



**Lucerne Declaration
on
Geographical Education for Sustainable Development**

drafted by Hartwig Haubrich, Sibylle Reinfried & Yvonne Schleicher

The International Geographical Union Commission on Geographical Education sees the UN Decade for Education for Sustainable Development 2005-2014 as an opportunity to confirm its commitment to education for sustainable development and to reconfirm that the “International Charter on Geographical Education” of 1992 is still of global importance. Although the issue of environmental education was already included in the International Charter on Geographical Education, the contemporary global changes, which will considerably challenge humankind in the 21st century, require the proclamation of a “Declaration on Geographical Education for Sustainable Development”. The declaration focuses the following topics:

- A. The Contribution of Geography to Education for Sustainable Development**
- B. Criteria for Developing Geographical Curricula for Education for Sustainable Development**
- C. The Importance of Information and Communication Technologies (ICT) for Education for Sustainable Development in Geography**

A. The Contribution of Geography to Education for Sustainable Development

The International Geographical Union Commission on Geographical Education shares the vision of the UN Decade for Education for Sustainable Development (UNDESD) 2005-2014, that sees education for sustainable development (ESD) contributing to “a world where everyone has the opportunity to benefit from quality education and to learn the values, behavior and lifestyles required for a sustainable future and for positive societal transformation” (<http://portal.unesco.org/education/>). Nearly all of “action themes” highlighted in UNDESD, including environment, water, rural development, sustainable consumption, sustainable tourism, intercultural understanding, cultural diversity, climate change, disaster reduction, biodiversity, and the market economy, have a geographical dimension. In the light of this, it is necessary for the paradigm of sustainable development to be integrated into the teaching of geography at all levels and in all regions of the world.

Sustainable development of the “human-earth” ecosystem as a paradigm for the 21st century

At the Rio Earth Summit 1992 nearly all countries of the world agreed to do their best to realize sustainable development – including through education as stated in Article 36 of Agenda 21. The Johannesburg Summit 2002 broadened and reconfirmed this paradigm.

Our vision of education for sustainable development is based on the concept of the **“human-earth” ecosystem**. “Eco” comes from the Greek word “oikos”, which means household. In terms of money a household should not spend more than it earns. Ecology is the science of housekeeping, to keep the household of the “human-earth” ecosystem, which includes nature, culture and society and the economy.

Systems are sets of elements and relations of flows of matter, energy and/or information. A system has a structured inner world and a kind of boundary dividing it from the outer world. The outer world is less connected with the system than the elements of the inner world. Despite this, there is an exchange of input and output of energy, matter and/or information between the outer world and the inner world of the system. Such systems are called open systems. They contain subsystems with their own special environments.

The **“human-earth” ecosystem** can be differentiated into the systems earth, society and individual.

- The **earth system** or geosphere, consists of such sub-systems as lithosphere, pedosphere, atmosphere, hydrosphere, biosphere and anthroposphere. The outer world of the earth system is the cosmos, extra-terrestrial space. There is an exchange of matter and energy between the sun, space and the earth. The earth offers society the necessary resources and natural sinks.
- The **society system** or anthroposphere, consists of such sub-systems as settlements, agriculture, industry and traffic. Geographers analyze how the geosphere provides resources and living space to society and how society has an impact on the earth system. That way, geographers build a bridge between the natural and social sciences and study the whole “human-earth” ecosystem. Society offers the individual such essentials for survival as food, water, housing, infrastructure, security and education. In return the individual contributes to society through services and work but creates also problems. The exchange between the individual and society does not contain just goods but also knowledge, ideas, norms, values and attitudes. Society acts in neither a geo- nor a socio-deterministic way.
- The **individual** is of special interest for educators because education of individuals is one of the most important ways of contributing to an understanding of sustainable development. The exchange between the individual and society aims at the socialization of the individual on the one hand and at the development of society on the other. The freedom of the individual within a particular frame of natural and social conditions is the precondition that education can have an impact on students’ environmental behavior. The knowledge, perceptions and values of people are crucial for implementing sustainable development. The consequence of this thinking in systems is the necessity to think ecologically or holistically, i.e. how nature, society and individuals are interconnected. Ecological housekeeping means not consuming more than can be regenerated.

