

## **POLICY PAPER FOR CLIMATE CHANGE EDUCATION**

The growing evidence of climate change and the scale of its potential social, economic and environmental impacts are triggering new efforts to prevent the factors leading to global warming on the one hand, and on the other hand, to mitigate and adapt to climate change. In this process, schools have an important responsibility to educate students with an effective understanding of climate change and skills to deal with the challenges it will bring to their lives. Therefore climate change education for sustainable development should become a goal for all nations to support educational systems to prepare future citizens to cope with current and emerging sustainable development challenges.

In order to achieve this goal, it is necessary to have an educational policy, research and planning that gives importance to enhancing quality of climate change education in schools. Students should learn to be Earth's citizens, to be part of the solution and to turn challenges climate change brings into new opportunities. For this to happen, schools need to continuously evolve and be places where students can develop the necessary skills and attitudes towards a more sustainable life style. We call for school education that is multidisciplinary, uses systems thinking, integrates the competences required to analyze the causes, impacts and solutions to climate change to address the needs of developing knowledge about climate change as well as cultivating skills, values, and attitudes necessary for responsible and active citizenship.

Teachers in this process can create awareness, transfer knowledge, and catalyze and channel the positive energy of students towards sustainability for the benefit of present and future generations. Therefore they should be provided with opportunities and experiences to better teach climate change education in their classrooms through developing existing school curriculum, aligning pre-service and in-service teacher education programs.

Our experiences in the three-year project GREEN (01.12.2013 to 30.11.2016) have shown that teachers can improve students' awareness, understanding and actions in relation to climate change education through curricular and extracurricular activities. GREEN used networking as the main process to enrich and strengthen these efforts, and as a result opportunities for collaboration between students, teachers and schools through a multidisciplinary approach have become varied and enriched. This paper presents the recommendations for educational policy decision makers and curriculum developers to make climate change education as an essential part of school education in line with the experiences gained in this Project. These recommendations should be considered as alternative actions, and countries and schools should consider them based on their local context and previous experiences.

## **Recommendations for Education Policy Makers, Curriculum Developers and School Educators**

- 🍃 **Bring climate change education perspective into all subject areas at all grade levels (including pre-school) in the curriculum and expect teachers to deal with this issue based on the nature of their content area**

Climate change education represents a multidisciplinary process that needs to be addressed not only in environmental sciences but also with social sciences and humanities perspective. In this sense it is a cross-curricular and collaborative work for teachers. Therefore, it needs to be addressed in all subject areas. In addition, climate change education needs to be covered in education of all student age groups including pre-school level. Teachers should engage students in climate change issues in an inspiring, exciting, stimulating, creative and optimistic way of teaching.

- 🍃 **Encourage and create opportunities for networking among students, teachers, schools, institutions and countries**

Climate change is not only a multidisciplinary but also a global challenge for society that calls for joined actions. In our experience, in the process of developing approaches to adapt to and mitigate the impact of climate change interpersonal and intercultural exchange proved to be very helpful. In learning communities or networks of collaboration and learning students and teachers get the chance to hear different stories and experiences, come to face with values, attitudes and feelings of others in different cultures and therefore learn from each other.

- 🍃 **Encourage multidisciplinary approaches to climate change education in schools**

Since climate change affects many different aspects of nature and society, it is important that this multiplicity is reflected in school activities as well. Working in multidisciplinary projects that involve more than one teacher and one subject could offer students more meaningful learning of topics and perspectives, and give them a fuller understanding of complex issues. In our project we presented a number of good practice examples and project ideas that have been carried out in schools with a multidisciplinary perspective, and proven as effective ways of dealing with climate change education.

- 🍃 **Create opportunities for blended learning by incorporating new educational technologies into climate change education**

The issue of climate change is well suited to a variety of didactic methods. We feel that a combination of classroom activities, meetings with experts, and multimodal projects can, and should, all be applied to this complex topic. This

approach is expected to be more effective than the traditional single modality approach since students today need richer inputs. In addition, current technology offers new information sources and contexts such as virtual libraries, webinars, online learning, smart classrooms, and they could be used to support classroom instruction.

**Plan for extracurricular activities where students take ownership for problems and solutions in climate change education**

Formal curriculum may be helpful in teaching students advance knowledge and skills, but at the same time has shortcomings in translating knowledge and skills into real actions. Extracurricular activities have the potential to provide students with these real experiences and to transform learning in schools into powerful knowledge. In GREEN Project, most of the good practices were the outcomes of extracurricular activities such as student clubs, field trips, projects and community work where students took the ownership of the problems, did research and analysis, and produced solutions through real applications. Therefore, we suggest that schools should provide more time and resources for extracurricular activities and allow students to take initiatives around well defined problems in relation to climate change education.

