Federal Government set out key points in 1999 for the German cryptographic policy which are designed to ensure confidence in the security of encryption rather than restricting it.

Broadly speaking and in addition to the statements made by the German Minister of the Interior regarding possible future restrictions, Germany aligns with the position of the UN Special Rapporteur David Kaye and adopts policies of non-restriction or comprehensive protection, and only adopts restrictions on a case-specific basis. In the submission to David Kaye, it is clarified that Germany’s Cyber Security Strategy is about ensuring the security of businesses and private individuals on the Internet. The Federal Government therefore encourages and supports the use of encryption technology.

Related to this, there have been recurring discussions on whether or not a master key (‘backdoor’) for security agencies is both sensible and feasible. The debate also recognized the availability and possibility of more targeted solutions by discussing lawful access regimes that are not directed towards encryption algorithms themselves, but tend to be directed towards spying out passwords and keys using “sniffer” software or “keyloggers”. There is a growing body of case law about these means of government access to data and the safeguards required on the basis of the German Constitution (Grundgesetz).

The German population is often referred to internationally as attaching particular weight to the right to privacy and personal data protection. Germany may thus be unusual in terms of the population’s general attitude towards the protection of privacy and related safeguards. A survey conducted by BITKOM in Germany

showed that the number of respondents who encrypt their emails increased from 6% in 2013 to 16% in 2014. Although the poll of 1,000 respondents may not be representative, the trend towards more encryption is evident. There are several niche encrypted communications services and developer projects operating in Germany, one being the German-based email provider Posteo that wants to set new standards in dealing with the data of its users. For example, the Internet messaging service Telegram, which is headquartered in Berlin, recently caused a stir because it was rumored that members of ISIS were using the service. Gpg4win (GNU Privacy Guard for Windows), an encryption software programme for files and emails, is another example with ties to German developers. It is fair to say that the Snowden leaks have given rise to a new generation of startups in Germany.

In November 2015, governmental representatives as well as representatives from the private sector signed a “Charter to Strengthen Trusted Communication”, in which they proclaimed: “We want to be Encryption Site No. 1 in the world”. Unlike in the rest of Europe and in the US, the terror attacks in Paris did not lead to a new national debate on encryption in Germany. The German Federal Office of Information Security has provided new guidelines on the implementation of email standards, endorsing new IETF standards on secure email. The German government has also used its foreign policy to promote international privacy standards. In particular, Germany, in a joint effort with Brazil, proposed that the Human Rights Council appoint a UN Special Rapporteur on the Right to Privacy. There are multiple examples of government efforts to implement encryption policy. These range from informal actions, to laws and regulations.

IT Security Act

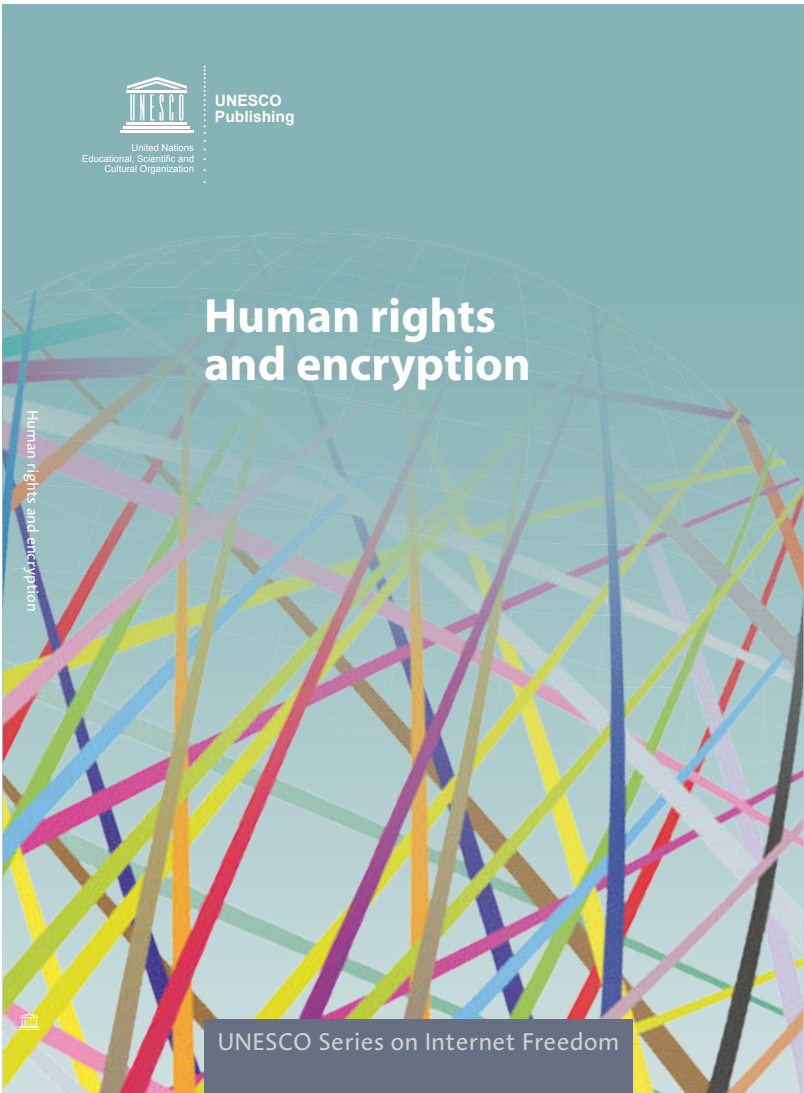
The IT Security Act (Gesetz zur Erhöhung der Sicherheit informationstechnischer Systeme) that went into effect in July 2015 is the consequence of the Cyber Security Strategy that was adopted in 2011. The Act places carriers of particularly critical infrastructures, such as those in the telecommunications sector, under obligation to provide adequate network security by means of minimum standards and notification requirements for IT security incidents.

Industry-specific Regulations on Encryption and Information Security

There are also several sector-specific rules for encryption and information security in Germany. The Telecommunications Act (TKG) contains standards for telecommunications, while the Energy Act (EnWG) does so for the energy sector. At European level, the Network and Information Security (NIS) Directive will force Essential Services and Digital Service Providers to be more

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secure in the future. In anticipation of this, the Act on the Federal Office for Information Security (BSiG) has been updated on the national level. The law provides common obligations for “critical infrastructure” (see Section 8c BSiG for the scope).

Media Education Warnings and Recommendations

Internet security, including information on encryption, is part of the education of the general public through media pedagogical warnings and recommendations, which are served through governmental institutions. Thus, the Federal Office for Information Security (BSI) and the state (Länder) media authorities give advice on sensible Social Media use and issue warnings about phishing traps, meaning attempts to trick Internet users into providing their credentials through fake email messages. The state media

authority of Saarland for example offers a seminar on secure data encryption.

The German Fundamental Right to the Integrity of IT Systems

As regards the constitutional basis, the ruling of the German Constitutional Court from 2008 concerning online searches 121 and its jurisprudence on informational self-determination may provide valuable input for legal handling of encryption techniques at international level. The basis for the ruling was an authorization norm of an intelligence service (Verfassungsschutz Nordrhein-Westfalen) that was allowed secret access to information technology systems. The norm consisted of two elements, allowing the secret monitoring and other unveilings of the Internet (Alt. 1) as well as the secret access to information technology systems (Alt. 2). Scrutinizing these provisions under the German

Constitution (Grundgesetz), the court took this as an opportunity to establish high standards for the infiltration and manipulation that reached far beyond the facts of the case at hand.

Specifically, the court created a new dimension to the general right of privacy: The right to the protection of confidentiality and the integrity of information technology systems (the so-called “IT basic right”). It concluded that an interference with this right by secret infiltration was only permissible if factual indications of a concrete danger for a predominantly important legal interest exist. Infiltration is in principle subject to judicial warrant. The dimension of protection, and the progression as a result of technological advancement, that was pursued by the Court was widely acknowledged and appreciated. It constitutes an adequate complement to telecommunications secrecy, which protects only the ongoing communication, not the system itself.

With the IT basic right, the constitutional court recognizes – metaphorically speaking – that parts of one’s personality go into IT systems and therefore the applied protection has to travel with it. In the digital field, this idea is specified by the ruling of the Constitutional Court that already established the right to informational self-determination in 1983.

It is worth discussing the specifics of the new right in more detail. In today’s digital environment, the self-determination that is protected requires the possibility of self-protection. An important way of achieving this protection is through the use of various encryption techniques in the digital environment. However, by infiltrating the IT system, this self-protection is circumvented. This leads to an increased dependence of the individual on mechanisms and technological systems that lie outside of his or her control.

The Constitutional Court acknowledges this with regard to access by the intelligence service, which is specifically directed towards circumventing encryption technology and thereby circumventing self-protection provisions against unwanted access to the data of the targeted individual or his or her service provider. It views such infiltration as a particularly heavy infringement. In other words, the individual was essentially granted the right to defend him or herself autonomously against infiltration and manipulation of their personal data. In summary, it can be said that in the digital environment, the right to informational self-determination in Germany implies the right to use encryption with regard to IT systems.

However, another question that must be asked is whether the Basic Law (GG) itself contains a “right to encryption” which applies

comprehensively. This can possibly be derived from the combination of individual fundamental rights. Thus, the secrecy of telecommunications (Article 10 I GG) and the inviolability of the home (Article 13 I GG) are both affected by certain constellations as well. Through the technology-neutral secrecy of telecommunications, current telecommunications are protected from governmental insight. To ensure the confidentiality of data during transmission, it seems logical to consider the use of encryption methods protected by this right, too.

The phrasing of the new IT basic right carries an element of a “guarantee”. This illustrates that the ruling goes beyond the dimension of the fundamental rights as a defense against government interference. According to the Court, the State also bears the responsibility of protecting the integrity and trustworthiness of information technology systems used by individuals against infringements by non-state actors.

Another constitutional goal is to prevent “chilling effects” on the exercise of communicative liberties. This negative effect was already addressed by the Constitutional Court in connection with a consensus (Volkszählung) back in 1983. In this respect, there is a connection between the factual protection through encryption and the individual exercise of freedom, such as is the case, for example, with the free exercise of freedom of expression. Only a fearless exercise of one’s communicative liberties can thus be described as truly free under the concept of the German constitution.

Additionally, a core insight of the ruling is that modern communication relies mostly on technology. Consequently, effective protection of the fundamental rights in this area also requires protection of the technological communication infrastructure and its usage. This objectified and functional approach to human rights protection is strongly developed in German constitutional law. The importance of technological design for freedom of speech is recognized in the international debate as well.

Germany’s Work on Privacy
by Design and Data Protection
through Technology

The acknowledgement of individual powerlessness against increasingly dynamic developments in complex IT systems also leads to data protection concepts of privacy and data protection through technology and design, which apply in German law and at the EU level. The goal of these principles is to consider privacy interests and data protection proactively in the early stages of conception and design of systems in order to prevent a frequently irreversible negative development regarding data security law. Privacy by design can be a supportive factor for data security, data minimization

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and the development capability of its protection.

Because of this relevance, data protection through technology and data protection friendly defaults represent a significant element of the General Data Protection Regulation (GDPR) that has recently been adopted at the European level. Technological and organisational measures and procedures are required to ensure that the processing meets the requirements of the enactment and also the protection of the individual in question (Article 23 GDPR). This approach is already hinted at on a national level in Sections 3a and 9 of the Federal Data Protection Act (Bundesdatenschutzgesetz, BDSG), whereas Section 3a is centered on System Data Protection and Section 9 around Data Security. Although the German national law thus contains innovative approaches, they are not yet mature. For example, the non-observance of Section 3a neither automatically leads to substantive illegality of the data processing, nor to a sanction. As a result, it is hard to assess how effective the approaches actually are at present.

Recommendations

While the above mentioned case study focuses on Germany, the study by the UNESCO Chair and Dr. Joris van Hoboken has provided an in-depth analysis of the role of encryption in the media and communications landscape, and of the impact on different services, entities and end users in various countries and all regions of the world. Building on this analysis, the research provides comprehensive recommendations on encryption policy that are useful for stakeholders worldwide. The general recommendations emphasize that there needs to be recognition of cryptographic methods as an essential element of the media and communications landscape. From a human rights perspective, what ultimately matters is that cryptographic methods empower individuals in their enjoyment of privacy and freedom of expression, as they allow for the protection of human-facing properties of information, communication and computing. These properties include the confidentiality, privacy, authenticity, availability, integrity and anonymity of information and communication.

The protection of encryption in relevant law and policy instruments from a human rights perspective is particularly important because encryption makes it possible to protect information and communication on the otherwise insecure communications platform that is the Internet. Initially, the Internet itself was not designed to provide for the general security of information and communications. Over the years, cryptographic techniques have become a core component of the Internet, supported by numerous protocols and standards that support their implementation in practice. Encryp-

tion makes it possible to help ensure confidentiality, privacy, authenticity, availability, integrity and anonymity in specific settings. This facilitates the protection of human rights of Internet users, and their freedom of expression and privacy in particular.

Further recommendations on the structural conditions related to encryption and human rights as well as the publication itself are available at: unesdoc.unesco.org/images/0024/002465/246527E.pdf. The text is licensed under CC-BY-SA 3.0 IGO



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UNESCO Chair on World Heritage and Biosphere Reserve Observation and Education



Prof. Dr. Alexander Siegmund, Chairholder of the UNESCO Chair on World Heritage and Biosphere Reserve Observation and Education

CV

The UNESCO Chair on World Heritage and Biosphere Reserve Observation and Education is held by Prof. Dr. Alexander Siegmund. He is professor for Physical Geography and Geo-Education at Heidelberg University of Education and head of the Department of Geography. In addition he is Honorary Professor at the Institute of Geography at Heidelberg University as well as a founding and board member of the Heidelberg Center for the Environment (HCE). He initiated and leads the “GIS-Station, Klaus-Tschira-Centre of Competence for digital Geo-media” as well as the “Geco-Lab, Centre of Competence for Geo-ecological Space Exploration”. His research focuses on regional climate and climate change, geo-ecology, environmental monitoring and modelling, applied remote sensing and GIS, and environmental and geo-education.

Professor Siegmund is a member of the Expert Forum for Higher Education of the German Federal Ministry for Education and Research (BMBF) within the Global Action Programme on ESD, as well as a member of the governmental Council for Sustainable Development of Baden-Württemberg. As the speaker of the ESD Higher Education Network Baden-Württemberg, co-initiator of a working group on World Heritage Education (in cooperation with the German Commission for UNESCO), and head of the Interdisciplinary Institute of Natural Sciences, Technology, and Society (NTG), he has fostered the use of modern methods in environmental and sustainability research and ESD for a number of years.

Sustainable development is context specific. In order to move closer to the normative concept of sustainability, more specifically to move away from non-sustainable development, change is needed in concrete contexts – and such change needs to be analysed, monitored, understood, and communicated. Not only does the Agenda 2030 need new global and national political action, it also needs research and action on the local scale. This is why cultural and natural heritage sites such as UNESCO World Heritage Sites, UNESCO Biosphere Reserves and UNESCO Global Geoparks are key to sustainable development. They are sites of learning about past environmental and cultural change and, at the same time, laboratories for innovative approaches. Their mandate is not restricted to one or few SDGs, as model regions they address the full spectrum. Specific reference is made in SDG 11.4. Their conservation and sustainable use is thus reliant on scientific support.

In September 2016, the UNESCO Chair on World Heritage and Biosphere Reserve Observation and Education was established at the Heidelberg University of Education’s Department of Geography – Research Group for Earth Observation (rgeo). The UNESCO Chair combines aspects of modern environmental research with environmental education and Education for Sustainable Development (ESD). It promotes the use of technologies for observation and in education, and most specifically in relation to World Heritage Sites, Biosphere Reserves and Geoparks. This improves their site management and their ability to implement Agenda 2030. In this way, the UNESCO Chair promotes the preservation, management, and awareness rising for the universal value of these sites and landscapes.

