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DRAFT UNECE STRATEGY FOR EDUCATION FOR SUSTAINABLE DEVELOPMENT

Addendum

EXPLANATORY NOTES

1. ***Education*** is derived from the Latin *educare*, meaning to rear or foster and from *educere*, which means to draw out or develop. While this developmental and transformative meaning retains currency, it has largely been overshadowed by transmissive ideas relating to instruction and teaching. Education (as a verb) is commonly used to describe a process and also (as a noun) shorthand for the 'education system', which involves policies, institutions, curricula, actors, etc.

2. ***Learning*** is the process through which knowledge, values and skills are developed. The processing of information results in a relatively stable change in the behaviour of an individual or organization. Learning is absorbing information and integrating the information in and considerations in such a way that this leads to different choices, different behaviour. Information (consisting of data, basic information) is connected with our knowledge, our experience, our norms and values and the way we lead our lives (giving meaning to life).

3. ***Education for sustainable development*** reflects the parent term "sustainable development", defined as development "that meets the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development Report, 1987). Sustainable development is a complex issue, encompassing economic, environmental and social dimensions. In other words, development is essential to satisfy human needs and improve the quality of human life. At the same time, development must be based on the efficient and responsible use of all of society's scarce resources - natural, human and economic.

4. ***Training*** in this context means the same as education, but includes practical application.

5. ***Continuing education/training*** covers activities aimed at updating, refreshing or extending knowledge and skills gained during basic education/training.

6. ***Educators*** are teachers, lecturers, trainers and voluntary education leaders.

7. ***Learners*** are pupils, students and participants of trainings.

8. ***Sustainable society*** is one that persists over generations, one that is far-seeing enough, flexible and wise enough not to undermine either its physical or social systems of support.

9. ***Learning processes*** are often described at an individual level. However, it might be based on the learning citizen, at three levels:
(a) As a learning person: individual skills, self-development, the individual position in society, leading to sustainable behaviour or not;
(b) Within the learning organization: the organization tries to improve the quality of its own structure and performances. The qualification "learning organization" applies only if there are sufficient numbers of individuals who adopt a behavioural change leading to changes in the structure and performances;
(c) Within the learning society: an addition of learning processes of different organizations and individuals with their own perspectives, but with a cumulative effect.

Categories of learning or education

10. *Formal learning* takes place in education and training institutions, leading to recognized diplomas and qualifications.

11. *Non-formal learning* takes place outside and sometimes parallel to mainstream systems of education and training, and does not typically lead to formal certificates. Non-formal learning may be provided at the workplace and through the activities of civil society, organizations and groups (such as youth organizations, trade unions and political parties). It can also be provided through organizations or services that have been set up to complement formal systems (such as arts, music and sport classes or private tutoring to prepare for examinations).

12. *Informal learning* is a natural accompaniment to everyday life. Unlike formal and non-formal learning, informal learning is not necessarily intentional learning, and as such may not even be recognized by the individuals themselves as contributing to their knowledge and skills.

13. *Lifelong learning* is learning throughout life, either continuously or periodically. Lifelong learning stimulates and empowers individuals to acquire all the knowledge, values, skills and understanding that they require throughout their lifetime and to apply them with confidence, creativity and enjoyment in all roles, circumstances and environments.

14. *Life-wide learning* enriches the concept of lifelong learning by drawing attention to the breadth of learning, which can take place across the full span of our lives at any one stage in our lives. The life-wide dimension brings the complementarity of formal, non-formal and informal learning into

sharper focus. It reminds us that useful and enjoyable learning can and does take place in the family, in leisure, in community life and in daily working life. Life-wide learning also makes us realize that teaching and learning are activities that can be changed and exchanged in different times and places and through different roles. Not all the categories may be coherent – informal learning can, for example, also take place in classrooms – but the categories reflect the understanding that learning takes place not only in classrooms.

15. *Social learning* The development of knowledge and understanding has both personal and shared elements. The term social learning often refers to an understanding emphasizing that learning is always a social process, because it always takes place in a social setting or context. And the practices that learners take part in, the means and technology that they learn to use, the skills or insights that they develop have a social context. Furthermore, cooperation or being part of a certain division of labour is often the situation for learners. Social interaction allows learners to relate or mirror their ideas, insights, experiences and feelings to those of others. In this process of "relating to" or "mirroring" these personal ideas, insights, experiences and feelings are likely to change as a result. This mirroring may lead learners to rethink their ideas in the light of alternative, possibly contesting, viewpoints or ways of thinking and feeling. At the same time (learning) experiences which are shared with others are likely to gain importance. However, the term "social learning" is sometimes also used to characterize certain educational settings or processes whereby a group, organization or whole society is collectively engaged in competence development. In this sense, social learning is used to broaden the meaning of learning in relation to its normally very individualistic meaning. It includes learning by individuals, but recognizes that groups as a whole can learn. Arguably, progress towards sustainability is dependent on such learning.

