



Lucerne Declaration on Geographical Education for Sustainable Development¹

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The International Geographical Union Commission on Geographical Education sees the UN Decade of Education for Sustainable Development 2005-2014 as an opportunity to confirm its commitment to education for sustainable development. Contemporary global changes challenge humankind in the 21st century. We respond with the proclamation of a “Declaration on Geographical Education for Sustainable Development”. The declaration extends the foundational International Charter on Geographical Education (1992) with a focus on:

- A. The Contribution of Geography to Education for Sustainable Development**
- B. The Criteria for Developing Geographical Curricula for Education for Sustainable Development**
- C. The Importance of Information and Communication Technologies (ICT) in 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 of Education for Sustainable Development (UNDESD) 2005-2014, which 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 the “action themes” highlighted in the 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. This Declaration proposes that the paradigm of sustainable development should 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 accept sustainable development as a goal. Article 36 of Agenda 21 describes the importance of education for sustainable development. The Johannesburg Summit 2002 broadened and reconfirmed this paradigm.

The Commission's vision of education for sustainable development is based on the concept of the **"Human-Earth" ecosystem**. "Eco" comes from the Greek word "oikos", meaning household. In terms of human survival a household should not spend more than it earns. Ecology can be seen as the science of housekeeping; we need to sustain the household of the "Human-Earth" ecosystem that includes nature, culture and society and the economy.

The **"Human-Earth" ecosystem** can be differentiated into the Earth and Human systems.

- 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 **Human system** or anthroposphere, consists of such sub-systems as settlements, agriculture, industry and transportation. Geographers analyze how the geosphere provides resources and living space to the Human system 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.

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 as well as at the development of society. The freedom of action of the individual within a particular frame of natural and social conditions is the precondition that education can have an impact on students' sustainable 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 the definition 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 a duty to preserve natural resources for future 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 the economy includes sustainable development of nature. Jobs for all and growing living standards remain important targets. For some countries this means more consumption of natural resources; for others it means new resources-saving technologies and new lifestyles and solidarity. 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 imperative that people in developing countries can satisfy at least 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 action would be the development of new values, philosophies and ecological behavior that 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 circuits the ecology of flows of material and energy can be improved.
- **Permanency-strategy:** through technical innovations the lifespan of products can be extended.
- **Sufficiency-strategy:** through new life styles based on insight the consumption of resources can be minimized.
- **Education and social commitment:** through education and social commitment justice, satisfaction and sustainable development can be discussed and lived.

Sustainable development implies, 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 Geographical Education.

Geographical competencies to enhance sustainable development

The most important geographical competencies implementing sustainable development are:

- **Geographical knowledge and understanding**
of:
 - major natural systems of the Earth in order to understand the interaction within and between ecosystems.
 - socio-economic systems of the Earth in order to achieve a sense of place.
 - spatial concepts – key ideas unique to Geography that help students to make sense of the world: location, distribution, distance, movement, region, scale, spatial association, spatial interaction and change over time.
- **Geographical 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 questions and problems on the basis of the “Universal Declaration on Human Rights”.

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 that 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 ethical basis;
- to contribute to common tasks with one's own competencies;
- to commit 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.

As described above Geography Education can greatly contribute to achieving the goals of the United Nations Decade of 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 that is needed for such challenges can be learned - in cooperation with other subjects – through Geographical Education.

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

The Commission on Geographical Education maintains that it is unwise to seek consensus on a global curriculum. Curricula contain objectives and content that relate to regional and national needs differing from region to region and from country to country. A global curriculum would ignore or deny regional and national needs and differences. Because a global curriculum is not practical, the Lucerne Declaration establishes basic criteria that should be followed when national geography curricula are developed, renewed or evaluated. The following criteria are considered to be essential for education in sustainable development in Geography:

Criteria for finding geographical objectives

Educational objectives of national curricula should contain a balanced range of knowledge dimensions, process dimensions and applied dimensions as well as the dimension of values and attitudes.

Criteria for selecting geographical themes

- **Major issues in the contemporary world**
These include a selection of issues concerning humankind and nature that are important for life, for appropriate spatial behavior and sustainable behavior. Themes such as global warming, energy depletion, overuse of non-renewable resources, population change, and global disparities can be used. Consideration of conflicts resulting from contradictory targets concerning environmental, economical and social sustainability is appropriate.
- **Geographical perception of space, place and environment**
Themes include the provision, use, evaluation, formation and meaning of space, place and environments.
- **Geographical ways of looking at spatial organization**
This criterion involves functional, systemic, prognostic, action-related, structure- or process-related approaches.
- **Illustrative examples**
involve the selection of contents that serves as a model concerning structure/processes related to a topic, concerning important and transferable insights into a problem; contents are suitable for the transfer of ideas.
- **Students' experiences, interests and preconceptions**
involve the consideration of the experiences, interests and preconceptions of students at different age levels.

- **Significance for the individual, people, culture and the environment**
This criterion includes the importance of issues in private, public, political, professional or economic contexts.
- **Balance**
involves the selection of diverse, contrasting and multidimensional topics and the consideration of different perspectives of different actors with differing interests.