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Research Areas

The UNESCO Chair cooperates with several partners globally, including several other UNESCO Chairs, wider academia and UNESCO designated sites. It focuses on environmental geo-science and geo-science education, concentrating on earth observation, monitoring, and modelling of environmental changes as well as analysing the driving forces of human-environmental interaction. In particular, it promotes the use of modern geo-technologies such as remote sensing and other digital geo-media such as satellite images and Geographic Information Systems (GIS), both in education and for improved site management. Examples include:

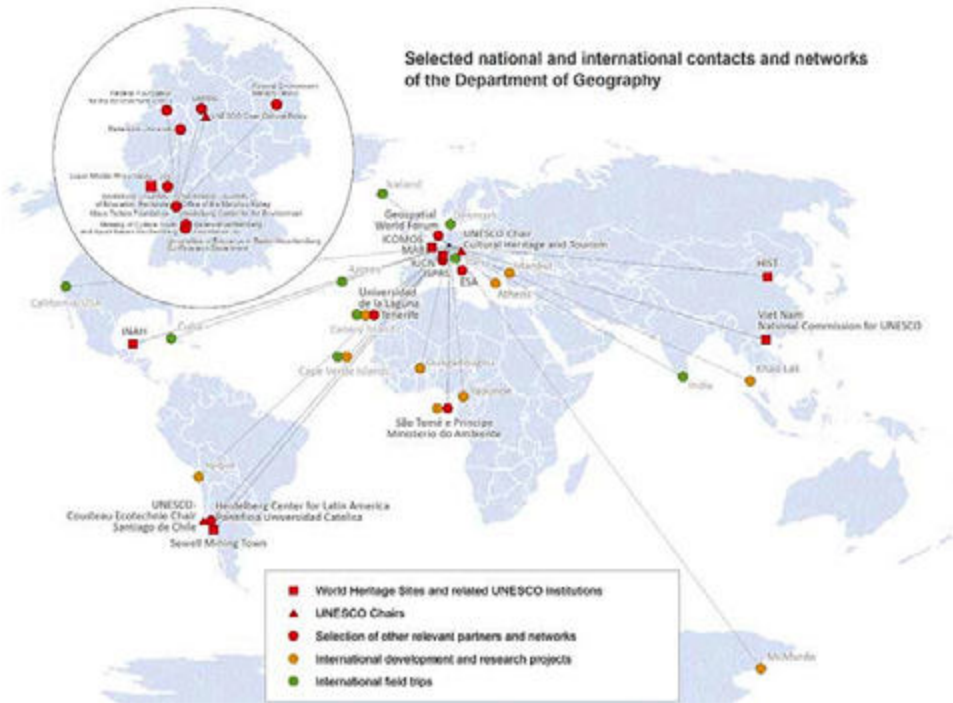
- Human-environmental interaction on agriculture and tourism on Tenerife (Spain)
- Geo-ecological modelling of fog ecosystems in the Atacama Desert (Chile)
- Climate Change Education and sustainable adaption strategies – projects in the Geco-Lab, Center of Competence for Geo-ecological Space Exploration
- Earth Observation in Schools with an adaptive learning environment – projects in the GIS-Station, Klaus-Tschira-Center of Competence for digital Geo-media
- UNESCO World Heritage: Preservation through education with digital Geo-media – “Space2Place”

These exemplary activities and fields of competences of the UNESCO Chair are described in detail below.

International Cooperation

The UNESCO Chair works at different levels, from local to international, promoting the transfer of knowledge and experience between Germany and the world, especially the global South. Focus areas are semiarid island eco-systems like the Canary Islands and Cape Verde, as well as hyper arid dryland areas in South America and tropical Africa. Longstanding institutional forms of cooperation have been established, such as with the Pontifical Catholic University of Chile and a common master programme established in Chile based on a co-operation of Prof. Siegmund and his Research Group for Earth Observation (rgeo) with Heidelberg University.

At the local level, the UNESCO Chair is an active partner in several projects and networks around Heidelberg that concentrate on sustainability topics such as climate change and renewable energy. This involves projects with students and trainees to promote awareness for regional climate change and the development of sustainable adaption strategies. Another example is the mobile multimedia exhibition, “Expedition N”, financed by Landesstiftung Baden-Württemberg which fosters knowledge about renewable energy and sustainable action in everyday life.



International network of research co-operations, research and outreach activities of the UNESCO Chair on World Heritage and Biosphere Reserve Observation and Education

Research Highlights

Human-environmental interaction on agriculture and tourism on Tenerife (Spain)

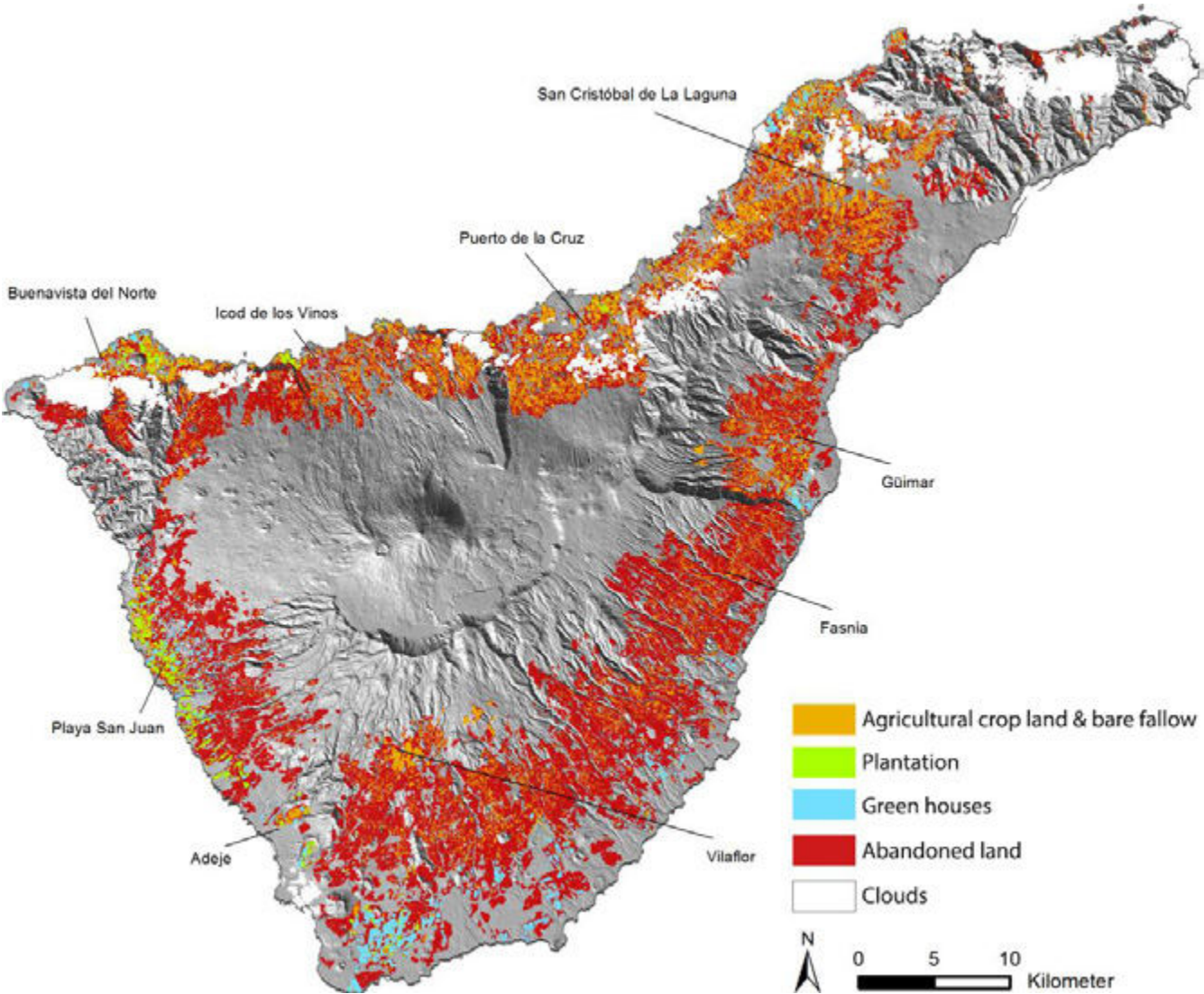
Since the mid-1960s, Tenerife, one of the Canary Islands, has been subject to economic change, moving from an agrarian-based to a service-based society, mainly focused on tourism. Whereas 1.3 million tourists visited the island in 1978, there were about 5.5 million in 2016 – leading to social changes and far-reaching consequences for the natural landscape. Expansion of infrastructure in coastal regions, mainly due to increasing tourism, is one of the most visible changes of land use and land cover (LULC). But also increasing areas of fallow land in higher and backward regions is one of the effects of LULC dynamics, a result of migration of agriculturalists to the tourism sector.

The UNESCO Chair repeatedly investigated the consequences of these changes in sensitive regions affected by increasing infrastructure and

increasing fallow lands in the past. For this purpose, several quantitative analyses of object-based land use classifications on different remotely sensed data (LANDSAT, SPOT, RapidEye, orthophotos) have been performed for the whole island. Additionally, the factors responsible for the infrastructural and agricultural LULC changes have been identified by means of statistical analysis. They can be subdivided into socioeconomic drivers (e.g. population, tourists, employees in agriculture and the tourist sector), proximate drivers (e.g. regional planning, topographical situation and nature protection areas) and location-specific drivers (e.g. proximity of areas to settlements). Based on the different LULC changes that have occurred over recent decades and the identified driving forces, the spatial development of settlements and of fallow land have been monitored, modelled and visualized. This allowed the development of scenarios of threats to future vegetation from ground sealing and of possible resettlement trends in fallow lands, based on cellular automata and a multi-agent-based model.



Succession of ecologically valuable pine and laurel forest on fallow agricultural land on Tenerife Island.



Areas under recent agricultural use and fallow Island on Tenerife in 2010

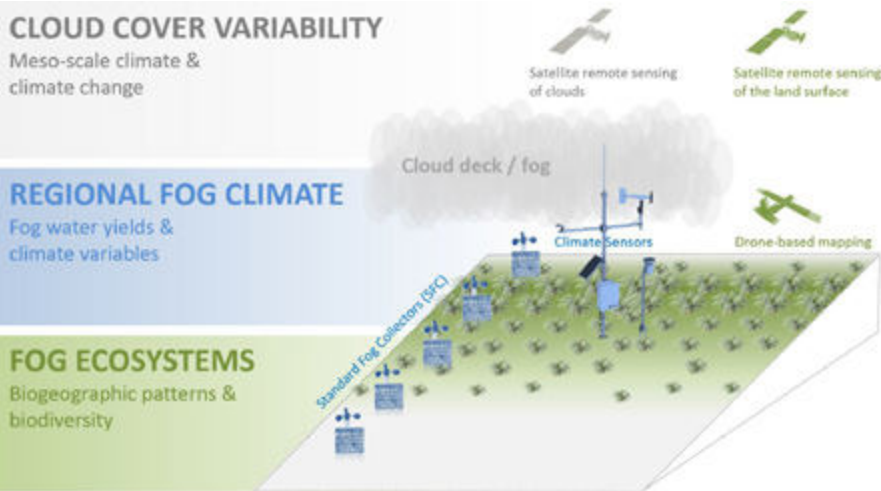
Kilometre

The analysis shows that during 1978–2002 ground sealed areas increased by 228%. The most significant changes took place in the coastal and mean heights region of the island, affecting the vegetation of succulent bush with endemic plants. Currently ongoing changes will impact regions mainly in the arid south and south-west of Tenerife, beyond already existing settlements. About one third of the total area of Tenerife is shaped by former and/or recent agricultural use (see figure). However, in 2010, approximately 72% of this area consisted of agricultural set-aside. A scenario based on subsidies by the EU forecasts a renewed possible expansion of agriculture.

Geo-ecological modelling of fog ecosystems in the Atacama Desert as a bio-indicator for climate change and natural water resources

About 20% of the earth is covered by deserts, where limited access to fresh water requires specialized adaption strategies for humans and wildlife alike. The UNESCO Chair has initiated a joint research project in the Chilean-Peruvian coastal desert zone, working with researchers from universities in Chile, Peru and Spain, and using funds from the European Union and other sources. The extremely dry (hyper arid) conditions of this desert zone are particularly manifest in the Atacama in northern Chile – it is the driest place on earth and some of its parts not having experienced rainfall for decades. Nonetheless, some ecologically specialized plant communities of the genus Tillandsia survive in disjoint, isolated patches, through foliar uptake of water from coastal fog. Areas exposed to the coastal fog in sufficient frequency and intensity may be the breeding ground for plant growth, thereby forming the so-called “fog oases” – unique geo-ecosystems with a high proportion of endemic species.

The research project mapped and analyzed the distribution patterns of the fog vegetation using satellite-based remote sensing and geospatial analysis techniques. Once compared to cloud cover times series data from meteorological satellites, the particular dependencies of the fog ecosystems on the meso-scale climate became evident and exposed their particular sensitivity to climate change. Ground-based measurements on fog water yields and various climate parameters complemented the synoptic view of space borne data. High resolution aerial imagery as acquired during several flight campaigns using unmanned airborne systems (UAS) allowed an even more detailed analysis of vegetation structure and vitality.



Multiscale space and ground based observation concept on geo-ecological modelling of fog ecosystems in the Chilean-Peruvian coastal desert.

By integrating different research disciplines and observation scales, the project of the UNESCO Chair contributed to a better understanding of the connection between fog geo-ecosystems, coastal fog as the main water source, and oceanic-atmospheric indices as well as the species/genetic diversity and spatial dynamics of the plants. The results supported authorities in their efforts towards biodiversity conservation and raised awareness for the unique value of the Chilean-Peruvian fog geo-ecosystems and their iconic role as a bio-indicator of climate change.

Climate Change Education and sustainable adaption strategies – projects in the Geco-Lab

As part of the UNESCO Chair, the “Geco-Lab, Centre of Competence for Geo-ecological Space Exploration” is a modern laboratory for learning, teaching and research. It serves as an out-of-school learning location for high school students and apprentices, as a training institution for students and teaching staff, as well as a research workplace for numerous projects and PhD theses in geo-science and science education. The Geco-Lab builds a bridge between the detection of environmental changes in the field, the exploration and analysis of geographical and geo-ecological processes in the lab, and the explanation of environmental phenomena in the context of sustainability.

A current focus addresses “Climate Change Education”. The development of suitable local adaption strategies is increasingly a topic of scientific and political interest. However, causalities often stay vague in public discourse, especially on a local level. Thus, the UNESCO Chair improves knowledge, awareness, and capabilities to cope with the challenges of climate change. Projects include “Learning to evaluate regional climate change” (ReKli:B), “Learning



International students doing research on climate change in the “Geco-Lab, Centre of Competence for Geo-ecological Space Exploration”

how to sustainably address climate change” (KliNI!), “Climate Change(s) Cities” and “Trainees encounter climate change” (klimAZUBI), address different target groups of mainly young people and are funded by different German ministries and foundations.

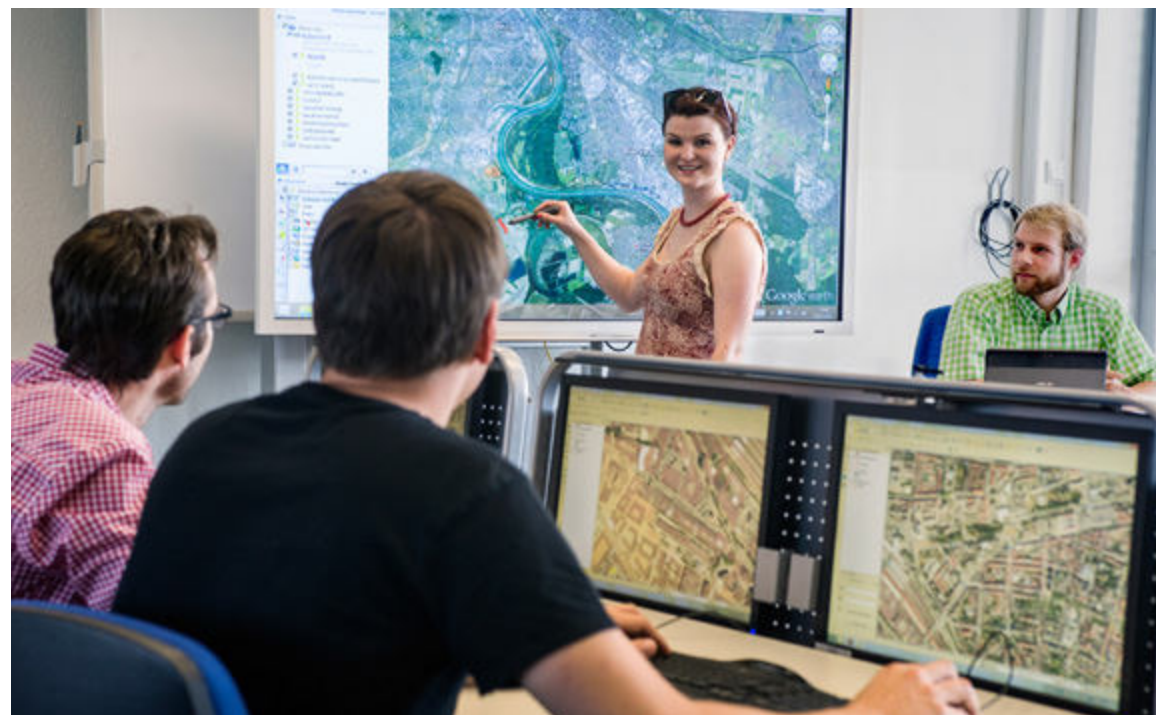
The didactical starting point is the action-oriented combination of (1) field surveys, (2) in-depth laboratory analyses, and (3) the illustration of interrelationships by means of experiments and models. This combination is continuously refined with regard to specific learning requirements. Projects include climate change related topics within the fields of agriculture, forestry and close-to-nature ecosystems, but also cities or companies – all of them with direct relevance to the living conditions of the participating high-school students, students and apprentices. Geco-Lab projects have received national recognition in the form of the German Council for Sustainable Development’s “Werkstatt N” award (2016), and in connection with the UN Decade of Biodiversity (2017).