16. The thought behind social learning is that people do not learn alone, or not as usefully as possible, by means of individual routes, but that they also learn, and often better, by relating their personal experiences to the experiences of others. It is assumed that other people play an important role in the recognition, formulation and generalization of individual experiences. In social learning four elements ('axes') that provide the basis for learning processes can be distinguished:

(a) *Action*: people have to be able and prepared to consider themselves to be people who can actively take their own situation in hand (motivation). The organizers of the learning process are therefore required to approach the participators as competent actors and to review what they can do *themselves*;

(b) *Cooperation*: people have to be able and prepared to collaborate with others. This presents an area of tension of consensus and dissensus in a group;

(c) *Reflection*: people have to be able (to learn) to reflect on what they have done; look back, evaluate, draw conclusions and translate into changed behaviour;

(d) *Communication*: it is conditional for social learning that people can communicate about it, explain and demonstrate it to others – transfer of experience.

Approaches and methods

17. *Action-oriented teaching and learning* approaches emphasize that education for sustainable development (ESD) aims of contributing to sustainable changes in society and the environment. It is thus recommended that ESD should involve concrete environmental actions taken by students and other target groups as integrated parts of teaching and learning processes. An action is targeted at change: a change in a person's lifestyle, in the local society or in the global society. And an action is

intentional. The action-oriented approach has two main goals: to contribute to the development of students' own competences to take action and to facilitate sustainable changes in the short and the longrun.

18. *Critical thinking* in this context means that ESD should be ideologically aware and socially critical, thereby recognizing that no educational values are politically neutral. In general, critical thinking can be defined as how individuals consciously adapt information into their own understanding within their existing values, interests and knowledge. This general definition applies to critical thinking in learning processes, but it is important to emphasize willingness to take open-mind approaches by both learners and teachers, particularly to various cultural, economic, ecological, political and social issues. At best, critical thinking could lead to socio-cultural and intellectual flexibility with an understanding that, in addition to human capabilities, all information is principally related to place and time.

19. *Democratic process* According to Agenda 21, it is imperative that youth from all parts of the world should participate actively in all relevant levels of decision-making processes because it affects their lives today and has implications for their futures. In addition to their intellectual contribution and their ability to mobilise support, they bring unique perspectives that need to be taken into account (chap. 25, children and youth in sustainable development). Furthermore, municipalities should undertake a consultative process with their populations and achieve a consensus for the community (Agenda 21, Chap. 28). Democracy has traditionally been understood as equal rights and opportunities for all people to participate in decision-making in the institutions and issues that concern them. This well-established tradition also stresses the strong role of sovereignty particularly among nations. Rapid economic and environmental globalization during recent decades has provided a challenge to achieving sustainable development for all people in their everyday lives, although possibly not visible nevertheless exists.

20. *Dynamic qualities* in the learning process mean an emphasis on qualities in educational activities that engage learners in active and participative positions and assign teacher and learner more reciprocal roles that respect the existing knowledge and ability of the learner. Dynamic qualities can be seen as opposed to *static qualities*, which are more mechanical and see teaching and learning as little more than a transfer of information and the learner as a passive recipient.

21. *Holism* is the belief that anything natural is connected to everything else and that each thing is a part of the whole, which is more important than the parts that make it up. The term holistic in this context refers to an understanding where learners and learning processes are seen in a holistic or coherent view, i.e. learners and their needs/motivation as "whole persons" (including spiritual and emotional) and learning processes as professional, personal, disciplinary, social and so on.

22. *Integration* needs to be seen at the opposite end of the spectrum from fragmentation/segregation/disintegration. Integration in this context is understood as integration of subjects, departments, educational institutions and their communities, and also of what has been called the five dimensions of an educational institution - its ethos, its curriculum (if there is any), its pedagogy, its organization and management, and its community. Integrative efforts aim at systemic change across all areas and dimensions reflecting sustainability rather than just 'piecemeal' change in one area. Integration also means more emphasis in educational activities on interdisciplinary and trans-disciplinary inquiry, reflecting that no subjects, factors or issues exist in isolation. Inter- and

trans-disciplinary inquiry has the potential of breaking free of disciplinary perceptions and traditions to create new meaning, understandings and ways of working. Simply putting disciplines together, by contrast, is often no more than the sum of the parts.