Criteria for selecting geographical areas

- **Illustrative Examples**
involves the selection of significant areas that are useful to learn about structures/processes as models or that are useful to gain transferable insights.
- **Students' experiences and interests**
This criterion includes the consideration of students' knowledge, interests and experiences at different age levels.
- **Significance**
involves the consideration of the political, economic or dimensional position of an area and the consideration of its ecological/environmental importance.
- **Variety in special extent**
involves consideration of the local, regional, national, international and global scale.
- **Balance**
Themes include the selection of areas that are diverse and contrasting in terms of their position, type and size.
- **Topographical coverage**
This criterion aims at themes that help to grasp the idea that space can be seen generally or thematically – as a comprehensive orientation grid or a network of single topographical objects.

Criteria for selecting learning approaches

- **Reference to the interests of the different age groups**
I.e. the preferences and interests of different age groups should be kept in mind.
- **Degree of learning demands**
That means, the demands on the learners should increase in volume and difficulty. The learner should accomplish tasks with an ever growing degree of independence.
- **Learning series of connected facts**
That is to say that connected facts should be arranged in a way that they build on each other.
- **Complexity**
That is contents and methods starting from simple case studies and become more and more complex.
- **Abstraction**
That is starting from concrete space-related phenomena and developing towards more abstract models.
- **Ways of looking at things**
That criterion involves that 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**
i.e. illustrative examples should be connected to regional contexts.
- **Regional sequence**
That is to say that regional topics should not strictly be arranged from near to far but in a sense of a view into the world.
- **Spatial extent**
That is 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) in Education for Sustainable Development in Geography

The ability to act as a responsible and democratic citizen is a precondition for the implementation of sustainable development. This ability can be developed through access to up-to date information and through lifelong learning. Geographical methods, such as mapping, map reading, fieldwork, statistical analysis, interviewing, calculating, the interpretation and production of images, texts, graphs and diagrams are widespread nowadays and practiced daily in many schools. Information and Communication Technology, in contrast, although it has greatly influenced the science of geography in the last fifteen years, is not as often been used, as it should be, mainly due to the lack of hardware/software in classrooms and the limitations of in-service teacher training.

ICT literacy is becoming a major learning objective because the reach of print media is gradually diminishing while digital media are on the rise. It is therefore highly probable that ICT will gain considerably in importance in the years and decades to come. This holds true for developed as well as developing countries. Additionally, young people are highly motivated and interested to work with digital tools and interactive media, which are important premises to meaningful learning. Therefore, digital media education with a focus on the principles of teaching and learning with digital media, media literacy, and digital literacy are of additional value for education in Geography.

ICT can contribute meaningfully to the aims of education for sustainable development in Geography teaching and learning described in this Declaration by helping students to acquire knowledge and develop competencies necessary for lifelong learning and active citizenship.

The specific value and potential of ICT for ESD in Geography

In Geographical Education, media add 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 Internet, software in general and specific geographical software (such as computer simulations or the Geographical Information Systems GIS) and hardware (for example mobile tools such as Global Positioning Navigators GPS) add specific value to Geographical Education by providing easily accessible, up-to date information, new and innovative means for teaching and learning with web-based information, and enhance communication and cooperation, for example in the settings of E-learning and blended learning. The benefits of the use of ICT contribute to the aims and objectives of Geographical Education for sustainable development in a sense that ICT helps

- to acquire up-to date knowledge easily
- to compare contradicting information
- to look at things from different, multi-perspective points of views

- to gain direct insight into the attitudes and perspectives of people who are personally affected by issues of sustainability (i.e. impacts of natural disasters, environmental pollution, economic crises)
- to analyze the world and its mental representations
- to better understand the conceptualizations and attitudes concerning issues of sustainability of people from different cultures
- to visualize multi-dimensional environmental issues related to sustainable development
- to promote higher thinking skills like synthesis and evaluation
- to develop understanding, skills, attitudes and values, necessary for sustainable behavior.

ICT will dramatically change teaching and learning in the future. Its specific potential for ESD in Geography lies in the interactivity of the tool, in its suitability for self-directed and cooperative learning arrangements and in its enormous richness in terms of attractive up-to-date contents and learning opportunities for topics concerning ESD.

ICT and research in Geographical Education for sustainable development

The use of ICT in geographical teaching and learning for sustainable development extends the focus of research on new areas. An important field for research concerns the influence of ICT on narrowing the gap between environmental knowledge and sustainable behavior. As a result of such research we would better understand of how to improve teaching and learning in Geography to meet the competencies listed in this Declaration. 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 can benefit from international co-operation and collaboration. Enabling cooperation between schools around the world 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 on 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

Prof. Lex Chalmers

Chair, 2004-2008 Commission

This Declaration has been drafted by Hartwig Haubrich, Sibylle Reinfried and Yvonne Schleicher, published through the commission's home page, commented by the commission's members and delegates from many countries around the world, revised several times and finally discussed, accepted and proclaimed at a IGU CGE Regional Symposium in Lucerne Switzerland on July 31, 2007.