Earth Observation in Schools with an adaptive learning environment – projects in the GIS-Station

The “GIS-Station, Klaus-Tschira-Centre of Competence for digital Geo-media” is also part of the UNESCO Chair. It uses digital geotechnologies to explore and explain different earth regions. The GIS-Station combines research with training and out-of-school learning for pupils, combining courses and training on

remote sensing, Geographical Information Systems (GIS), and mobile Geo-tools (GPS, Navigation) for education, training and research.

The UNESCO Chair also develops web-based learning environments, for example in the “Space4Geography” project, funded by the German Aerospace Center/BMWi. Working with original satellite data in education is a unique feature of the associated learning platform, geo:spektiv, which is maintained by the UNESCO Chair. The learning platform offers ten learning modules with up-to-date and curriculum-relevant geographical questions which are analyzed using original satellite images. Examples are drought in California, flooding in Germany, global urban footprint, global shipping, deforestation of the tropical rainforest, tsunami hazards, and food security in Africa. For the purpose of this learning platform, the UNESCO Chair’s self-developed software (BLIF) has been updated and implemented. It offers processing steps like contrast enhancement, color composites, filters, calculation of indices, land use/land cover classification and change detection. Datasets on regions all over the world supplied by satellite systems like Landsat, RapidEye and TerraSAR-x are available and can be used free of charge. In order to define these learning modules, all German curricula for the subject of geography were systematically analyzed. The learning modules respond in an adaptive manner to individual user learning profiles and thus support personalized learning paths, enabling real-time customization of content and level of difficulty depending on individual students’ abilities. The development of geo:spektiv was accompanied by an evaluation process with tests performed by about 100 students and experts.



Students working with satellite data to analyse land use/land cover changes in the "GIS-Station, Klaus-Tschira-Centre of Competence for digital Geo-media"

UNESCO World Heritage:
Preservation through education with
digital Geo-media – "Space2Place"

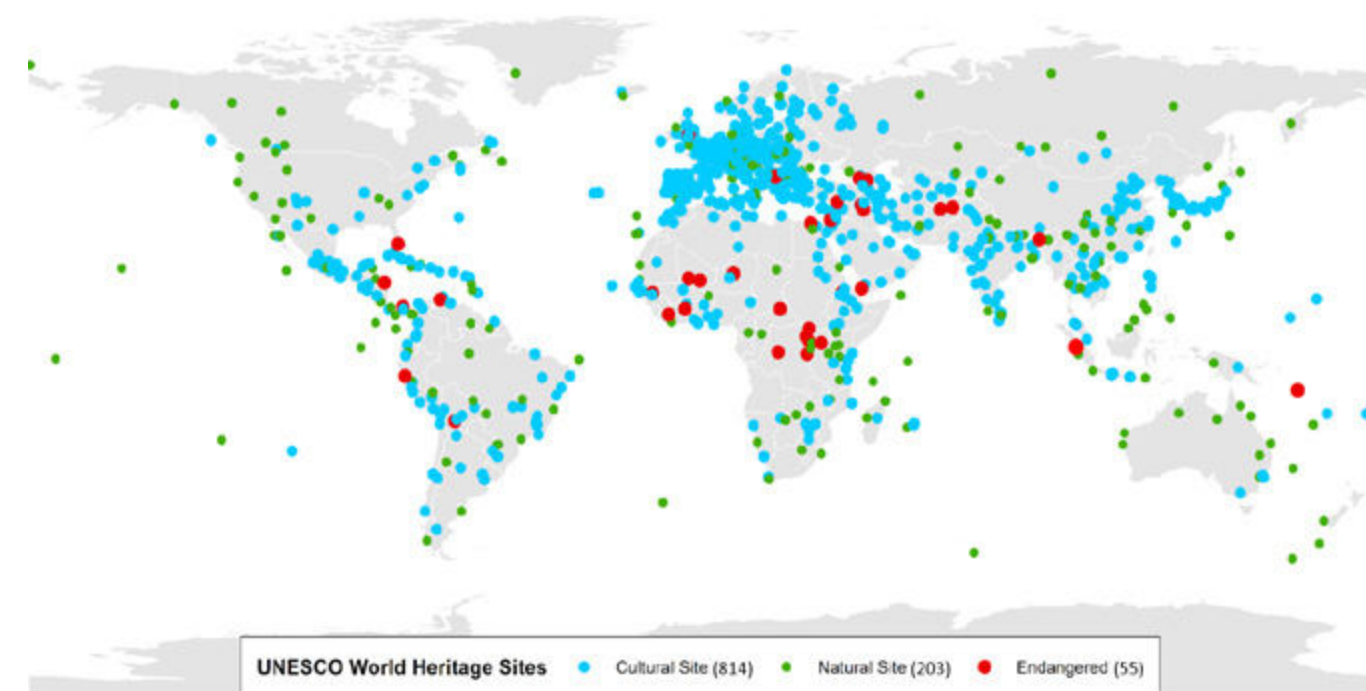
The UNESCO Chair's "Space2Place" project aims at enabling site managers to use satellite images for monitoring, management and sustainable development of UNESCO designated sites, especially endangered sites. The List of World Heritage in Danger, established in 1972, raises awareness about sites threatened by environmental processes such as natural hazards, the consequences of climate change, and man-made destruction due to conflicts and other causes. The list currently comprises 55 sites, 90% of them in developing countries or conflict areas.

Preserving World Heritage sites from becoming endangered, while also promoting future pathways towards the implementation of the Agenda 2030 is a great challenge, especially for institutions in charge of UNESCO designated sites in developing countries. The "Space2Place" project bridges this gap by training UNESCO site managers in analyzing data from the new ESA Copernicus for monitoring and sustainable development of cultural and natural world heritage. "Space2Place" provides online e-learning modules promoting monitoring techniques with the help of freely available Copernicus earth observation data from different Sentinel satellites. It is based on the BLIF software, which was developed by the

UNESCO Chair and is available free of charge. It also helps to raise awareness and inform local populations and the broader public about the outstanding universal value of World Heritage Sites and their potential future development options with regard to the SDGs.

To address the needs of local site authorities, an expert survey has been conducted to analyze current use of earth observation data at UNESCO designated sites as well as the requirements in terms of current local challenges and the satellite image data needed. On this basis, the "Space2Place" project team will develop several learning modules on remote sensing methods and on workflows suitable for land use/land cover analyses, change detection, and monitoring of heritage sites. The online learning modules will be accompanied by face-to-face training for site managers and related authorities.

The learning modules offered under the "Space2Place" project will be designed to enable site managers to independently perform basic monitoring workflows, based on earth observation with remote sensing data from the ESA Copernicus and other satellites (such as Landsat). Depending on the sites' individual characteristics, high spatial (e.g. for archaeological sites with smaller objects like buildings) and/or high spectral resolution (e.g. to divide and classify different land use/land cover for change detection) is needed.



Global distribution of different types of UNESCO World Heritage Sites (Data source: UNESCO 2017)



Sustainable Development Goals (SDGs) that can be addressed by remote sensing learning modules under the „Space2Place“ project

UNESCO Chair on Transcultural Music Studies



Prof. Dr. Tiago de Oliveira Pinto, Chairholder of the UNESCO Chair on Transcultural Music

CV

Tiago de Oliveira Pinto is a professor in anthropology and musicology and Chairholder of the UNESCO Chair on Transcultural Music Studies at the University of Music Franz Liszt in Weimar, Germany. Prof. Dr. Pinto became Head of the Chair of Transcultural Music Studies, Department of Musicology, University of Music Franz Liszt, Weimar, Germany, in 2009.

Before joining the faculty of the Weimar Institute, Pinto was

head of the Brazilian Cultural Institute and full professor for Social Anthropology at the University of Sao Paulo, Brazil. Since the early 1990s he has conducted cultural research work and applied projects on ICH worldwide.

He is a member of the Expert Committee on Intangible Heritage of the German Commission for UNESCO and of the Academia Europaea / The Academy of Europe (London), among others.

The general domain of the Chair is Intangible Cultural Heritage (ICH), focusing mainly on performance studies and music research in specific social, historical and cultural settings. Musical practices are considered as social phenomena, and are studied in any geographical and or economic environment. The approach is a transcultural one, trusting in the plurality of cultures, rather than in authenticity of any absolute nature or single cultural existence. For example, Western musical theory is not a main or autonomous research topic but also part of global musical diversity. Thus, a primary concern of the Chair is on human beings as music makers that hold and transfer cultural knowledge.

The Chair's research concepts are guided by the notion that sustainable development is defined as an organizing principle for assembling human development goals, by supporting the natural resources as provided by ecosystem services. These resources are considered alongside cultural outputs, since only in the combined action of ecosystem and culture can the economy upon which a society relies be fully secured. Thus, research objectives are grounded on the recognition of the interdependencies of ecological, social, economic and cultural sustainability.

UNESCO Chairs in Germany

Scientific Research for Sustainable Development

Research Areas

With the notion of ICH, communities are empowered to determine what their own cultural heritage is. Investigating music in the context of, and in collaborative interaction with, communities fosters a renewal of methodological approaches in music research. Some of the questions concerning music research in the domain of ICH are:

- How can the UNESCO Convention's definition of Intangible Cultural Heritage (ICH) be fully comprehended within strongly applied academic research?
- How will this research be of benefit for those assigned with the recognition and safeguarding of their Intangible Cultural Heritage?
- What educational methods are best suited to understanding intergenerational transmission in music?
- How can intergenerational transmission in contemporary cultural life be recognized, studied and reinforced for the benefit of the community?
- What is the mechanism that commoditizes performances, giving them commercial value that can bring income to the community (tourism, etc.)?

Almost 70% of the entries of UNESCO's Representative List of the Intangible Cultural Heritage of Humanity is related to musical traditions or linked to music in one way or another. Until now, this significant fact has not been properly contemplated by academia. Musicological terminology and research strategies still offer few contemporary methodological skills and innovative theoretical approaches for use in defining music as ICH.

To encourage and develop investigations into music as Intangible Cultural Heritage is one of the basic academic goals of the Chair. This concern can finally lead to an approach that no longer detaches historical from anthropological music research. This is why the Chair's research effort goes in both directions, focusing on popular and contemporary urban cultures as well as on worldwide historical and artistic manifestations in music. Both are studied under the perspective of critical intangible heritage research.

International Cooperation

The Chair implements projects in different national and regional contexts in Africa, Asia, and Latin America. Its aim is to support North-South-South and South-South dialogues in connection with ICH. These activities will link the Chair's programme with the Sustainable Development Goals. Institutional partnerships in Asia, Africa and Latin America are already in progression and will be intensified in order to delineate a South-South axis in Intangible

Cultural Heritage documentation, music research and transnational academic exchange, always within the framework of specific applied projects. With these activities, the Chair aims to bind "the power of culture for sustainable development and peace in a context of regional integration". Selected objectives are to:

- Connect local musical traditions to initiatives of sustainable development
- Foster exchange programmes with institutions of higher education to deepen international research cooperation
- Become a "think tank" and knowledge hub worldwide in the field of Transcultural Music Studies and applied cultural research
- Provide distance learning and e-learning courses promoting access to information and knowledge (e.g. by creating curricula for Afghanistan)
- Elaborate special curricula for academic institutions abroad (Afghanistan, Brazil, Ethiopia, etc.). This capacity building effort will be based on courses in lifelong learning. They in turn will be based on the implementation of concrete projects that involve face-to-face experiences in work and research.

Research Aims and Scientific Concepts

The transcultural research concept arose from the cultural and literary sciences in Latin America and was first represented by the Cuban sociologist and musicologist Fernando Ortiz (1881-1969). As opposed to "acculturation", "transculturation" implies something gained instead of something new replacing something older. One deals with events which do not merely reproduce regional traditional practices, but rather reveal a process of selection, elimination, recovering, discovery, the combination and synthesis of elements brought in from and mingled together by different cultures. Caused by voluntary or forced migration, developed within local history, by social encounters or as part of diasporic communities, these processes consequently encompass different defining qualities which are inherent in a great part of ICH.

Scientific reaction to a process which always includes losses and gains does not expect in the first instance the statically in music, but attempts to discover its living and therefore dynamic structures. The fixed element existing in this is the (silent/tacit) immanent knowledge that mainly derives from living musical forms of expression. Only the creative musical process that stems from tacit knowledge can be preserved **a posteriori** by notation or audio and video documentation.

The symbolic content of cultural manifestations also draws tangible and intangible cultural heritages closer together. Sound phenomena in themselves are particularly obvious examples of intangible cultural heritage. As an example, take an orchestra such as the **Sächsische Staatskapelle** of Dresden. Over many generations of musicians this orchestra has developed a carefully cultivated sound which becomes an eloquent form of intangible culture. In Germany there are a large number of orchestras which have existed for centuries and regularly perform their musical repertoires. These orchestras are highly valued by their audiences and form part of community life, thus being in fully concordance with principles of ICH. In the same way, German organ-building and the German “organ landscape” has been inscribed into Germany’s ICH list. Here also a tradition of knowledge has been passed down from generation to generation. Multifaceted knowledge and skills from different spheres come together in organ-building: these include the understanding of the principles of acoustics, complex tuning systems, the ability to work with wood, metal and other materials in a highly artistic manner. This highlights the fact that there is always a direct and causal connection in the dynamic of cultural inter-relationships, both tangible and intangible.

With regard to ICH, the Chair’s research projects focus on three stages that deal with dynamic transformation processes that link cultural facts and knowledge to a broader concept of ICH. These are: 1) the abstract, spiritual-cultural fact, the knowledge, including the so-called “implicit or tacit knowledge”; 2) the act, the transformation, the carrying out

of a cultural manifestation; and 3) the created artifact, the result of any cultural action. The cultural fact, meaning the knowledge and the various forms in which the cultural comprehension appears in the passed-down tradition, becomes transposed, and the result of this action appears in art handwork, festivals, competitions, carnival processions, preparation of culinary specialties and so on. This is true also of music in that a particular type of music, a piece of music, a performance, a song form and so on may also be considered an artifact of ICH.

The UNESCO Convention of 2003 defines five general domains of ICH: 1) Oral traditions and expressions, 2) Performing Arts, 3) Social practices, rituals and festive events, 4) Knowledge and practices focusing on nature and the universe, and 5) Specialist knowledge in the field of traditional craftsmanship. Even without naming music, almost 70% of the enlisted manifestations of ICH worldwide relate to music, either directly to music itself or to matters connected with music in the wider sense. ICH may be understood as living practice and also as an actively generated tradition/ form of creativity which at the same time is part of human spiritual activity (speech, performance, handwork, music, dance, ritual, marriage customs, festivals, etc). Seen in this light, music is most definitely always part of ICH, independently of the way we understand it or of any local or historical definition of music. Finally, regardless of how we might define ICH, music is always part of it, as a cultural phenomenon that (1) exists universally, but (2) has always to be understood in its own – locally defined – right.

UNESCO Chairs in Germany

Collaborative Projects: Present and Future

The UNESCO Chair on Transcultural Music Studies has carried out and is presently conducting collaborative research projects in partnership with institutions in different countries. The projects are related to inventories and field work on different musical genres, to the support of local initiatives regarding music as ICH, to the establishment of curricula and research programmes on ICH, to documentary films and educational materials, to the exchange of scholars, students and artists, to artistic performances and audio/video productions, to the implementation of cultural archives and to the support of local personal infrastructures by means of capacity building and distance learning offers. Due to the complexity of all of these endeavors, collaborative activity with institutions and scholars in South Africa will each have a single focus:

Umngqokolo – Thembu Xhosa
Overtone Singing: An endangered music technique of South Africa’s ICH

The attribute of ICH, that it exists only in living representation and therefore neither assumes absolute final shape nor are the small details of performance invariable, makes ICH exceptionally fragile. Therefore, whereas (material) objects have stability, intangible cultural heritage must be safeguarded through the definite (immaterial) knowledge of the human being who brings it to realization.

In 1980, the South African musicologist Dave Dargie from the University of Fort Hare discovered the overtone singing among the Eastern Thembu people in the Lady Frere district of the Eastern Cape Province of South Africa. He was the first to document and record such singing in African traditional music.

In overtone singing, also called harmonic singing or split-tone singing, a singer produces

two (or more) notes simultaneously by amplifying overtones of a fundamental tone. Overtone singing is well known in Asia and Europe. However, the Xhosa overtone singing is quite different from other known examples and there are several kinds. The two main kinds are called **umngqokolo** (or **umngqokolo nje**) – **umngqokolo** being a word used for various kinds of rough singing including non-overtone singing – and **umngqokolo ngomqangi**, which means **umngqokolo** in the style of **umqangi**, a mouth bow also called **umrhubhe**. **Umngqokolo nje** means simply **umngqokolo** or “ordinary” **umngqokolo**, to distinguish it from the **umqangi** variety. Neither of these forms of overtone singing can be called “ordinary”. Both are quite extraordinary, and the **umqangi** variety is particularly striking.¹ The types of **umngqokolo** and also **ukutshotsha** may be seen on video recordings.² The people performing on most of the video recordings are or were from the village of Ngqoko, which is about 12 km from Lady Frere on the road to Qamata, opposite Lumko mission. Dave Dargie first encountered and recorded “ordinary” **umngqokolo** in the village of Sikhwankqeni about 8 kilometres south of Ngqoko. In 1983 he met and recorded Mrs Nowayilethi Mbizweni of Ngqoko, the performer of **umngqokolo ngomqangi**. In 1980 there were still many women and girls of Sikhwankqeni and Ngoqko who could perform “ordinary” **umngqokolo**, but only Nowayilethi Mbizweni knew **umngqokolo ngomqangi**. She learned the technique in the village of Maqasha before moving to Ngqoko. Becoming known through Dargie’s research work, the musicians of Ngqoko formed a music group, the Ngqoko Cultural Group. In time the Group became not only known through many performances in South Africa, they also had a number of performance tours in Europe, the US and Canada, among other places. In the 1990s, becoming concerned about the future of **umngqokolo ngomqangi**, Dargie suggested to Nowayilethi that she teach the technique to others. By 1998 she had taught some seven other women in the group.