23. Interdisciplinary approach The emphasis is on the interconnections between different perspectives. Interdisciplinary approach - courses studied at college or university involving two or more different subjects; cooperation within a common framework shared by the disciplines involved.

24. Multidisciplinary approach refers to looking at an issue from many knowledge or practical disciplinary perspectives but not integrating them. The multidisciplinary approach involves different subjects of study in one activity, without changes in disciplinary and theoretical structures.

25. *Problem-oriented* means that, instead of organizing the teaching around topics from one of the usual disciplines, the subject concerns with an issue or a problem.

26. *Process-oriented* in this context means widening the scope in planning, pedagogy, didactics, etc. in educational activities from narrow content focus to an awareness of learning and education as processes, thereby highlighting the activities, the dynamics, the actors, the phases and the relation between areas more than decontextualized contents of information.

27. *Problem-based* learning is characterized by contextualized problem-setting and situations. The content of the course of study is introduced in the context of real-world problems. Problems or cases from the real world are used as a means to motivate and initiate students' learning processes, i.e. acquiring a predetermined content and at the same time developing transferable personal competencies (interpersonal skills, critical thinking, etc). The distinctions between problem-based learning and other forms of cooperative or active learning are often blurred because they share certain features.

28. *Project work* is characterized by problem orientation, product orientation, interdisciplinarity, coherence between theory and practice, and joint planning by teachers and students. The issue or problem in focus has to be found in the surrounding world (authenticity) and the relevant knowledge from subjects and disciplines has to be chosen according to the problem in focus. Project work is an individual and collective learning process based on scientific principles (action research) aiming at finding possible solutions/proposals for change (the product) – the answers are not given in advance.

29. *Knowledge management* is about bringing together demand and supply of knowledge. This knowledge is based on understanding and experiences: the best working methods, new ideas, creative 'solutions', breakthrough processes, skills, etc. It concerns knowledge with an added value that promotes wisdom and provides understanding. Therefore, knowledge management is not only about storing data. The premise of knowledge management is not so much that there is a lack of knowledge and understanding concerning learning processes with respect to sustainability, but that this knowledge is insufficiently available. This knowledge has to flow and be available in a wider circle wherever needed. Connecting knowledge and understanding with 'adjacent' sectors and policy areas is crucial.

30. *Conceptual and perceptual mapping.* Concept mapping is considered as a representational educational tool for showing the relationship between one entity, concept, etc. and another, building relationships and links between them and representing them in a figure, schema or map (concept map).

In brief, the main differential points between the interrelated terms of "conceptual", "concept" and "perceptual" mapping are the following:
(a) Perceptual mapping: the construction of a schema by the human mind when experiencing, capturing images and perceiving the observable features of the world, as well as the links among them;
(b) Conceptual mapping refers to the development of abstract schemata by the human mind to conceptualize, give meaning to and include an "object" (regularity) into the individual's conceptual net;
(c) Concept maps are the concrete graphical expressions of such abstract schemata. However, even before the conceptualization and creation of conceptual maps, the human mind first constructs.

31. *Value clarification* is a method to encourage learners to clarify their thoughts, feelings and commitment, and thus enrich their awareness about their own values, clarifying their exact content and their full meaning.

32. *Simulations* refer to cases in which a certain number of data are reproduced in another context: the simulated learning situation is provided to learners and the assumed "replica" usually reflects an issue and situation of the real world, linking the class with environmental realities. Studies have identified four basic types of simulation methods: roleplaying, case studies, computer simulations and other games.

33. Roleplaying is traditionally based on asking learners to portray certain well defined persons, e.g. a local authority officer, a farmer, an ecologist, a consumer, in the context of a particular issue, a given situation with clearly defined values, seeking for a resolution. (In some cases the characters to be portrayed could even be animals in the food chain or the "spirits" of the forest, etc., and these cases are also known as "theatrical games", usually played by younger pupils).

34. The case-study method is a teacher-directed analysis of a given environmental issue, within which students, working in small groups use and elaborate mainly secondary sources of information (provided by the educator, e.g. printed material, guest speakers, films, videotapes) in order to explore and draw conclusions on the particular issue.