Sustainable development refers to the sustainability of nature, economy and society. It is a contentious issue since nations, cultures, groups, and individuals interpret it to suit their own needs. Thus, some emphasise economic sustainable development as they seek to enhance their consumption levels while others emphasise environmental sustainable development as they seek to conserve threatened species. Sustainable development and consequently education for sustainable development are culturally defined.

Sustainable development of nature means the consumption of resources not faster than they can be renewed. We have the duty to preserve natural resources for coming generations. The consumption rate should not exceed the regeneration rate. Environmentally damaging activities must be brought under control to restore and protect the integrity of the earth's system.

Sustainable development of economy includes sustainable development of nature. Jobs for all and growing living standards remain important targets. For developing countries this means more consumption of natural resources, for industrialized countries it means new resources-saving technologies and new life styles. To reach these objectives is one of the biggest challenges in the future.

Sustainable development of society means equal life chances for all. To reach this goal, it is indispensable that people in developing countries can satisfy their basic needs and that people in industrialized countries agree to strong directives from the international community to limit their consumption of natural resources. However, more important than such legislation would be the development of new values, philosophies and ecological behavior, which are seen as promoting new and better ways of living than the old ones, replacing production and consumption structures based on quantity by an economy, a society and individuals focused on qualitative improvements.

Strategies for implementing sustainable development

The main strategies to implement sustainable development are:

- **Efficiency-strategy:** through new technical and organizational innovations resources can be used more efficiently.
- **Consistency-strategy:** through renewable resources and closed economic circles the ecology of flows of material and energy can be improved.
- **Permanency-strategy:** through technical innovations the lifespan of products can be enhanced.
- **Sufficiency-strategy:** through new life styles the consumption of resources can be minimized and life can become more satisfying.
- **Education and social commitment:** through education and social commitment in communities such as schools, neighborhoods and clubs social justice, contentedness and sustainable development can be discussed and lived.

Sustainable development means, therefore, the combination of ecological, economic and societal sustainability by the development of new production and consumption patterns, as well as new life styles, and last but not least by the creation of a new ethic for the individual through lifelong education, including, of course, Geographical Education.

Geographical competencies to enhance sustainable development

The International Charter on Geographical Education (1992, p. 1.9) states:

“The more knowledge available in the hands of educated people capable of understanding the information the greater the chances are of significantly reducing

environmental damage and preventing future problems. Accordingly, there is a primary need to strengthen in all countries, especially the developing ones, their entire educational system as a prerequisite to environmental and development education. Geographical Education contributes to this by ensuring that individuals become aware of the impact of their own behavior and that of their societies, to have access to accurate information and skills to enable them to make environmentally sound decisions, and to develop an environmental ethic to guide their actions". The Charter also draws attention to the most important geographical competencies, which are crucial for implementing sustainable development:

- **Knowledge and Understanding**
 - of the major natural systems of the earth in order to understand the interaction within and between ecosystems.
 - of major socio-economic systems of the Earth in order to achieve a sense of place.
- **Skills**
 - in using communication, thinking, practical and social skills to explore geographical topics at a range of levels from local to international.
- **Attitudes and Values**
 - dedication to seeking solutions to local, regional, national and international problems at the basis of the "Universal Declaration on Human Rights".

(Selected from International Charter on Geographical Education 1992; p. 1,7f).

Interdisciplinary competencies to enhance sustainable development

Besides specific geographical competencies interdisciplinary skills crucial for sustainable development to be developed in collaboration with other subjects are:

- to focus on problems, to evaluate alternatives, to calculate risks;
- to perceive complex cause-effect relations and dynamics;
- to reflect about side effects and consequences, which are to be expected from an action;
- to think in systems and complex networks;
- to find, evaluate, process and use information with appropriate methods;
- to respect other views and opinions;
- to think about and evaluate one's own personal motives;
- to give one's own life sense and an ethic basis;
- to contribute to common tasks with one's own competencies;
- to be able to act in uncertain situations;
- to feel committed to environmental planning and projects;
- to evaluate one's own actions and their results;
- to perceive life-long learning as an enrichment of one's quality of life;
- to perceive problems and phenomena from different perspectives;
- to flexibly apply different methods to solve problems;
- to relate local and regional experiences to global phenomena.