Unfortunately, after that time, no new performers learned **umngqokolo ngomqangi**. Nowayilethi died in 2005, by which time fewer and fewer people of Ngqoko were playing the old traditional instruments or singing **umngqokolo**.³ In time, her first pupil, Nosomething Ntese, also passed on and others followed. Today, only two of the **ngomqangi** singers are well, though a third can still perform. They are all now elderly.

Music as the Subject of Research in the Arts and Cultural Sciences

<i>The Art of Sound</i>	<i>Performance Practice</i>	<i>Intangible Cultural Heritage (ICH)</i>
Musicology/Music Theory	Collaborative Research	Self-defined Cultural Image
Fact	Act	Artifact
Musicology	Historical/Philological	Transcultural Music Studies
	Methods, Transcultural	
	Evaluation and Intangible	
	Cultural Heritage	
“The Science of Art”		“The Science of Culture”

Scientific Research for Sustainable Development



UNESCO Chairs in Germany

Scientific Research for Sustainable Development

It is clear that the time has now come for something to be done before a marvelous and unique musical technique which is part of South Africa's ICH is lost. The scholars of the University of Fort Hare, Dave Dargie and Bernhard Bleibinger have made the following suggestions for activities to be implemented in collaborative actions with the UNESCO Chair:

1. Workshops should be arranged at which the remaining singers of **umngqokolo ngomqangi** should be given the opportunity to teach both "ordinary" **umngqokolo** and **umngqokolo ngomqangi**, and receive suitable payment for it.
2. Such workshops should be held in South Africa and in Europe. The first course should be held at the University of Music in Weimar, to which the Xhosa singers could be brought. (To assist them in travelling to Germany, and to assist with translations and explanations, Mr Tsolwana Mpayipheli, the organiser of the Ngqoko Group who has led them successfully on many overseas tours, should accompany the Xhosa singers.)
3. It is extremely important that significant remuneration be paid to the singers from Ngqoko, so that they will feel it worth their while to make concerted efforts to teach what they know – knowledge and skills they have not taught to any others since Ms Mbizweni's death.
4. As part of the process of trying to keep **umngqokolo** singing alive, Xhosa overtone singing must be recognized as ICH in South Africa. In collaborative efforts, the scholars of Fort Hare and of the UNESCO Chair have started to work on a dossier on South African overtone singing in order to inscribe it as an endangered ICH. This is the first step in safeguarding an old and exceptional sample of music as ICH.

This brief description of the South African overtone project provides an illustrative example of some of the objectives of the UNESCO Chair on Transcultural Music Studies. As an academic institution, the aim of the Chair is to:

- Conduct and collect scholarly research on music practices and musical heritage as an expression of cultural diversity and of historical and current transcultural exchanges in Europe, Asia, Africa and Latin America
- Conduct and collect scholarly research on the role of music as ICH in different regions
- Publish the findings of this research in ways that promote both the scholarly understanding of transcultural music studies and international relations, and shape dialogue and cultural development
- Maintain an active and current data-base on the role of music as ICH in different settings and situations.

Footnotes

- 1 Another less developed form of overtone singing used by men and boys is called **ukutshotsha**
- 2 Placed on the Internet by Asian overtone singing expert Dr Trần Quang Hai. They are accessible www.youtube.com/watch?v=MYj-55T6Uzs.
- 3 The most important traditional Xhosa instruments are musical bows which use overtones to perform melodies and harmony. They include the **uhadi calabash bow**, the **mouth-bows** (**umrhubhe/umqangi, inkinge**), the former **herd-boys' bow** **ikadari**: these instruments may be seen on the video viewable on the internet, mentioned above.

UNITWIN Network “Protection of Cultural Property Against Illicit Trafficking in the MENA Region” – ProCult



Prof. Dr. Markus Hilgert, Coordinator of the UNITWIN Network ProCult

CV

The UNITWIN network ProCult is coordinated by Prof. Dr. Markus Hilgert (Prussian Cultural Heritage Foundation) in close cooperation with the representatives of the implementing partners.

Prof. Dr. Markus Hilgert is a specialist in Ancient Near Eastern Studies and Cultural Heritage Research. He is the current Director of the Ancient Near East Museum at the Pergamonmuseum in Berlin. From 2007 until 2014, Hilgert held a chair for Ancient Near Eastern Studies at Heidelberg University.

Hilgert is the coordinator of the national research alliance ILLICID focusing on the illicit traffic with cultural property in Germany and the director of the “Center for Digital Cultural Heritage in Museums” (CEDICUM) at the Prussian Cultural Heritage Foundation. In addition, Hilgert is the co-director (with the ambassador of the Republic of Iraq to UNESCO) of the Iraqi-German expert forum “Iraq’s Cultural Heritage at Archaeological Sites and Museums”.

Hilgert is a member of several governing bodies and advisory boards, including the German Commission for UNESCO (since 2016), the Foundation Board of the International Alliance for the Protection of Heritage in Conflict Areas (ALIPH; since 2017), the Advisory Group of the Cultural Protection Fund of the British Council (since 2017), and the Disaster Risk Management Committee of the International Council of Museums (since 2017).

In 2016, Hilgert was named the “National Correspondent for the Blue Shield in Germany” and was elected President of Blue Shield Germany in 2017. He holds honorary professorships at Heidelberg University and Marburg University.

Around the world, culture and cultural heritage are acknowledged as cornerstones of identity, providing a sense of belonging and contributing to the social and economic cohesion of communities. They are also the foundations of sustainable development, as acknowledged in the Agenda for Sustainable Development. However, while looting and illicit trafficking of cultural objects, such as products of archaeological excavations or elements of historical monuments, is as old as humankind’s interest in its past, the increased political instability and concurrent economic crisis in many regions of the world – along with globalized commodities’ trade considerably facilitated by the Internet – have led to a dramatic surge in the systematic destruction of archaeological sites, historical monuments, and museums for the profitable illicit traffic of cultural objects.

Since 2011, many countries of the MENA region have witnessed this intensified threat to their unique heritage by criminal extremist groups whose incentives are booming markets for cultural objects – primarily in Europe, North America, and Asia. Frequently, legal regulation of these markets requires substantial improvement to meet international standards, as much as political and public awareness of the irretrievable losses to the cultural memory of humankind caused by illicit trafficking requires reinforcement. In addition, there is strong evidence that revenues from illicit trafficking of cultural objects are used to finance terrorist activities all over the world.

UNESCO Chairs in Germany

Scientific Research for Sustainable Development

Research Areas

ProCult addresses the need for systematic interdisciplinary research and teaching in the area of illicit trafficking of cultural objects and for a more strategic, coordinated approach to this global phenomenon on regional, national, and international levels. The network’s main tasks are:

1. Creating the required, complex knowledge base by linking pertinent research capacities and expert institutions
2. Developing innovative methods and instruments in the fight against illicit trafficking in cultural objects through basic research
3. Serving as an incubator for pertinent research, training and strategic action both on national and international levels, with a particular focus on the strengthening of capacities in the countries of the MENA region
4. Preparing the ground for strong, sustainable cooperation between the academic world, civil society, local communities, research and policy making in countering illicit trafficking of cultural objects, in particular from the MENA region.

Established in 2017, the UNITWIN network “Protection of Cultural Property Against Illicit Trafficking in the MENA Region” (ProCult) brings together the transdisciplinary research and implementation expertise needed to analyze the illicit traffic of cultural objects and to develop adequate and effective counter measures. By doing so, it contributes to working towards the SDGs and UNESCO’s goals of strengthening efforts to protect and safeguard the world’s cultural and natural heritage, significantly reduce illicit financial flows, and strengthen the recovery and return of stolen assets with a specific focus on cultural artefacts.

Finally, ProCult contributes to the implementation of UN Security Council Resolution 2199 (paragraph 17) by building capacities on regional and national levels.

International Cooperation

The UNITWIN network ProCult has two main categories of partners:

- a. Implementing Partners: This group includes universities and research centers that work in the fields of Humanities (especially Archaeology, Ancient Studies, Art History, History of Architecture, Area Studies), Heritage Studies, Conservation Studies, Law (international, penal, cultural property), Social Sciences, Information Science, Media and Communication Studies, Education Studies. The core group of implementing partners consists of Heidelberg University (Germany), Technical University of Dresden (Germany), University of Oxford (United Kingdom), University of Geneva (Switzerland), Koç University (Turkey), and Yale University (USA).
- b. Associated Partners: This group includes institutions and experts from the fields of law enforcement; customs authorities; international bodies on organized crime, fight against illicit trafficking and terrorism financing; cultural property repositories (in particular museums, archives, libraries). The group of associated partners is coordinated by the Prussian Cultural Heritage Foundation.

The concept of the UNITWIN network ProCult was developed in close cooperation with UNESCO’s Department on “Movable Heritage and Museums” and the German Commission for UNESCO.

Types of activities
The UNITWIN network ProCult carries out and promotes interdisciplinary research, develops and supports university study programmes or courses, as well as creates and disseminates formats and tools for awareness raising, education and training. With its implementing partners, ProCult actively pursues the development of graduate teaching programmes or graduate courses on illicit trafficking with cultural objects.

Target beneficiaries
Target beneficiaries of ProCult’s activities are students, researchers, teaching staff at institutions of higher education as well as members of institutions focusing on cultural property protection, such as law enforcement or customs authorities – with specific attention to beneficiaries from the MENA region. The Network also targets civil society stakeholders and the general public by developing and disseminating materials for awareness-raising and education.

Research Highlight: Protection of Cultural Property Against Illicit Trafficking in the MENA Region

Prohibiting and preventing illicit trafficking of cultural objects has to take into consideration its multiple causes and forms of manifestation, and subsequently develop effective methods and instruments to address them. Corresponding measures have to be taken both by source and market states, at local, regional, national, and international levels. The development and implementation of these measures require both academic and non-academic knowledge and call for coordinated action in such diverse areas as basic interdisciplinary research, documentation, capacity building, education and training, awareness-raising, and legislation. Especially in the MENA region, research institutions need international support enabling them to ensure sustainable and long-lasting capacity-building activities of experts over time.

Countering and preventing illicit traffic of cultural objects depend on reliable and systematic data on the volume, object types, turnovers, networks, and operation modes within this area of organized crime. However, despite the increased efforts of law enforcement and customs authorities, this data is not available at present. Considering the current gaps on this research field and drawing on the experience gathered with the German research alliance ILLICID focusing on the illicit traffic with cultural objects primarily from Iraq and Syria in Germany, the UNITWIN network ProCult develops, carries out, and promotes interdisciplinary research and teaching on methods, measures, and instruments countering or preventing illicit trafficking in cultural objects. These activities are carried out to achieve the following objectives:

- Specific short term objectives:
1. Creating the required, complex knowledge base by linking pertinent research capacities and expert institutions and carrying out basic research

2. Establishing sustainable research-based tools for a substantial reduction of illicit trafficking in cultural objects at an international level.

3. Promoting the development of university programmes and/or teaching modules on illicit trafficking in cultural objects at undergraduate and postgraduate levels, with special attention to universities and research centers in the MENA region.

4. Serving as an incubator for short term research and training projects, strategic action, and civil society capacity building on local, regional, national and international levels, with a particular focus on strengthening infrastructures and capacities in the countries of the MENA region.

The network’s long term expected contributions to the research field are:

1. Contributing considerably to the protection and safeguarding of the cultural heritage and cultural diversity of humankind.

2. Combatting organized crime in the area of illicit trafficking in cultural objects.

3. Reducing significantly financial flows generated through illicit trafficking in cultural objects.

4. Adding to the existing knowledge base for the implementation of the 1970 “Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property”.

ProCult Contribution to Capacity Building

In the realm of capacity-building, ProCult actively supports the development of new or improved capacities among the implementing partners by assessing existing infrastructures and drawing up recommendations for future action. Finally, ProCult aims at developing and maintaining open-access online teaching resources based on the results of the network’s activities.

Capacity building within the network is achieved in four successive steps:

1. Initially, ProCult’s capacity-building efforts among the implementing institutions are based on a thorough assessment of the respective existing capacities in the areas of research, teaching, and education. This assessment is regularly reviewed by the “ProCult Round Table” and supported by the “ProCult Advisory Board”.

2. Based on this assessment, the network draws up recommendations for the development or reinforcement of required capacities

and encourages implementing partners to follow up on these recommendations.

3. In a third step, ProCult carries out and promotes basic research required to accumulate additional capacities and expertise in the protection of cultural objects from illicit trafficking.

As this research not only focuses on the operation modes and networks of illicit trafficking or effective national legislation, but also on the question of which types of pertinent measures in capacity building, awareness raising and education might be the most adequate under specific circumstances, ProCult will create additional pertinent capacities by jointly developing innovative methods and instruments to be disseminated and implemented by the partner institutions at national levels.

Sustainability of the Network

ProCult’s implementing partners committed to creating sustainability perspectives for the network’s beneficiaries, resources and results on an institutional level. This may include:

1. The promotion and active support of related research.

2. The long-term integration of relevant programmes or courses in the institution’s curricula.

3. The creation of additional academic positions pertinent to the network’s focus.

A central resource for the sustainable storage and use of ProCult’s research, teaching, and training materials will be the network’s internet platform. This internet platform will be given a long-term availability perspective through the commitment of individual implementing partners to form a consortium.

Transfer of Knowledge

The expertise generated through ProCult’s research activities is transferred and disseminated using various instruments and formats depending on their contents and target groups. At an interpersonal level, the network facilitates knowledge by means of:

- Graduate teaching programmes or graduate courses.
- Biannual “ProCult Conferences”.
- Annual graduate academies organized by the implementing partners.
- Visiting fellowships for members of the network.
- Short-term training for members of both implementing and associated partners.

In addition, implementing partner institutions are encouraged to organize and carry out National Round Tables and workshops for civil society stakeholders. Formats of knowledge transfer addressing a global audience will be:

- ProCult’s internet platform.
- Online courses or Massive Open Online Courses (MOOCs) based on ProCult’s research activities.
- Publications (preferably open access).
- Social media (especially Facebook, Twitter).

UNESCO both supports and benefits from the expertise generated in the network so that ProCult can contribute significantly to attaining the strategic objectives of the Organization.

Visibility and expected result at a national and international level

ProCult will provide information about its objectives and activities on its own internet platform. This website will also be used to advertise or distribute the academic publications generated by the network and its partners, disseminate teaching and educational materials, and raise general awareness of the phenomenon of illicit trafficking in cultural objects and its consequences for the world’s cultural heritage. In addition, ProCult will actively pursue the dissemination of already-existing tools and the development of research-based training materials for law enforcement and customs authorities.

Biannual conferences organized by one of the implementing partner institutions will bring together international experts in the field of research into the illicit traffic in cultural objects. These biannual conferences will generate high visibility for the ProCult network and connect its research with other activities aimed at countering illicit traffic in cultural objects on an international level, thereby building a global stakeholder network.

ProCult is intended to serve as a network of excellence and competence at an international level which encourages and aides its partner institutions in their efforts to assume a corresponding role at local, regional, and national levels, for example by organizing National Round Tables on measures and instruments countering illicit trafficking of cultural objects.

Work with the Partners in the MENA Region

The UNITWIN network ProCult seeks to build and strengthen research and teaching capacities with institutions of higher education, particularly in the MENA region. The active participation of universities in this region is of crucial importance for the success of the network. Therefore, ProCult is strongly committed to include institutions of higher education, particularly in Syria and Iraq, as soon as the political and security situations in both countries allow the necessary communication and knowledge exchange.

UNESCO Chair in Cultural Policy for the Arts in Development



Prof. Dr. Wolfgang Schneider, Chairholder of the UNESCO Chair in Cultural Policy for the Arts in Development

CV

Professor Wolfgang Schneider is the founding director of the Department of Cultural Policy at the University of Hildesheim. He is Germany's first and to date only full university professor for cultural policy. He holds the UNESCO Chair in Cultural Policy for the Arts in Development at the University of Hildesheim, is a member of the German Commission for UNESCO and of its Sub-Committee on Culture. He is also a member of the International Theater Institute, chairman of the German branch of the International Association of Theatre for Children and Young People, and Honorary President of the International Association of Theatre for Children and Young People.