**Organise climate change education events such as conferences, fairs, days, competitions**

In our GREEN Network, members organised events such as conferences, climate days and competitions to introduce climate change education into their institution and develop understanding and skills of their target groups. Some of the partners cooperated with their local governments and municipalities in organizing these events (e.g. paper collection, cleaning the environment, making bird feeders, etc.). These kinds of events were found very helpful for schools in relating teaching and learning activities to a larger community and help students better adapt to and mitigate with climate change. Therefore, we recommend that schools should be encouraged and supported to organise such events to better connect academic teaching and learning processes to larger learning contexts since climate change education requires holistic thinking involving all constituents.

**Promote community outreach programmes and partnerships where students can establish connection to larger community and work with them in relation to climate change education**

School is no longer a world in itself. It has to communicate, interact and reflect and to open itself to the larger community sphere. School should work together with public communities, universities, local authorities, clubs or associations to benefit from the practical knowledge and to respond to the needs of the society. This will allow students to reflect on the reality of life, and the larger society to

realise the opportunities and capabilities of schools. With this community outreach, field trips and partnerships could enable students to become reflective and responsible members of the society.

**Bring students and teachers together with outside experts/NGOs/inspiring individuals through seminars, conferences and workshops**

Seminars, conferences and workshops by outside experts/NGOs/inspiring individuals could be enlightening sources of perspectives and insights for students and teachers. These experts could come either from local organisations like the local waste management, nutritional advice, and agricultural chamber or from national institutions like environmental council or even international organisations like Green Peace. They open new ways of thinking with a possibility of subsequent discussion. Therefore schools should be encouraged to make use of larger sources outside the school for climate change education.

**Organise pedagogical conferences at European level on climate change education for teachers and students**

In order to share and disseminate activities in relation to climate change education, pedagogical conferences at European level could be an effective venue. Students might take this as a “school project” to prepare such a conference including teachers from different subjects (Science, English, Economics, etc.). The advertising of the conference as well as the invitation of participants can be realised through the channels of the GREEN network (schools and organisations acting at European level). On the other hand, students can also search for existing conferences dealing with climate change and participate to disseminate their climate change education activities.

**Develop materials (films, visuals, experiments, etc.) to address climate change issues and distribute them in schools for teachers to use in curricular and extracurricular activities**

Schools should be provided with materials dealing with climate change issues, and these materials could be incorporated into curricular and extracurricular activities by teachers. Within the schools, project groups or classes could also prepare visual material like a video showing the effects of global warming and students’ possibilities of their contribution to counter this trend. Successful productions could then be distributed to other schools. In addition, professionally made movies like “Plastik – Fluch der Meere” (Plastic – A Course for the Oceans) could be used as well.

**Help schools develop policies and actions to make school life more climate friendly**

As schools play a key role in shaping future European adults’ consciousness about climate change issues, they should be examples themselves as far as food

consumption, water, energy, waste disposal, recycling, etc. are concerned. Therefore policy makers should encourage schools to (a) ban plastic tableware in canteens and bars, distribute drinking water through water dispensers rather than plastic bottles, (b) change traditional snacks and drinks dispensers with zero km food and natural drinks, (c) avoid meat consumption when serving meals, use local and sustainable food by developing school gardens and using their products in the canteens, (d) reduce the use of paper for written materials, print on two sides of a paper sheet, recycle used ink cartridges and buy school supplies made with recycled materials, (e) put into practice an efficient energy saving process, for example providing radiators thermostats, meanwhile checking effectively temperature and lighting, (f) save water, by adopting an appropriate water flow management technology, (g) promote the use of public means of transport, bike and car-sharing among students and school staff.

**Provide climate change education related messages through displays, art and visuals in classrooms and schools**

Schools should be encouraged and supported to display low-threshold information on climate change in the school such as slogans ('What would you do against climate change?'), artworks, signs ('switch off the light'), and posters. The aim is to create awareness and promote action via constant confrontation and repetition comparable to the priming-effects that are used in professional advertising.

**Create awareness among students in relation to new career choices that climate change would trigger and help them prepare for future job opportunities**

Climate change poses a significant and precarious challenge for mankind worldwide. From the need to mitigate climate change and adapt to already changing conditions emerge changes in the working world. For example industries have to deal with different production processes; retail gets confronted with new 'green' customer demands. New jobs emerge, job descriptions evolve and others jobs might disappear completely. Teachers should be aware of the fact that labour market offers new green career choices and inform their students on these new developments and career possibilities.