Conclusion

As described above Geography Education can greatly contribute to achieving the goals of the United Nations Decade for Education for Sustainable Development by providing relevant knowledge, skills, values and attitudes crucial for a peaceful coexistence of individuals with nature on this planet. Sustainable development is future-oriented and is a concept of peace between humans and nature and a concept of justice between generations, different nations, cultures and regions of the world. In

addition to social, environmental and economic concerns the concept of sustainable development also extends to global responsibility and political participation. The action competence, which is needed for such challenges, can be learned - in cooperation with other subjects – through Geographical Education.

B. Criteria for Developing Geographical Curricula for Education for Sustainable Development

The International Charter on Geographical Education contains a basic philosophy on Geographical Education and the necessary guidelines for optimizing Geographical Education. It is a document of great importance geographical educators all over the world.

It is unrealistic to write a document that seeks to reach a consensus about a global curriculum. Curricula contain objectives and contents that relate to regional and national needs differing from region to region and from country to country. A global curriculum would ignore or even deny regional and national needs and differences. Despite this, it is possible to agree upon basic criteria, which should be followed when national geography curricula are developed, renewed or evaluated. The following criteria are considered to be essential for education for sustainable development in geography:

Criteria for finding geographical objectives

On the basis of the pedagogical aims of the International Charter on Geographical Education the educational objectives of national curricula should contain a balanced range of knowledge and process dimensions.

Knowledge dimensions are:

- factual knowledge
- conceptual knowledge
- procedural knowledge
- meta-cognitive knowledge

Process dimensions:

- knowing
- remembering
- understanding
- application
- analysis
- synthesis
- evaluation
- creativity
- critical thinking
- reflection
- hypothesizing
- speculating
- guessing

In addition to these cognitive objectives, national curricula should contain affective objectives, which refer to those, mentioned in the International Charter on Geographical Education.

Criteria for selecting geographical topics

- Big environmental problems of the contemporary world
(Consideration of issues that concern humankind and nature, such as global warming, energy crisis, overuse of non-renewable resources, population change, and global disparities etc.; consideration of conflicts resulting from contradictory targets concerning environmental, economical and social sustainability).
- Geographical perspectives
(Approach via the perspectives of provision, use, evaluation, formation, pollution and meaning of space).
- Geographical ways of looking at things
(such as the spatial, functional, systemic, prognostic, action-related, structure- or process-related approaches).
- Typical Examples
(Significant contents concerning structure/processes related to a topic, concerning important and transferable insights into a problem; content suitability for the transfer of ideas).
- Students' experiences, interests and preconceptions
(Consideration of the experiences, interests and preconceptions of students at different age levels).
- Significance
(Importance of issues in private, public, political, professional or economic contexts; ecological significance).
- Importance
(for life, for appropriate spatial behavior and sustainable behavior)
- Balance
(Selection of diverse, contrasting and multidimensional topics; consideration of different perspectives of different actors with differing interests).

Criteria for selecting geographical areas

- Typical Examples
(Selection of significant areas that are useful to learn about typical structures/processes or that are useful to gain transferable insights).
- Students' experiences and interests
(Consideration of the experiences and interests of students at different age levels).
- Significance
(Consideration of the political, economic or dimensional position of an area; consideration of the ecological/environmental significance).
- Variety of scales
(Consideration of the local, regional, national, international and global scale).

- Balance
(Selection of areas that are diverse and contrasting in terms of their position, type and size).
- Topographical coverage
(To grasp the idea that space can be seen from different perspectives – as a comprehensive orientation grid or a network of single topographical objects).