He is head of the French-German PhD programme "Kulturvermittlung/Médiation Culturelle de l'Art" in Hildesheim and Marseille, external examiner of the

Master of Arts programme "Arts, Enterprise and Development" at Warwick University and member of the Steering Committee for the Master of Arts programme "Cultural Policy and Cultural Management" at the University of Hassan II in Casablanca.

He is editor of the Peter Lang publishing house series on "Cultural Policy", the Springer publishing series on "Foreign Cultural Policy" and the Yearbook and Magazine "IXYPSILON-ZETT" about theatre for young audiences as well as an author of books and articles.

The Hildesheim UNESCO Chair team consists of Dr. Daniel Gad (Managing Director), Theresa Bärwolff M.A. (International Relations), Meike Lettau M.A. (Graduate school "Performing Sustainability. Culture and Development") and Michèle Brand M.A. ("Arts Rights Justice Program").

Culture is who we are and what shapes our identity. From cultural heritage to cultural and creative industries, culture is both an enabler and a driver of the economic, social and environmental dimensions of sustainable development. Along with its Culture Conventions, UNESCO's work in promoting cultural diversity is key to the successful implementation of the 2030 Agenda for Sustainable Development.

Established in 2012, the UNESCO Chair in Cultural Policy for the Arts in Development at the University of Hildesheim's Department of Cultural Policy has contributed to shaping cultural policies by providing policy research and analysis of development driven by culture. When setting up the Chair, the denomination was specifically coined as a reflection of the commonly-used collocation "culture and development". This is based on the University of Hildesheim's concept of cultural studies and aesthetic practice, involving close ties with the arts and based on the German understanding of cultural policy as societal policy.

Research Areas

In pursuing Cultural Policy for the Arts in Development, the Chair seeks to offer approaches to cultural governance in five thematic areas:

- 1) Artistic interventions generating new processes of transformation
- 2) Understanding, protecting and defending freedom of artistic expression in relation to human rights and social justice
- 3) Cultural resources and creative capabilities of civil society for engaging in cultural diplomacy and global development
- 4) Cultural policy frameworks for arts education
- 5) The implementation of the 2005 UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions through partnership and dialogue.

International Cooperation

The UNESCO Chair in Hildesheim is active in the fields of teaching, research, capacity building, publication, discourse analysis and networking. National and international Bachelor's, Master's, and PhD study programmes and other research projects are carried out regularly. International activities of the Chair mainly involve selected German, European, Arab and African university-level institutions, along with stakeholders in the professional arts, cultural policy and education. Cultural Policy Research is not only geared to the political work of lawmakers, parliaments and governments but also to civil society activities since cultures of democracy are increasingly formed by multiple actors, including those from the non-governmental arena. Key partners that provide this access include the Pan-African Arterial Network, the Arab Cultural Policy Group convened by Al Mawred Al Thaqafy, several stakeholders who work at the interface between the arts and human rights, and UNESCO knowledge networks. In addition to cooperation with these civil society actors, close networking relations are upheld with university institutions such as the Cultural Policy and Management Research Center at Bilgi University in Istanbul, the Center for Cultural Policy Studies at the University of Warwick, the UNESCO Chair in Cultural Policy and Management at the University of Arts in Belgrade, the UNESCO Chair in Cultural Policy and Sustainability at the Tshwane University of Technology in Pretoria, the Université Hassan II in Casablanca and the Université Aix-Marseille in Marseille.

Report of a Research visit: The performing arts as a social force

Voices from South Africa's post-apartheid theatre in the process of transformation

Shots are fired in the State Theatre in Pretoria, voices are raised in the Baxter theatre at the University of Cape Town, demonstrations are held in the Soweto Theatre in Johannesburg. And yet people still say the performing arts are not political. In post-apartheid South Africa, theatre acts as a mirror of society, is part of the transformation process and is viewed as a real social force. And yet blacks and whites, old and young are arguing about the way forward, about content and aesthetics. From 11 to 13 of March 2016 the UNESCO Chair organized the research atelier "Theater in transformation" in South-African Johannesburg and Pretoria. It brought together theatremakers and cultural experts, instigated discussions and debates, and met on "the boards that mean the world" – in the exposed concrete of the South African State Theatre, in the „Rostrum“ on the cultural campus of Tshwane University of Technology and in the futuristic new Soweto Theatre building in the heart of this notorious township in Johannesburg. The following summarizes contributions from different cultural actors to the research atelier.

First stop: South African State Theatre in Pretoria

"Marikana" is the name of a musical adapted by Aubrey Sekhabi for the South African State Theatre. It tells the story of the 2012 massacre of striking mineworkers, when violent attacks by the police resulted in 44 deaths. The book has now been brought to the stage with two dozen songs and a clear message which Aubrey Sekhabi, the play's director and the theatre's artistic director, succinctly sums up as "to teach tolerance".

Sekhabi represents an established theatre culture that does not shy away from popular entertainment. Indeed, it puts entertainment front and centre, but at the same time understands that artistic works also need to have social relevance. His State Theatre was one of the first public institutions to grant access to people of all races. Even as far back as the 1980s, there were black actors, dancers and singers working in the theatre. However, it was closed down by the Department of Arts and Culture shortly after the first democratic elections of 1994 due to evidence of corruption and mismanagement. Together with co-director Mpumelelelele Paul, Sekhabi has transformed the institution over the last ten years into the country's premier production centre for the

performing arts. It keeps its finger on the pulse and is politically engaged, with five different stages and an important role as a laboratory for cultural participation. The former artists' dressing rooms are now home to a music school, a jazz network and a dance company; the actors take part in Q&A sessions after performances and a whole department is now dedicated to community theatre.

Paul Grootboom is the spin doctor for form and content. He is said to love Shakespeare just as passionately as he loves a cheeky sitcom. He knows the harsh reality of the townships with their domestic violence and social upheavals. His "Township Stories" still have the ability to shock with their tales of sex and crime. Give him a podium and he is quick to condemn what he sees as the undesirable direction his country is heading in, with artistic freedom still not guaranteed and politicians banging on about "nation building" at a time when the effects of successive economic crises are still hitting the black majority the hardest.

Second stop: Cultural campus of Tshwane University of Technology

Malcolm Purkey, who ran Johannesburg's Market Theatre from 2004 onwards, questioned the role of the theatre and its impact on society during the debate at the research atelier. In the quest for a voice in society, for a political aesthetic, theatre is an imagined space for thinking about change. But arguments rage over whether the theatre should be a political instrument or simply a place for art. Yes, theatre can hold up a mirror to society; no, theatre should stir debates, be disorientating and ambiguous.

The artistic director of the National Arts Festival, Ismail Mahomed, has first-hand experience of what theatre can be. He was not allowed to attend performances or even study, but he became a clandestine spectator whenever he could and to this day he still loves the performing arts as an educational institution in the broadest sense. He likes to think of language as a means of starting a discussion, of images as a way of exploring new horizons, and of performance as a live experience. This is why he tends to be critical of what he sees as the commercialisation of today's productions, the self-censorship that exists within many projects, and the loss of identity caused by using actors who to date have been trained according to European standards. "Theatre is a crystal ball that allows us to constantly reimagine our society and present it anew".

This is why he pins his hopes on the new generation of young people born after 1994. Before that date, theatrical interventions in South Africa were predominantly protests against the apartheid state. Afterwards, they revolved around stories of celebration, an era of

euphoria and of honouring Nelson Mandela. After 1999, artists once again started to write political stories – about aids, gender and the environment. "Some of these pieces worked", says Mahomed, "but others were hopeless failures. The stories that really worked were those by artists who wrote with real conviction and who were activists in this particular area". He also made a plea for more tolerance as an artistic value, saying that fears and hopes should be taken seriously. He stated that theatre provides a way of challenging prejudices and that at times artists have a right to respond with hate and anger. It falls to the artistic directors of theatres and festival programmes to initiate critical dialogue using artistic means. And he is convinced that a curator must be a cultural mediator who "has the power to help shape society's values".

"Is it possible to forgive the past in order to survive the future?"

Shaping is a word that is also important to Yvette Hardie. She is National Director of the South African branch of the International Association of Theatre for Children and Young People. As a theatre producer, she is familiar with hands-on aspects of the theatre scene in her home country. She believes that theatre is confrontation and that this provides the starting point for many works by Grootboom, van Graan and others. They have a sense of political awareness and write "with a certain urgency" about emerging social issues. Hardie views cultural pedagogy and artistic education as a key to the future of theatre, in accordance with the African saying: "If you plant a tree today, you can be proud of the forest of tomorrow". This is why all theatremakers particularly focus on children's and youth theatre.

Hardie curates a festival in Cape Town that provides school classes in the mornings. Performers experiment while the audience makes requests, gets involved in the production process or has a go at being creative. It all takes place in a Methodist church in the city's suburb called Observatory. The festival includes initiatives such as the „School of Seeing“, a project to develop the art of vision and tackle youth-related topics. Another project called "Ukwakha" deals with the complexity of relationships. Within the framework of that project, two dozen young people from the Khayelitsha Township – Khayelitsha is the Xhosa word for "new home" – dance, stomp and gyrate, black bodies in white underwear and wellington boots. The audience's close proximity to the action makes the whole theatrical experience very intense, as the performers' physical movements communicate with the minds of their audience. Sbonakaliso Ndabe choreographed this hour-long piece and kept the audience enthralled with questions such as: Who with whom? When and when not? What and how? Conventions are preserved and contradicted; thoughts and feelings are laid bare. But it is not just about the authenticity of

collective action. It is about the vibrancy of the work, the desire to break out of the day-to-day routine, to reflect and develop insights, to live as an individual in society.

Third stop: Soweto Theatre in Johannesburg's largest township

The third location for the conference was the Soweto Theatre in South Africa's largest township, where the country's apartheid policies separated black workers and their families. However, from the very beginning, this town (which is very close to the city) has also been a place of cultural self-reflection – including experiences of social protest and political upheaval. Immediately behind the theatre complex there is a memorial to the 1976 high school uprising led by student Steve Biko in which hundreds of demonstrators were shot. To this day, many of the protagonists in the African National Congress (ANC), the political representatives of the country's black majority, are still influenced by this event. During his exile in London and Amsterdam, the South-African poet and writer Mongane Wally Serote used to dream of having a theatre. The former activist and Head of the Arts and Culture Department under

Nelson Mandela now oversees three auditoriums and a diverse programme of productions and presentations. As a member of South Africa's parliament, Serote was involved in writing the rainbow nation's white paper that aimed to open up culture for everyone. Debates during the research atelier, however, remind participants that in practice this goal is still far from being achieved.

But young people are still flocking to the Soweto Theatre. Around 100 young, independent artists are ready to help reshape the performing arts in South Africa. They are sitting silently in the audience, itching to be up on stage. They are calling for the talking to stop and the action to begin. They are expressing themselves through hip-hop and funding their weekend workshops through temporary jobs. They are the digital natives whose lives are networked and who are less inclined to romanticise the revolution. They are finally in a position to help shape a future in which they can play an active role – in life as well as in the theatre.

The new 21st-century generation is breaking new ground in South Africa's theatres. They are socially aware, artistically ambitious and looking to the future. This is also a process of transformation.



UNESCO Chair in Heritage Studies



Prof. Marie-Theres Albert, former Chairholder of the UNESCO Chair in Heritage Studies

CV

Professor Marie-Theres Albert is the former chairholder of the Chair Intercultural Studies/UNESCO Chair in Heritage Studies. She initiated and directed the “World Heritage Studies” Master’s programme (1999 – 2010) and the PhD programme, “International Graduate School: Heritage Studies at Cottbus University” from 2010 – 2016. Her research endeavours focus on issues such as protecting tangible and intangible heritage, identity and development, heritage development in developing countries.

She is editor of the Heritage Studies series, which critically evaluates theories related to heritage (World Heritage, Intangible Cultural Heritage, Memory of the World) and is developing a new and important paradigm of heritage, namely heritage for human development.

Albert has initiated many research projects. The most recent of these were in cooperation with scholars and heritage professionals from India, China and Spain on tangible heritage, and from Austria and Baltic countries on the valorisation of intangible heritage.

After her retirement from BTU Cottbus in 2016 she founded, as professor emerita, the “Institut Heritage Studies” (IHS) at the Internationale Akademie Berlin (INA). Her most recent activity is the development of a research programme on “Heritage in Conflict – Shared Responsibility”.

Cultural and natural heritage is key to sustainable development. Heritage is the foundation of identities. It provides individuals with an opportunity to learn about environmental and cultural developments of the past, understand their place and role in today’s world, and create new approaches to future development.

In 2003, the UNESCO Chair in Heritage Studies was established at the Brandenburg Technical University in Cottbus. Based on the Master’s programme World Heritage Studies founded in 1999, Professor Marie-Theres Albert, previous holder of the UNESCO Chair, conceived the focus and scope of the UNESCO Chair, as a holistic and paradigmatic approach of heritage for sustainable human development. The Chair therefore encompassed a broad range of academic disciplines, and involved the most important UNESCO Conventions on Culture and Heritage as well as the Memory of the World programme.

In addition to the Master’s programme, Professor Albert developed the concept and implementation strategy of a PhD programme at BTU Cottbus, addressed to international students and innovative projects in research areas related to the UNESCO Chair.

Research Areas

Today, more than ever, the heritage of humankind is threatened by globalisation processes. It is therefore important to carry out research on **Heritage in Conflict**. This research is furthermore important against the background that our cultural heritage is a basic principle for building identity. The research on **Heritage in Conflict** has to be linked with knowledge on backgrounds of the heritage in conflict, its impacts on the identity of the peoples and the responsibility we have to assume. Therefore, the research conducted by the UNESCO Chair aims to identify origins of the destruction of cultural heritage, analysing and interpreting the impacts for humans and developing awareness-raising strategies for achieving a “**shared responsibility**”. Some of the conflicts and threats to which the Cultural Heritage of Humanity is currently exposed and which are in the research focus of the Chair are worldwide migration, urbanization and modernization processes, war and terrorism, illegal trade of cultural goods, climate change, and the commodification of heritage.

International Cooperation

The UNESCO Chair cooperates with other UNESCO Chairs and their corresponding networks around the world. To ensure high quality, an advisory board was established consisting of professionals with special expertise in the diverse areas of heritage. Furthermore, the research activities, programmes or publications which are based on developing countries interests and needs include experts from these areas.

Interview

Professor Albert, even after your retirement from university life you are active in research about heritage in conflict. What is your main incentive to coordinate a scientific conference on the European Cultural Heritage Year 2018?

Europe – like other regions in the world – is currently confronted with rapid social, political, cultural, economic and ecological transformation processes. In some cases, such as the resurgence of right wing views or the emergence of political populism, such transformations take place on the limits of the democratic codes of conduct. In other cases, like the increasing number of people in precarious life situations, these transformations have often led to the denial of people’s social involvement and participation. In many cases, those transformation processes seem to be detached from the will of the individual,

but are nevertheless initiated by the people themselves. They are also linked to the processes of globalization and the changes that it has generated in societies.¹

Discrepancies between political statements and administrative practices need to be taken into account, as they directly affect the individual. There are contradictions between the functions of societies, to guide and educate their members to effectively take part in social life, and the exercise of these functions by the established organisations and institutions. Institutions and processes of education, capacity building and training are bureaucratized. This thwarts the interest of many individuals to acquire knowledge and skills, through life experiences, beyond these bureaucratized processes. Partly as a consequence of these developments, the importance of European and global cultural heritage for building the identity of peoples, for their sovereignty and their self-consciousness, has been pushed aside or has been forgotten.

What are the current threats to heritage, and what do we know about them?

The impact of climate change on cultural and natural heritage, the impact of migration processes on the tangible and intangible heritage in urban and rural regions, the impact of urbanization on urban and rural heritage, the impact of terrorism on and illicit trafficking of heritage or the loss of the identity-building function of tangible and intangible cultural heritage through processes of commodification are surely among the current threats. They, according to the complexity of the risk factors, have to be understood holistically and as the result of modernization processes.

Some of the current threats for heritage, as well as their causes, such as the destruction of tangible heritage in countries in crisis, have been researched. Sabine von Schorlemer, for example, presents deep insights in her publication “**The Destruction of Cultural Goods. The obliteration of Cultural Heritage in countries at crisis as a challenge for the United Nations**”. Other threats to the Cultural Heritage of Humanity, like climate change, economic and technical globalization, as well as the commodification of heritage in general, are already known. Nevertheless, an analysis of the causes and origins and the strategies for their prevention is still lacking.

In general, it must be stated that the threats to the Cultural Heritage of Humanity, arising from the processes of global change, are seldom investigated or even mentioned. If we take note of them at all,

it is through statements, declarations or resolutions being adopted by UNESCO and other international organisations. But how can statements, declarations or recommendations contribute to removing conflicts if their complex implementation strategies have not even been reflected upon? Such reflection is necessary if short-term solutions are to be found.

How do you intend to answer these questions?

We will certainly not be able to solve these questions on our own but we will at least try to contribute and help find solutions. Together with several think tanks we will hold a scientific conference on the topic of „Heritage in Conflict – Shared Responsibility“ and will publish results accordingly.