**Include courses or topics (such as sustainability) in teacher education curriculum for pre-service and in-service teacher education programmes**

Climate change education related courses and topics can be integrated in existing teacher education programmes. These courses or topics can be environmental education, environmental issues and history, practicum in environmental education, climate change education, education for sustainable development, outdoor education. In-service teachers can also be provided training on these issues through seminars, conferences and workshops.

Teachers also benefit a lot from training on implementing outreach programmes off-campus.

**🍃 Include climate change education in expected professional teacher competences.**

Teachers may need clear direction in terms of competencies needed for implementing effective climate change education. In this sense, these competencies and the necessary knowledge and understanding about climate change, planning and evaluating effectiveness of climate change education, and developing vision and being a role model for climate mitigation and adaptation can be developed by stakeholders (teachers, policy makers, teacher educators, community members, non-profit organisations, etc.).

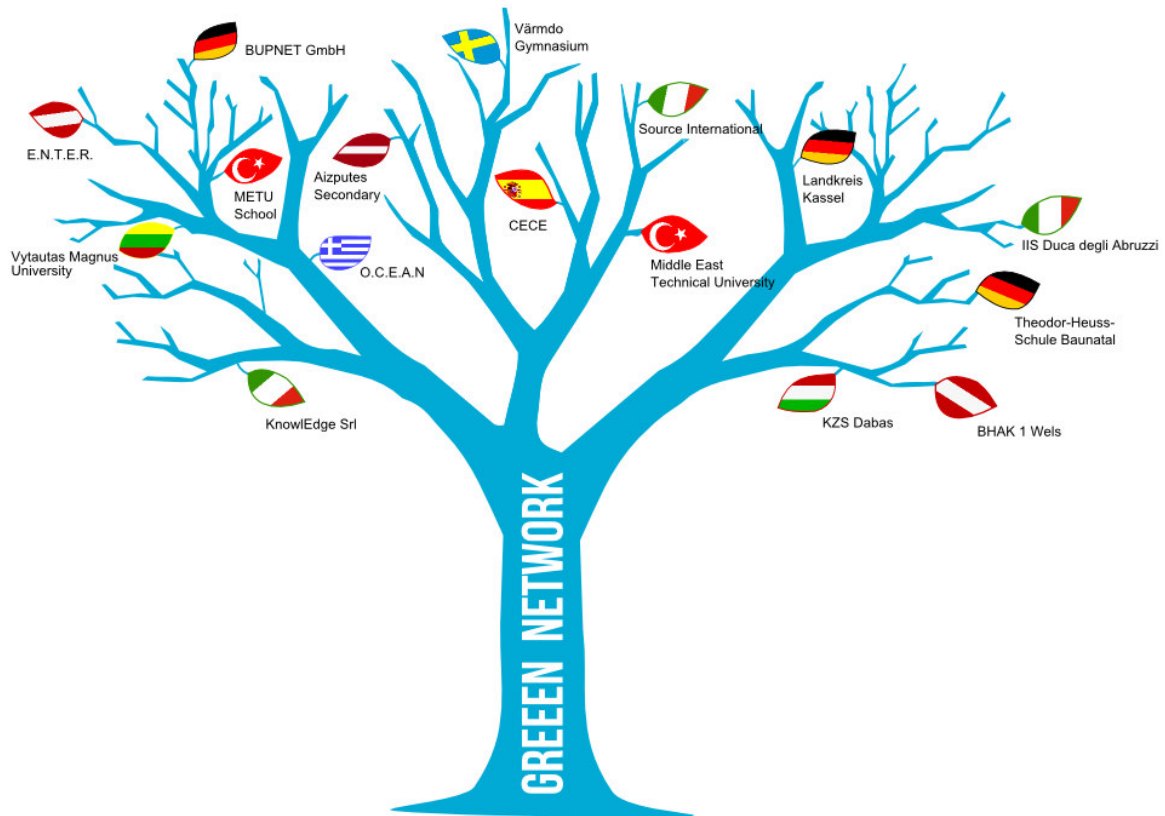
**🍃 Include climate change education related competencies in national testing where relevant**

National testing such as university entrance exams or final school exams in some countries heavily determines which topics are given priority and what takes place in the teaching and learning processes in schools. Particularly students who are close to taking their final exams spend most of their learning time exclusively to prepare for these exams. If climate change concepts and topics become part of these exams, then it might contribute to improving student interest in these topics. Therefore, it is recommended that climate change issues are covered in these exams, and this will strengthen the attention of teachers and students to these issues.

## **GREEN is ...**

a 3-year project funded by the Lifelong Learning Programme COMENIUS that seeks to promote the effective integration of climate change education into educational programmes and school curricula, on the one hand, and to promote creativity in science education, making science education more tangible, innovative and attractive to the youngest generation through a centrally important issue, on the other hand.

## Project Consortium



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