Criteria for selecting learning steps

- Reference to the interests of the different age groups (The preferences and interests of different age groups should be kept in mind).
- Degree of learning demands
(The demands on the learners should increase in volume and difficulty and tasks should be accomplished by the learner with an ever growing degree of independence).
- Learning series of connected facts
(Connected facts should be arranged in a way that they built on each other).
- Complexity
(Starting from simple case studies, contents and methods should become more and more complex).
- Abstraction
(Starting from concrete space-related phenomena, development should move towards abstract models).
- Way of looking at things
(At the beginning of the learning process priority should be given to the physiognomic, then to the process-related and finally to the functional and prognostic way of looking at things; constructivist approaches should be used to understand concepts, processes, theories and space as changeable societal constructs).
- Inclusion of case studies in interrelated contexts and overviews
(Connection of the exemplary method with the orientation method).
- Regional sequence
(Arrangement of regional topics not strictly from near to far but in the sense of a view into the world).
- Levels of scale
(Taking all levels of scale into account, which is the small-scale, medium-scale as well as the international and global dimension).

C. The Importance of Information and Communication Technologies (ICT) for Education for Sustainable Development in Geography

Method and action competence of people are preconditions for implementing sustainable development. These abilities can be reached through lifelong learning. Geographical methods, such as mapping, map reading, fieldwork, statistics, interviewing, calculating, the interpretation and production of images, texts, graphs and diagrams are widespread and daily practiced in schools. Information and Communication Technology, in contrast, is not as often used, as it should be. Reasons are the lacking hardware or the lacking in-service education for teachers. The objective of the following paragraph is it to give reasons for the importance and meaning of the use of ICT for learning in geography.

In the last fifteen years ICT has greatly influenced geography. ICT can contribute meaningfully to the aims of geography teaching described in the International Charter on Geographical Education by helping students to develop knowledge and understanding, skills, attitudes and values. Today ICT is omnipresent in the lives of most people in developed countries. Because of the importance and the potential of ICT as a tool for the acquisition of indispensable qualifications necessary for lifelong learning and education for sustainable development it is crucial to help the developing countries to implement ICT-based teaching and learning.

The general value and the special potential of ICT

The use of ICT in Geography Education helps to reach the aims of general media education, including the principles of teaching and learning with media, media literacy, and digital literacy. In Geography Education, media add a general value to teaching in terms of serving as a resource for information from various, often-contradictory sources, but also in terms of organizing, processing, interpreting and presenting information. The specific potential of ICT includes interactivity, self-directed learning, cooperative learning, and special learning arrangements such as E-learning. ICT adds considerable value to geography learning, especially in the fields of intercultural learning, global learning, and bilingual learning.

Software in general and specific geographical software (such as computer simulations or the Geographical Information Systems GIS) and hardware (including such mobile tools as Global Positioning Navigators GPS) provide new means for teaching and working with web-based information and enhance communication and cooperation in the setting of E-learning and blended learning in geography.

ICT and research in Geography Education

The use of ICT in the teaching of and learning in geography extends the focus of research in Geography Education. As a result, we know more about students' motivations and general improvements of teaching and learning geography. The Geographical Union Commission on Geographical Education promotes academic discussions and exchange for research concerning ICT and Geography Education.

ICT and international co-operation

The possibility of online collaboration to enable virtual meetings between people all over the world adds an additional value to digital media especially in the context of intercultural learning and global learning. This is of particular advantage for developing countries, which still face restriction to international co-operation and collaboration.

All these and other potentials concerning ICT contribute to teaching and learning in environmental contexts and thus to education for sustainable development in Geographical Education.

Enabling cooperation between schools around the world (especially in developing countries) to support teaching and learning with digital media / online co-operation is a priority and an objective for the Geographical Union Commission on Geographical Education.

Proclamation

The International Geographical Union Commission Geographical Education proclaims this Declaration and recommends the principles presented in this document as a basis for a sound geographical education for sustainable development to all geographers and governments in the world.

Signed by the chair of the International Geographical Union Commission on Geographical Education (IGU/CGE)

Lucerne, 2007-07-31

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