The conference aims to identify the origins of the destruction of or damage to cultural heritage and analyse its causes. Only through this analysis can short-, medium- and long-term strategies for solutions be developed. During the conference – but mainly in the processes of immersion into the reasons and backgrounds of conflicts to be initiated during the preparation procedure – cultural heritage will be analysed considering its social and cultural meanings. Responsibility can only be ascribed if the reasons for destruction of the heritage of humankind and its initiators are known. Moreover, as the destruction of heritage is caused by human beings, this highlights the responsibility that people hold for the protection of their cultural heritage. Taking this into account, it makes sense to develop strategies for a sustain-

able protection and use of cultural heritage as well as its sustainable management and safeguarding.

How can people live up to their responsibility to protect their heritage?

Asserting that people and societies have to assume responsibility for the safeguarding of their cultural heritage implies that they must have knowledge about the origins of conflicts and, of course, responsibilities. Thus far, both have seldom been formulated in UNESCO's political discourses. During the conference, experts will grasp the diverse interpretations and complex meanings which heritage represents, both for humankind in general and for the diversity of the cultures of the world. They will present and analyse the fundamental causes of conflicts and dangers to which the heritage of humanity is often exposed, and will develop research-based conceptual approaches for protecting heritage – both in general and in respect of specific dangers. Concrete solutions will only be achievable when the origins of conflicts are known, and the associated local, regional, international and global responsibilities are acknowledged and accepted.

What will be the main outcome of the conference?

At the end of the process of exploring causes of conflicts, identifying their initiators and their respective responsibilities, we will propose recommendations for action in regard to tackling these threats to heritage.



Selected conflicts and threats to which the Cultural Heritage of Humanity is currently exposed:

Worldwide Migration

- Authenticity and new multicultural uses of historic urban landscapes
- Diversity, abandonment of rural areas and increasing neglect of cultural landscapes
- Identity and disregard for intangible heritage traditions
- Identity loss due to forced migration or unprofessionally organized integration processes.

Urbanization processes

- Reinterpretation or damage to authenticity and integrity due to infrastructure developments and gentrification processes
- Loss of identity caused by the destruction of the intangible meaning of historic urban landscapes

Modernization processes

- Modernisation of material, technical and infrastructural substance of material heritage resulting in loss of its significant value of authenticity and integrity
- Loss of diversity in rural areas due to migration
- Threatening of local knowledge in agricultural regions as a result of agricultural modernization processes
- Loss of intangible traditions and of the cultural memory of humanity (Memory of the World) as a result of technological and cultural change
- Transformation of industrial cultural landscapes due to changes in production structures and problematic new uses

War and terrorism

- Loss of cultural identity as a result of the destruction of cultural heritage sites
- Loss of tangible and intangible heritage and its meaning for the heritage of Humanity
- Violation of international law and the creation of lawless areas

Illegal trade of cultural goods

- Destruction of heritage for commercial and illegal interests and the commercialization of cultural goods
- Violation of international law and the creation of lawless areas

Climate Change

- The jeopardizing of natural heritage in structurally weak regions, and the consequent loss of ecological sustainability
- The endangerment of natural heritage and habitats as a consequence of natural catastrophes
- The threatening of tangible heritage as a consequence of diverse factors of climate change and the associated loss of a site's identification with its historical background

Commodification of Heritage

- The devaluation of the significance and meaning of heritage for human development
- Commodification of cultural heritage value due to mass tourism
- Destruction and reconstruction of tangible heritage for commercial use
- Banalization of intangible traditions through commercialization
- Neutralization of the research of provenance
- Ignorance of the pillars of sustainability for heritage protection and use measures

Footnote

1 see also: Bertelsmann Stiftung (Nov 2016): Globalisierungsangst oder Wertekonflikt?



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UNESCO Chair in Higher Education for Sustainable Development



Prof. Dr. Gerd Michelsen, Chairholder of the UNESCO Chair in Higher Education for Sustainable Development

by Gerd Michelsen, Maik Adomßent, Marlene Mader and Anna Sundermann

CV

The Chairholder has been Prof. Dr Gerd Michelsen, senior professor for sustainability research in the Faculty of Sustainability Sciences at the Leuphana University of Lüneburg since November 2013. He has held the UNESCO Chair, working closely with his team, since 2005.

Michelsen was a member of UNESCO's Reference Group on the Decade of Education for Sustainable Development (2005–2014). He is currently the Chair Partner in the Network of Global Action Programme on Education for Sustainable Development. Michelsen has been active in the German Commission for UNESCO for many years. From 2008 until 2015 he chaired its Expert Committee in the Sciences and since then has been a member of its Executive Committee. Under his lead, the German Commission for UNESCO adopted a memorandum on "Science for Sustainability".

Michelsen took up his appointment as professor at the Leuphana University of Lüneburg in 1993 and head of the Institute for Environmental & Sustainability Communication. Before that, he led the Centre for Continuing Education at the University of Hanover. He was one of the founders of the Institute for Applied Ecology in Freiburg and from 1977 to 1979 was its managing director. From 1969 to 1974 Michelsen studied economics, first at the University of Kiel and then in Freiburg, where he was awarded a doctoral degree in 1978. This was followed in 1986 by his postdoctoral Habilitation, which he earned at the University of Hanover.

In 1998, Michelsen was awarded the science award from the German Association of Environmental Management. He is also active in honorary appointments at various foundations, environmental organisations and institutions.

Institutions of higher education play a crucial role for sustainable development, but they are just starting to discover their transformative power. The key impulse of the Brundtland report was amplified by the United Nations in autumn 2015 when heads of states adopted the Sustainable Development Goals (SDGs). These SDGs apply equally to developing, emerging and industrial countries – a key innovation. SDG 4 on Quality Education seeks to achieve inclusive and quality education for all as well as education for sustainable development.¹ It supports and strengthens the crucial role of sustainable development in all areas of education. It also emphasizes that education, sustainable development, and a sustainable lifestyle are closely interrelated and must be addressed as a complex whole if progress is to be made.

Higher education is called upon to help individuals acquire the competencies needed to support social change processes. SDG 4 – as all of the SDGs – represents an additional challenge for higher education to demonstrate its willingness to take on social responsibility and to open up to society. At the same time, this is an opportunity for higher education to renew its awareness and engagement with these issues. The UNESCO Chair at Leuphana University of Lüneburg provides research and teaching on how exactly higher education can contribute to and support sustainable development.

Research Areas

Since its launch in 2005, the work of the UNESCO Chair has focused on how the principle of sustainable development can be integrated into sustainability-related research and education. Crucially, the Chair initiates and advances key change processes within its own university, such as design and implementation of a "Science and Responsibility" module as part of the so-called Leuphana Semester. This is a common first semester (30 credit points) for all students of the university to provide them with an overview that is not obstructed by overspecialisation; the required coursework includes mathematics and statistics, history and literature, an introduction to a specific discipline – and the "Science and Responsibility" module.

This module accounts for one-third of all credit points in the first semester, allowing students to come together in interdisciplinary learning communities and to develop inter- and transdisciplinary discursive competence, which is firmly rooted in disciplinary competence. This approach involves using the normative concept of sustainable development to investigate fundamental issues related to the responsibility of science in society. In inter- and transdisciplinary project seminars, students independently analyse research questions and present the results during a "Conference Week". There are some 60 project seminars, each with 30 participants, offering an in-depth look at a single topic in sustainable development, which students explore for the first time as researchers, testing their own hypotheses.

Scheduled at the end of the Leuphana Semester, the "Conference Week" is at the same time a forum to discuss with guests from politics, science and civil society the opportunities and limits of shaping the future.

In 2012, the UNESCO Chair started on-going large-scale longitudinal study using a mixed-method approach to examine the impacts of this module and of the Leuphana curriculum more generally on students during their six-semester degree programme. This study is one of the first to go beyond the evaluation of single courses and single cohorts.

The UNESCO Chair works nationally on the inclusion of sustainability as a paradigm for higher education in Germany; it also works intensively in international projects concerning the conceptualization and implementation of programmes of study focusing on sustainable development as well as projects serving to provide certification to teachers in higher education. The Chair regularly organises conferences to advance the discussion about higher education for sustainable development, in order to shape higher education policy.

International Cooperation

The UNESCO Chair cooperates with UNESCO and higher education institutions, including several other UNESCO Chairs in Latin America, Africa, Southeast Asia and Eastern Europe. It supports international networking and exchange to foster the implementation and recognition of sustainability as a paradigm for higher education institutions worldwide. Several current examples show the nature of international cooperation projects conducted by the Chair.

The Chair is one of UNESCO's "Key Partners" in the Global Action Programme Education for Sustainable Development (GAP), together with some 80 other stakeholders from around the world. In this capacity, it works towards further strengthening and scaling up sustainable development activities in a Partner Network on whole institution approaches to transforming learning and training environments.

Since 2015, the Chair is a member of the Steering Committee of UNESCO's project "Broadening the Application of the Sustainability Science Approach", funded by the Japanese Ministry of Education, Culture, Sports, Science and Technology. Thus, the Chair helps formulate recommendations on a stronger relationship between sustainability sciences and policy making.

Research and Development Highlights

The research and development activities of the Chair can be seen, exemplarily, in the following projects. The first is a longitudinal investigation of the effects of a module it has developed for first semester students at the Leuphana University of Lüneburg. Afterwards research and development projects funded by the EU are described, in which partners from a number of countries develop and test concepts for programmes of study and continuing education for students and teachers.

Learning for Responsibility:
A Mixed Method Longitudinal Study on the Integration of Sustainable Development in Higher Education (LISHE)

Higher education for sustainable development aims at enabling people to not only acquire and generate knowledge, but also to reflect on its impact and the role of individual behaviour and decisions in a future-oriented and global perspective of responsibility. It thus requires a new learning culture which does not simply confirm traditional academic knowledge

but examines the potential for universities to contribute to a sustainable future in an open-ended, reflexive and participative process. Universities have to become learning institutions which create teaching and learning for dealing with complexity, problem orientation, integration of inter- and transdisciplinary approaches, collaborative and self-directed learning.

Within the framework of the European Union’s Bologna Process, the Leuphana University of Lüneburg had fundamentally restructured its curriculum; sustainable development played a crucial role as a guiding principle. While research showed the success of such learning strategies of an undergraduate programme in which sustainability is a core value and framework, studies on the long-term effects of such programmes were missing. In response to this research gap, the main research questions of this longitudinal research project are:

- Which effects does the full integration of sustainability into higher education have on the cognitive and affective learning outcomes of students?
- How do the students perceive the relevance of a sustainability-related bachelor’s programme for their current and future professional work?
- Which changes, if any, take place in student perceptions of sustainability, the perceived professional relevance of sustainability, and their beliefs about science during the bachelor’s programme?

The primary goal of the study is to provide empirical insights of a “whole institution model” which will contribute to the mainstreaming of higher education for sustainable development on a national and international level.

The study is structured around central features of the bachelor’s programme: dealing with complexity, problem-orientation, integration of inter- and transdisciplinarity, as well as collaborative and self-directed learning approaches. The empirical longitudinal investigation collects data before and after the first semester, during the fourth semester, and during the sixth semester. Quantitative surveys are used with a focus on student perceptions and learning outcomes. Furthermore, focus groups are being used to analyse in detail learning processes occurring during and after the first semester. Online-based quantitative surveys are used to measure the relationship between relevant demographic variables (e.g. age gender and major field of study), expectations, previous learning experiences as well as cognitive, affective and behavioural learning outcomes. An online questionnaire was administered to all first-year students enrolling

in 2012, 2013 and 2014 (N=2.730). The results reported here are based on the n=829 students who responded at least twice during the survey period. 70% (n=594) of the participants in the study are women. All 15 major fields of study in the bachelor’s programme are represented in the sample. At present, cross-sectional results of the study are still preliminary. The following results focus on selected results of students from the first and second cohort. Data for the third cohort is being collected.

Before entering the university, students in our sample had various informal and formal learning experiences, for instance work experience, travelling (longer than two months) or a completed apprenticeship. Interestingly, most students had already learned about sustainable development in school. Apart from a great interest in their specific major field of study, most students are interested in studying at Leuphana because they value its proximity to either their home and/or the metropolitan area of nearby Hamburg. Most students also value the reputation of the university and the atmosphere of a small town. To a lesser extent, the university’s model curriculum attracts them. Interestingly, fewer students value the sustainability focus of the university.

Almost all first-year students want to acquire general and specific knowledge to prepare themselves for professional careers. Additionally, our results show that the four biggest student groups (Teaching and Learning, Business Administration, Cultural Studies, and Sustainability Science) differ in their general study motives: students of education for general and vocational schools are more likely to seek a professional qualification. Students of environmental studies are more interested in learning for societal change and interdisciplinary skills than business administration students. In general, cultural studies students aspire more for personal development. Surprisingly, almost two-thirds of the first semester students perceive sustainable development as important and related to their major degree and their future professional practice.

After the first semester, more than two thirds of the students rate the “Science and Responsibility” module as either ‘very good’ or ‘satisfactory’. Students prefer the project seminars over the lectures, the conference week is experienced as a highlight by all students. The combination of different kinds of teaching and learning formats in this module are most valued by environmental science students and least favoured by engineering students. The same holds true for the collaborative learning approaches during the project seminars. Our data shows that students after their first semester are motivated to deal with issues of sustainable development, but that they perceive it less relevant in relation to their major field of study.

In their sixth semester, these students perceive that issues of sustainable development played a rather subordinate role during their studies, with the exception of students of environmental science. The students also notice that sustainability-related courses at Leuphana are problem-oriented, deal with daily routines and often have a local focus. They also experience the inter- and transdisciplinary approach of these courses, but they consider practice partners as not sufficiently diverse. Students in general do not perceive curriculum development as participative.

Overall, these results show that the perception of sustainability related courses is strongly dependent on the field of study. Although students studying majors with less focus on sustainability acquire knowledge about sustainability and express motivation to deal with sustainability issues in future, they perceive little relevance to their current studies. In conclusion, we recommend that faculties and university educators create disciplinary learning environments where students can apply their competences and knowledge about sustainability acquired during their first semester.

These recommendations are now being implemented in the further development of the teaching and learning approaches at Leuphana, for instance, in the restructuring of the bachelor’s degree programme in business administration towards responsible management.

EU-wide cooperation of the Chair in the context of SDGs

From 2013 to 2016, the Chair was involved in three European Union funded projects:

Development of an Interdisciplinary Programme in Climate Change and Sustainability Policy (CLIMASP) is a collaboration project between 16 partners from Egypt, Jordan, Lebanon, Greece, Cyprus and Germany led by the University of Crete, Greece (CLIMASP, 2016). CLIMASP developed a minor study programme in Climate Change and Sustainability Policy and helped implement it at the partner universities in Egypt, Jordan and Lebanon by integrating it into existing undergraduate academic degrees in different disciplines. The minor offers students the necessary knowledge, skills and attitudes to tackle the challenges of climate change and enable them to act as agents of change both locally and globally. Following an interdisciplinary approach, it offers three courses (a) Climate Change, Environment and Society, (b) Climate Change, Economics and Public Policy, and (c) Climate Change, Science and Technology. In total, about 250 university courses have been redesigned or newly developed. The course syllabi have been reviewed by project partners in a peer-learning

process that enables capacity building among the university educators. Academic staff and other key stakeholders, such as students, entrepreneurs and climate professionals, have been actively involved in the development of the minor programme of study to ensure that it addresses both the climate challenges and the demands of the regional community. A survey and a set of guidelines have been developed to capture the perspectives of key stakeholders and involve them in teaching activities.

University Educators for Sustainable Development (UE4SD) is based on a partnership of 53 higher education institutions across 33 countries in Europe. It has been coordinated by four regional hubs: the University of Gloucestershire, UK (North Hub and lead partner), Leuphana University (West Hub), Autonomous University of Madrid, Spain (South Hub), and Charles University in Prague, Czech Republic (East Hub). From 2013 to 2016, the partnership supported the professional development of educators through a range of activities. UE4SD has also produced materials that provide a shared understanding of ESD within different cultural backgrounds and initiated relevant education policies at different levels, from the level of individual institution to the European level. In a first step, existing policies and good practices were identified at the European level. Selected examples and recent experiments in ESD professional development at higher education institutions were captured and reflected in a Leading Practice Publication. On this basis, a pilot programme of an UE4SD Academy was initiated. A synthesis of the findings and insights of the project were collected in an online resource platform. ESD professional development for university educators is also addressed from a scientific perspective. The UE4SD consortium continues to share the results and implements the knowledge and experiences gained. Through ongoing collaboration and peer-to-peer exchange new initiatives might be fostered through UE4SD.