35. Modelling aims to recreate the main aspects of what occurs occasionally during an event (phenomenon) in nature or in the laboratory or even in society. Models are created based on multiple analogies which may function as the "building blocks" of the model.

36. The survey method involves the collection of primary data, data analysis, reaching conclusions and presenting them. The survey is an "autonomous" learning method, though it could be conducted in the framework of a project or a problem-solving process. In general, surveys are carried out through questionnaires, opinion sheets (*opinionnaires*) and interviews, to elicit information on individuals' opinions and attitudes towards the issue studied. Conducting survey research is a student-centred method. It is very effective for developing communication and investigation skills and raising awareness on a variety of issues.

37. Philosophical inquiry is an approach based on the examination of the deeper motivations and consequences of human activities with an impact on the environment and/or society and their ethical justification.

38. Scenarios are analyses of hypothetical problems, their impacts and possible solutions by examining a series of alternative combinations of critical parameters and hypotheses. Through scenarios we try to predict the consequences of changes by using extrapolation.

39. Workplace experience. The system of knowledge, skills, feelings and views formulated by a learner, usually a worker, through interactions with others and the environment after a period of work in one particular place.

Link between environmental education and education for sustainable development

40. Environmental education (EE) and education for sustainable development (ESD) are considered by many to be equivalent. In practice, however, there are differences. EE typically focuses on the environmental impact on society of pollution, waste water, emissions from cars, factories, etc., their causes and effects and how to reduce them, as well as on concern for nature and nature protection. ESD more often focuses on the use of natural resources and the importance of their renewability (sustainability). Different methods of mapping resources such as ecological footprints or material flows are pedagogical tools in ESD, especially at university. Negative environmental impact is in the first instance seen as a consequence of the unsustainable use of resources. It is also recognized that a good environmental situation will not develop unless people have a decent social and economic situation, and that a healthy environment is a prerequisite for a vital economy in the longterm. Thus environmental, social and economic aspects are interwoven in ESD. Ethics and justice, as expressed in democratic government and social and global responsibility, become important components in the larger context of ESD.

41. The view of environmental issues in the education system has gradually changed from being a knowledge problem into being seen as a conflict between man and nature, and today also as a conflict between different human interests. This has implications for the approaches to be used. In education in early EE, the transmission of scientific facts was the most common method used. This approach was later further developed and combined with active student involvement and problem-solving approaches. Today the conflict-oriented perspective of ESD, based on society as a whole, implies a focus on the democratic process. An important approach is thus a discussion among students in which different views are aired and debated. The purpose is to ensure that students actively and critically evaluate alternatives and develop skills in forming arguments based on knowledge and related ethical issues.

42. At the end of the 1996 - 1999 period three relatively new definitions were emerging, which structured the broadly interpreted EE-concept: ecological basic education, learning for liveability and learning for sustainability. These three parts of EE (see descriptions below) can be distinguished in theory. In practice the lines are not that clear. Many EE-activities and -projects will cover a little of everything. The diagram below shows that the influence impact of the EE-working area is different for each part.

43. *Ecological basic education* (EE in the classical way) concerns learning to know and to appreciate the living and non-living environment and the role of personal behaviour in this respect. In ecological basic education learning is directed at the learning objectives of the individual, who wants to develop him-/herself in having knowledge of ecological processes or mastering skills to for example support environmental interests. Ecological basic education can often be perceived in primary

education, in the work carried out in information centres in nature areas and in activities of nature directed organizations.

44. *Learning for liveability* is directed at making and keeping the school, the schoolyard, the street, the estates and the city liveable. In primary school children learn about waste segregation, preventing street litter, clearing litter together, internal environmental care, etc. Learning for liveability has an important behavioural component and is concerned with 'here and now'. Learning for liveability often takes place in residential estates and industrial estates: together they learn about the best approach to enhance liveability. In some aspects the activities are more like “information, communication, participation, public awareness” as in a traditional view on “ education” as an “emancipative way of learning”. Using EE as a policy-tool (for environment-, nature-, area development- policies) was – despite of discussion – developed fast, along the more traditional practices of environmental education.

45. With *Learning for sustainability* the key concept is sustainable development. An often used description of sustainable development is: a well-balanced development of the three perspectives economy, physical living environment and society. Well-balanced means that future generations and also developing countries can supply their needs. Sustainable development focuses on 'here and now' in combination with 'there and then'. Sustainable development is a subjective concept, which means that sustainability cannot be imposed from above. It is a joint consideration of interests, opinions, norms and values and therefore is formed by the dialogue between different actors.

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