Connecting Science-Society Collaborations for Sustainability Innovations (ConSus) has strengthened the collaboration of higher education, research and practice in Albania and Kosovo over the last three years, led by the University of Graz, Austria, and with 13 partners from Albania, Kosovo, Austria, Germany and Ireland. Stakeholders in Albania and Kosovo with experience and/or interest in sustainable development – such as enterprises, NGOs and regional development agencies – have been identified and a science-society network for sustainability has been established. Professional development supported university educators in acquiring the competences they need to implement transdisciplinary methods in their teaching processes so that students learn sustainability knowledge and skills which are application-oriented, relate to their everyday

life, and thus foster their systemic and holistic thinking. A pool of online inter- and trans-disciplinary teaching resources and methods has been developed which addresses regional sustainability challenges in Albania and Kosovo, and refers to stakeholder needs in research, business, NGOs, media, and politics. Several feedback rounds have fostered peer-learning and have improved the quality of the resources. A comprehensive training programme has been conducted, including six training sessions of four days each. As a further step, the trainees have acted as multipliers of ESD in the science-society interface.

ConSus, UE4SD and CLIMASP all have in common the goal of fostering collaboration among and capacity building of university educators for education for sustainable development. The projects all address SDG 4 and SDG 17. Competence in ESD, beyond ensuring that educators are able to impart sustainability knowledge and expertise to students, can affect research and engagement of educators for whole-institution processes at their own higher education institutions.

Outlook

The UNESCO Chair currently prepares two international research and development projects which have emerged directly from such networking. The first involves working with UNESCO GAP partner rootAbility to set up Green Offices at universities to foster sustainability competencies among students as well as to support the diffusion and work of Green Offices, especially at German universities.

The second project is a consortium led by the UNESCO Chair with partners from universities in numerous countries in Central and Eastern Europe to create a conceptual framework for the development of indicators for sustainability sciences to be used in the national academic systems of the participating CEE countries.

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Footnote

1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes. By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development. (United Nations, 2015)

UNESCO Chair in Arts and Culture in Education



Prof. Dr. Eckart Liebau, Chairholder of the UNESCO Chair in Arts and Culture in Education

CV

Professor Eckart Liebau, born in 1949, has held the UNESCO Chair in Arts and Culture in Education at the University of Erlangen-Nuremberg since 2010. In 2013 he was appointed chairman of the German Council for Cultural Education, an independent body of experts monitoring and evaluating the state and quality of cultural education in Germany. From 1992 to 2014 Liebau held the Chair of Pedagogy at the Institute of Education, University of Erlangen-Nuremberg.

From 1988 until 1992 he was granted a Heisenberg Scholarship of the German Research Foundation (DFG) (Tübingen). He completed his state doctorate in pedagogy (Hamburg) in 1987, and his doctorate in pedagogy (Göttingen) in 1979. From 1974 to 1987, he worked as a researcher in diverse education projects (Universities of Göttingen, Kassel, Hamburg, Tübingen). From 1967 to 1974, he studied pedagogy, sociology and political science at the universities of Göttingen and Munich.

Education is central to achieving sustainable development. With the newly adopted Sustainable Development Agenda, the world community has promised to provide inclusive and equitable quality education for all by 2030. Introducing the arts and cultural practices into learning environments contributes substantially to quality education. Arts education fosters the intellectual, emotional and psychological development of individuals, groups and societies. This form of education strengthens cognitive development and the acquisition of life skills such as innovative and creative thinking, critical reflection, communicational and inter-personal skills. At the same time it enhances social adaptability and cultural awareness for individuals, enabling them to build personal and collective identities as well as tolerance and the appreciation of others. The positive impact it gives on the development of societies ranges from cultivating social cohesion and cultural diversity to preventing standardization and promoting sustainable development. UNESCO is the lead agency for the implementation and monitoring of the Global Education Agenda 2030.

Inspired by the first UNESCO World Conference on Arts Education in Lisbon in 2006, the UNESCO Chair in Arts and Culture Education was established at the Friedrich Alexander University Erlangen-Nuremberg in 2010. It connects the German discourse in arts education with the international debate, UNESCO's goals and the Sustainable Development Goals. Since the second UNESCO World Conference on Arts Education in Seoul in 2010, bridges between arts education and Education for Sustainable Development have been defined in theory. The main challenge now is to develop convincing practices in this field, systematize them and develop a research framework that can be used in educational practice as well.

Research Areas

The UNESCO Chair in Arts and Culture in Education has initiated and conducted research on the national and the international level. On the national level, research was focused on the field of concepts of and conditions for arts education, meta research with the aim of creating a national database of arts education research and impact studies of arts education. On the international level, the Chair has focused on visual literacy by developing for example the 'Common European Framework of Reference for Visual Literacy', on monitoring arts education systems worldwide, and on the connectors between arts education and education for sustainable development. International research has always been carried out in collaboration with partners from different parts of the world.

International Cooperation

International cooperation is key to the work of the UNESCO Chair. The Chair cooperates with partner networks both in Europe and globally. As early as in 2010 the Chair initiated the 'International Network for Research in Arts Education' (INRAE), together with the Canadian UNESCO Chair in Arts Education and the Asia-Pacific Network of UNESCO Observatories in Arts Education. Since 2017, INRAE has been a UNESCO/UNITWIN network. Members of these networks, formal as well as associate members, represent all UNESCO regions. The Chair has been made a member of their steering committees.

In 2015, on the European level, with active support from the German Commission for UNESCO, the Chair initiated the 'European Network of Observatories in the Field of Arts and Cultural Education linked to UNESCO (ENO)'. Some 14 ENO observatories in Europe currently monitor arts education in their respective countries. In 2017, ENO seeks to develop a European database on research in intercultural arts education. A second database will focus on education for sustainable development with artistic means. The publication of an annual European Yearbook on arts education will start in 2018. Members of the networks meet annually to discuss their research and showcase examples of their work to the public.

Further to the contribution to global networks, bilateral cooperation has been central to the Chair's work. It has cooperated with institutions in Latin America on arts education evaluation programmes in Bogotá, Colombia, in Belo Horizonte in Brazil, and with actors in Africa on cultural heritage in Douala, Cameroon.

Research Highlight: Arts Education and Education for Sustainable Development

by Ernst Wagner, Executive Coordinator of the UNESCO Chair

In 2016, an exploratory study on 'Arts Education and Education for Sustainable Development' was carried out at the UNESCO Chair in Arts and Culture in Learning by Ernst Wagner, senior researcher at and executive coordinator of the Chair. First results were presented at the World Summit on Arts Education held in the Chinese city of Hangzhou in December 2016. The Summit was based on the observation that the Agenda 2030 for Sustainable Development matches the most relevant and most accepted policy document worldwide on arts education, the 'Seoul Agenda' of 2010. The 'Seoul Agenda' was the major outcome of the 2nd UNESCO World Conference in Arts Education (UNESCO, 2010).

The aim of the Chair's exploratory study was to offer a model for practice and to form a point of reference for the emerging discourse in arts education as well as in education for sustainable development. A set of case studies is needed not only to examine the basic assumptions explained above, but also to develop criteria and indicators for the theoretical assumptions and conclusions. Additionally, exploring case studies from different art forms as well as different regions of the world helps to avoid a one-dimensional and euro-centric perspective. A by-product of this comes in the form of an evaluation tool for daily practice.

Methodology

To get a deeper insight into this relatedness, fifteen stakeholders in arts education were asked to contribute case studies from their country or region concerning the issue of 'arts education in/and/or sustainable development'. The addressees of this request have all been members of the International Network for Research in Arts Education. They represent the different world regions and different art forms such as visual art, music, drama, dance – contemporary as well as traditional. These experts were invited to send a description and analysis of good practice examples in arts education that address the topic of sustainable development. Eleven members of the international network contributed case studies.

In a second step, the case studies were related to a framework that uses the 'Sustainable Development Goals' (SDGs) on the one hand and a set of dimensions in arts education (Liebau, Wagner 2017) on the other. This framework was discussed with a group of experts.¹

Relating the case studies to the theoretical framework led in a third step to a first, preliminary educational model that is based on the discourse about competencies in educational sciences (Weinert 1999).

The relation between the case studies and the framework (Step 2) on the one hand and the model (step 3) on the other were sent back to the eleven contributors asking for their feedback. Following the revision of their manuscripts, the final version is to be published shortly at the Nanjing University in China as well as in ‘Learning through art: Lessons for the 21st Century?’ (Eds. Eca & Coutts, 2017).

Two Examples from the Set of Case Studies

From India an example was sent by Mousumi De about a non-formal setting in Thrissur, Kerala developed by Jinan Kodapully. Kodapully, as De explains, preferred alternate approaches to teaching and learning rather than the essentialist paradigm often prevalent in such institutions. Instead, he encouraged progressive forms of education that are reminiscent of Dewey’s experiential learning methods. Kodapully has facilitated several workshops on art and aesthetics (beauty) that are implemented in rural and/or natural surroundings. Children are encouraged to play and learn and/or make art in a free manner in which they play a strong role in their own learning process. Through such approaches, they are sensitized to nature by observing and creating.

A video, published by Kodapully, shows a boy standing in the rain, observing what happens in a puddle for several minutes.² It is a very



Video still³

quiet video although we hear a lot of noise made by the boy’s friends in the background. The most important issue in the clip is probably that, apart from the observation of the rain, ‘nothing happens’. The experiences the boy has are experiences of nature, nature as an aesthetic and learning space. De explains that the main role of the adult or teacher was to provide a free and secure space for experiencing and learning, which is necessary for the development of this kind of contemplative observation, of rain and earth for example. The video shows how the boy is entirely focused and immersed in this experience, despite the background noise made by his friends. Here, the rain is part of a game for the boy – it is an aesthetic and sensory experience for learning, not a disturbance.

In the third stage of the Chair’s study, the discussion of this example led immediately to the question of whether the specific attitude of this child towards nature can be maintained by children even when they are teenagers or adults, meaning at an age in which they will take more and more responsibility for the environment. The risk is that the boy shown in the film, when grown up, will find fast cars or dangerous weapons as attractive as he found raindrops as a child, and that he will perhaps declare his former attitude towards nature as childish. This means that educational models should be developed which ensure that valuable attitudes are sustained during the further biography, for example by implementing metacognitive strategies. How this might be implemented will be discussed at a later stage. However, it is important to mention that this discussion touches on one of the most controversial discourses in arts education research, the debate about impact, measurement of impact and transfer effects.

UNESCO Chairs in Germany

Scientific Research for Sustainable Development



The wrestle⁴

In comparison to the example from India, an example from New Zealand has a very clear, distinct and directly-addressed message. It was suggested by Ralph Buck, who wrote about this case study: “Mark Harvey, a professional dancer, created this performance as part of the Maldives Exodus Caravan Show. The study focuses on the Maldives as climate issues are affecting mostly low-lying states such as the Maldives. ‘Political Climate Wrestle’, the name of his project, was a live dance performance. The ‘Wrestle’ was performed/presented by Mark. He defined an area in a park and invited members of the public to wrestle with him about climate issues. Mark explained to participants that as they wrestled he would ask questions and give facts about climate change. He invited the co-wrestler to respond using his/her body and voice, to agree or disagree. Each wrestle lasted for several minutes and they attracted large audiences who would also start to voice views and opinions about climate change. Mark managed the physical interchange expertly, ensuring that the wrestle was about ideas and not about the other person.”

During the discussion, Buck explained the link between arts and sustainable development: “The focus was on climate change and

how members of the public interact with knowledge about climate change and their own consumption, production of goods and lifestyle that influences climate change. The event took language such as ‘fight against climate change’ literally, raising awareness of the actual combat that is required. In this way, the performance addresses the question as to what does peace mean in this context? The performance was very successful in raising awareness of climate issues.”

The difference between the two examples is obvious: The target group shifts from children to adults and thus the methods of educational ‘intervention’ change as well. In the second case, the environmental dimension is addressed in a very direct way by an artist. In both cases, the audience is immersed into specific experiences, each in different shapes, nature on the one hand and art (an avant-garde art form) on the other. The latter addresses conflict, not harmony, in the ‘unprotected’, open space. In both cases, the educational outcome is unclear, unsupervised and perhaps cannot be assessed. The experts who sent the two examples assume or hope that these efforts will lead to a change in attitudes that form the basis for a specific kind of behavior.

Reviewing the eleven case studies sent by the experts, two approaches to describing, categorizing and interpreting these case studies have been developed: The first one starts from the concept of semantic differential (Charles E. Osgood), the second one discusses the case studies against the normative framework of the Sustainable Development Goals. The first approach led to an order by using descriptions and connotations of the case studies. The polarities are contemplation versus agitation; individuals versus communities; skills and knowledge versus attitudes, habits and motivation; cultural heritage versus contemporary art forms; and economic empowerment versus sustainable consumption. Nearer to the semantic differential method the polarities can be expressed by adjectives as well – direct versus indirect; focused versus general; traditional versus modern, and so on.

The second approach has been based on an interpretation of the Sustainable Development Goals in order to link sustainable development and arts/culture. It uses a set of dimensions in arts education, the environmental, socio-political, economic, and cultural dimension (Liebau, Wagner 2017). Three dimensions in this list already represent the broadly-accepted dimensions of Education for Sustainable Development as developed by UNESCO, for example in the Roadmap for ESD⁵: The environmental, the social and the economic dimension. Only the cultural dimension is missing in the latter and many other UNESCO documents.⁶ Never-

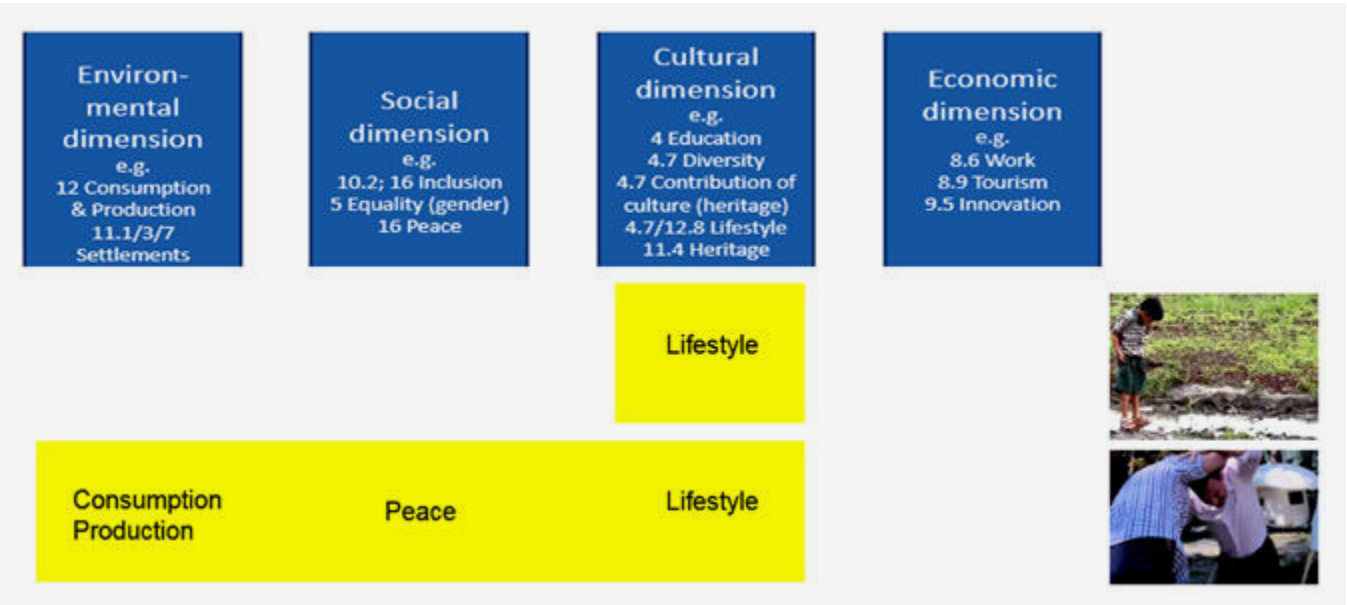
theless, in the context of arts education, it is not only useful but necessary to include this fourth dimension.

This approach leads to a selection of Sustainable Development Goals that are more relevant for arts education than others. It also allows for interpretation of the SDGs, referring to the four dimensions: Sustainable consumption, production and settlements have a strong link with the **environmental dimension**. The SDGs inclusion – diversity, equality and peace – can be referred to the **socio-political dimension**. We have mainly ‘**cultural SDGs**’ – education, diversity, heritage and lifestyle. And last but not least, work, tourism and innovation as **economic dimensions**. It seems important to emphasize that in daily practice, the SDGs are of course interwoven, they cannot be divided and they can be referred to in more than one dimension (like diversity).

Comparative Approach

All case studies collected for this study have been nominated by the experts, because they consider them as good practice examples. Examining them in respect of their basic structure and their link to the SDGs, can lead us to a comparison of the examples as regards the content.

Figure 3 shows that the two projects presented above have similarities, for example, by addressing the cultural aspect of lifestyle but not the economic dimension and it



Comparing project profiles, above (blue boxes) relevant SDGs for arts education

UNESCO Chairs in Germany

Scientific Research for Sustainable Development

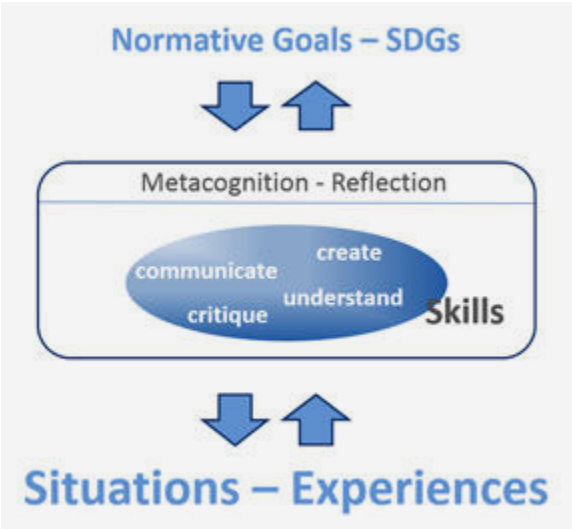
shows the possibility to clarify their specific profiles. Complex artistic interventions like the ‘wrestle’ can address many different aspects whereas a focused educational project like the Indian one is selective. Thus, we can use the framework to evaluate measures in regard to the content. By this, people responsible for concrete projects can also use this framework to decide on the focus. But we can also use the approach to examine the whole set of case studies sent by the eleven experts. This leads to the observation that nearly all SDGs, chosen in the beginning on a merely theoretical basis, are addressed in those examples. Only one is missing and that is Tourism. This is an interesting omission, perhaps a blind spot for arts education.

Towards an
Educational Model

The very first example from India made it obvious that experiences alone will probably not be enough to bring forth a sustainable change of attitudes. It is only a first step and needs to be followed by further steps. Other examples from the set can give us a kind of blueprint for this. In the light of this, we can state that the pedagogical process that is required could perhaps be characterized in the following way:

- Education refers to a situation or an experience (situation).
- Additionally, the influence of concurrent and contra-productive but often attractive experiences and the influence of negative values are reflected together with the learner (goals, metacognition).
- In a complex process, the reflection of the experience enables a value-driven attitude to be shaped. This process creates knowledge about the importance of the specific attitude, and thus delivers an incentive to act (attitudes).
- Skills are developed, such as being able to communicate, create, understand, and critique. An awareness of the transferability of these skills to other situations is fostered (skills).
- Knowledge about the field in which the person should act cannot be missed as the fourth dimension in the learning process act (knowledge).

All these aspects shape a model that can be used as a framework of reference to develop further practice to connect Sustainable Development Goals and Arts Education.



Educational model

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Footnotes

1 Ben Bolden from Canada, Mousumi De from India, Eckart Liebau from Germany, Lawrence O’Farrell from Canada, and Shifra Schonmann from Israel.

2 <http://www.backyardnature.net/jinan.htm> (1 March 2017)

3 https://www.youtube.com/watch?v=BuEuSQ_m6o4 (1 March 2017)

4 <https://www.youtube.com/watch?v=ks9eKF-gXX8o> (21 June 2017)

5 UNESCO Roadmap for Implementing the Global Action Programme on Education for Sustainable Development. Paris (UNESCO) 2014. p.33 (5.a)

6 After the start of discussions on the Post 2015 Agenda, many stakeholders tried to promote culture as the fourth dimension in the UN’s understanding of sustainable development, unfortunately with limited success.

UNESCO Chair in Entrepreneurship and Intercultural Management



Prof. Dr. Christine Volkmann, Chairholder of the UNESCO Chair of Entrepreneurship and Intercultural Management

Sustainable development depends on the actions of and cooperation between a large variety of stakeholders: governments, civil society, academia, and of course the private sector. With their daily choices regarding production, job creation, technology development and investments, companies worldwide influence not only economic growth, but also social and ecological development. Hence, corporate entities as a whole and everyone working in the private sector need to become sensitized to the impact of their practices on local and global sustainability and Agenda 2030.

The UNESCO Chair in Entrepreneurship and Intercultural Management at the University of Wuppertal, with Prof. Dr Christine Volkmann as Chairholder, is in a unique position to do just that. The Chair works with future leaders in society and the private sector, and sensitizes them through education, research and transfer for Agenda 2030. Its goal is to promote innovative, sustainable and responsible entrepreneurial reasoning and action among under- and postgraduate students as well as external stakeholders. Specifically, the Chair's work addresses SDG 4 on "Quality Education", SDG 8 on "Decent Work and Economic Growth" and SDG 9 on "Industry, Innovation and Infrastructure". Its teaching portfolio includes different courses in the field of entrepreneurship (e.g. social entrepreneurship) and economic development. It empowers students with regard to their future roles in society and for the environment based on research findings especially in the fields of sustainable, responsible and ethical entrepreneurship.

She is a renowned member of the national and international scientific entrepreneurship community and has served, for example, formerly on the EFER scientific advisory board and currently on the jury of the EY Entrepreneur of the Year Award. She has worked as an advisor for various EU organisations and is committed to several foundations, including the German Academic Scholarship Foundation. In earlier years, she gained practical experience, especially in large corporate enterprises.

CV

The UNESCO Chair in Entrepreneurship and Intercultural Management is held by Professor Christine Volkmann. She has been head of the Chair of Entrepreneurship and Economic Development and Director of the Institute for Entrepreneurship and Innovations Research at Schumpeter School of Business and Economics at the University of Wuppertal since 2008. In 2011, she initiated the foundation of the interdisciplinary Jackstädt Research Center for Entrepreneurship and Innovation and serves as chairwoman of its Executive Committee. From 1999 to 2008, she was a professor at Westphalian University of Applied Sciences, where she was first awarded the "UNESCO Chair of Entrepreneurship and Intercultural Management" in 2005.

Research Areas

The UNESCO Chair conducts research in a variety of fields, specifically in the domain of social, sustainable and cultural entrepreneurship, based on wide international networks. Among other things, its research addresses stakeholder collaboration, social business innovations, ethical dilemmas in entrepreneurial decision-making and grassroots entrepreneurship. The Chair's research also focuses on cultural and university entrepreneurship and cutting-edge themes such as equity crowdfunding and digitalization in the context of entrepreneurship. Other research includes entrepreneurship education and intercultural management. All of these areas come together in the research field of entrepreneurial ecosystems. To promote knowledge transfer on the basis of entrepreneurship research, the Chair closely cooperates with regional and national as well as international stakeholders.

International Cooperation

The UNESCO Chair pursues diverse forms of national and international cooperation, currently especially with various European countries, Asia and the United States. For example, regular cooperation with the Ameritech Chair of Economic Development (Prof. David Audretsch) at Indiana University Bloomington in the US has resulted in a series of workshops and a recent joint book publication entitled "Entrepreneurship Education at Universities, Learning from Twenty European Cases". In addition, the UNESCO Chair cooperates with other UNESCO Chairs in Croatia, Serbia and Romania. Since 2005, the Chairholder has been a regular visiting professor at Bucharest University of Economic Studies (ASE) where she designed and helped to establish the MBA programme "Leadership and Innovation Management". She is also a committed member of the European Entrepreneurship Education NETwork (EE-HUB) – a platform for experts committed to moving Entrepreneurship Education forward.

Research Highlight: Methods of Social and Sustainable Entrepreneurship

Research into social and sustainable entrepreneurship can create value outside higher education institutions, particularly if it involves a plurality of different people and institutional actors. In particular, the concepts and tools developed from research in social and green entrepreneurship can help students to take responsibility in their lives. More sustainable

thinking and acting by students and graduates can make a difference in society. They are a formidable source of future social and sustainable entrepreneurship and support, for example as volunteers or employees of social and eco-entrepreneurial ventures. The UNESCO Chair takes a comprehensive approach to research, education and transfer in order to spread social and sustainable entrepreneurial venturing.

(I) Developing Students' Entrepreneurial Mindsets through Stakeholder Collaboration

Courses and related activities in social and sustainable entrepreneurship are at the core of the Chair's education portfolio, particularly in respect of participant-centered formats in under- and postgraduate seminars. Since traditional teaching about entrepreneurship does not suffice in developing entrepreneurial mindsets, the Chair promotes the transfer of entrepreneurial skills by means of social and sustainable projects. One such example is ENACTUS, a student organisation committed to using entrepreneurial knowledge and skills to tackle social and ecological challenges.

The UNESCO Chair functions as an academic advisor to the local ENACTUS team in Wuppertal and actively supports students in their projects. To reach an even broader audience, the UNESCO Chair – in cooperation with Neue Effizienz (a university institute focusing on resource efficiency and sustainability) – has to date organized two Sustainable Insights Conferences. The conferences offer a platform for academic interchange between students and entrepreneurs from all over Germany. Also, student teams engage in real-life, hands-on case studies provided by local stakeholders and gain practical insights into sustainable entrepreneurship. To further utilize and scale up social and sustainable project development, the UNESCO Chair has used a massive open online course (MOOC) on the yooweedoo platform. The platform was originally built to support students and young adults in developing their own sustainable green and social projects. It now allows students to develop their own ideas and put them into practice.

In another master seminar the UNESCO Chair invites students to take on consultancy roles to craft sustainability strategies for established enterprises, employing ecological, social and managerial concepts. In their consulting cases students develop, present and reflect sustainable business strategies and leadership approaches for the green economy. Students develop their strategies in initial input sessions and in a concluding role-play setting, giving presentations in front of a feedback panel. These courses and activities frequently encourage students and graduates to move beyond the

academic ivory tower and engage with stakeholders outside university – local entrepreneurs, business owners and managers, investors or public promoters of socio-ecological initiatives, for example. For entrepreneurship education to have an impact on society, collaboration between universities, students and stakeholders from social and sustainable entrepreneurial practice or groups of people affected by social or ecological problems is key.

(II) Research on Stakeholder Collaboration in Sustainable and Social Entrepreneurship Education

The UNESCO Chair recently implemented contract research for the European Commission on “Supporting the Entrepreneurial Potential of Higher Education”. Data source is a multiple-case analysis of twenty higher education institutions (Volkman and Audretsch, published in 2017), totalling more than two hundred interviews with internal and external stakeholders of entrepreneurship education across Europe. One focus of the study was to analyse relationships with and the involvement of external stakeholders in entrepreneurship education as well as the organisational context of curricular and extra-curricular entrepreneurship training within universities.

The Chair was particularly interested in the different groups of stakeholders participating in higher education for general, social and sustainable entrepreneurship, typical forms of involvement and their intensity as well as modes of organizing stakeholder collaboration. These issues are important for two strategic reasons: first, because institutions of higher education often collaborate with stakeholders from their entrepreneurial ecosystem and, second, because there is a need to “create the types of environments that are conducive to encouraging entrepreneurial ways of thinking and behaving” (Volkman et al., 2009, 12). While learning to think entrepreneurially benefits from tangible role models (e.g. social entrepreneurs as one group of stakeholders), students will also require external support (e.g. in terms of resources, know-how, network contacts and inspiration) when developing their own social and sustainable entrepreneurial projects. Students may build and practice their abilities not least through co-working with stakeholders who may be social entrepreneurs themselves or represent important constituents for social and sustainable ventures such as investors, consultants, or target groups of entrepreneurial initiatives.

Initial results of the study (Bischoff, Volkman and Audretsch, published 2017) indicate that most frequently, higher education institutions cooperate with entrepreneurs in their curricular and extra-curricular teaching activities,

although other stakeholder groups – such as established companies, financial institutions, service providers, incubators, (non-)governmental institutions, alumni, and other universities – have also been reported to play a role. The extent of collaboration across the case universities varies given the different resource bases and foci of entrepreneurship education within the institutions. Typical forms of involvement include providing feedback and expertise (e.g. on students’ venture projects through mentoring and coaching, but also in idea competition panels), offering funding and venture placements, planning excursions, and investing, donating and sponsoring (both monetary and in kind, for example by providing office space or infrastructure).

In addition to the many forms of immaterial and intangible support provided in education contexts, monetary funding and investment will often be instrumental when it comes to establishing and scaling social and sustainable ventures of students (and other) entrepreneurs. As this may sometimes be difficult to provide by universities themselves (for example in the public university sector), social impact investing may be a valuable complementary source of (later stage) funding to scale and expand entrepreneurial projects striving for social value creation. Social impact investing is a still young yet growing topic in Germany (Bertelsmann-Stiftung, 2016) and is particularly instrumental in enhancing the positive externalities of existing social and green venture formats. Typical investor stakeholders are foundations and family businesses, investments are often made through funds serving as financial intermediaries. Higher education institutions regularly cultivate long-term stakeholder relationships and require stakeholder support through numerous stages (idea creation set up, establishment and growth of their social venture spin-offs). Social impact investing may be particularly conducive during the expansion and growth stages of social ventures created in higher education.

The Chair’s study on stakeholder collaboration shows that the establishment of stakeholder relationships through higher education institutions is considered to require resources, time, and longer term commitment – something which may prove difficult in times of tight schedules, tight budgets, and tight personnel resources in education and transfer at universities. A typical challenge appears to be to ensure continuity in managing stakeholder relationships which may often be based on the personal contacts and networks of individual university members. It may thus be favourable for the purposes of institutional continuity that stakeholder collaboration be organized centrally in the majority of case universities (e.g. within central entrepreneurship hubs, institutes or chairs). Despite noticeable institutional establishment of training and support for entrepreneurship, the study hints at a substan-

tial heterogeneity in stakeholder collaboration across the cases as the contents and modes of engaging stakeholders vary considerably. One important reason for this heterogeneity may be the underlying diversity of social and sustainable enterprise initiatives themselves. This has implications for training and support for social and sustainable entrepreneurship.

The social enterprise creation spectrum ranges from purely philanthropic forms towards purely commercial ventures (Volkman, Tokarski and Ernst, 2012; Alter, 2007), alongside dual value (social and commercial). Likewise, corresponding education and support initiatives will also vary widely. In particular, the involvement of students and graduates in social and sustainable ventures will differ. For example, in mainly philanthropic, non-profit ventures, students may participate flexibly as volunteers, while in more market-driven, commercial ventures, compensation will be contracted at or close to prevailing market rates. Generally, students and gradu-

ates from university may take on different roles beyond being visionary entrepreneurs themselves, for example in the above-mentioned volunteer/ employee role, or by acting as future leaders in organisations which are suppliers, technology partners, or investors of ventures that create social value.

Both for the direct entrepreneurial roles (becoming an entrepreneur or joining a venture team) and the more indirect “stakeholder” role (becoming an opinion leader in stakeholder organisations to social or eco ventures), students and alumni benefit from entrepreneurship training. At universities, such education programmes build students’ skills and capabilities in the above-mentioned range of support roles for diverse social and green ventures. This multifaceted character of social and sustainable entrepreneurship, and the different roles of supporting and co-operating with entrepreneurial ventures, will also have to be taken into account in policy-making for social and sustainable entrepreneurship.

(III) Future Paths for Supporting Higher Education in Social and Sustainable Entrepreneurship

There is no uniform “one size fits all” approach to managing stakeholder collaboration and support instruments for social and sustainable entrepreneurial projects in higher education institutions (Bischoff, Volkmann and Audretsch, 2017). Externally, for education, social, and education policy-makers, this will require taking a twin-track strategy, embracing:

- Supporting individual social and green entrepreneurship initiatives in the higher education sector (acting locally)
- Identifying and promoting areas where building networks and platforms, exchanging know-how and pooling resources, as well as developing and expanding across individual social or sustainable venture initiatives, is appropriate (acting nationally or even globally).

For the latter, establishing an international stakeholder board for social and sustainable entrepreneurship (or other forms of entrepreneurship) may be recommended so as to build:

- A network of stakeholders that may be integrated into education programmes for social and sustainable entrepreneurship
- A platform for education concepts and tools for the co-development of social and green projects by students in cooperation with different types of stakeholders
- A pool of stakeholder resources that are crucial to social venturing, such as people power in the form of volunteers and consultants, or financial funding.

In order to finance the growth of social and sustainable venturing, social impact investing is instrumental, in particular for scaling ventures that show first successes in creating social and ecological value. Such support enhances the diffusion of social and ecological innovation in society and, most importantly, substantially broadens the impact and range of beneficiaries. Different suggestions have been made with regard to supporting the further establishment of social impact investing in countries in continental Europe and in countries around the world where the topic is relatively new. For example, Bertelsmann Stiftung (2016) recommended that the German government a) take an active role in coordinating measures (e.g. linking social impact investing into other funding policies of different ministries), b) remove potential regulatory barriers and c) provide (co-)funding to grow and stabilize the pool of existing social-impact-investing funds acting as important financial intermediaries between individual investors and social ventures.

In addition to the financial sphere, improving institutionalization also propels the development of further education infrastructures in social and sustainable entrepreneurship. At the organisational level, governments may initiate or support social innovation hubs built around educational concepts such as design thinking. At the level of individual teaching, learning and coaching concepts, supporting dissemination through further institutionalization may also be advisable. The development of such concepts at universities is typically based on the knowledge of individual faculty members who may only remain in academia for a short time. Policy-makers could support the identification and dissemination of high-quality education concepts so as to avoid a potential loss of know-how. In the context of social and sustainable entrepreneurship, this could be achieved, for example, by exploring best practices and their transferability in contracted research.

Students and young adults in general are crucial disseminators of ideas and venture opportunities based on the above education and coaching initiatives in social and sustainable entrepreneurship. Rather than seeing them as a substitute for governmental social and environmental policy (or market-based solutions), young people and the social ventures they initiate should be welcomed as a valuable enhancement in addressing the societal and ecological challenges of the future.

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