Changing with the climate

Education and Culture DG
Lifelong Learning Programme

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A three-monthly newsletter highlighting the past and present activities of the CwC network and current issues relating to changing with the climate. Supported by a grant from the Lifelong Learning Programme of the EU's Directorate General for Education and Culture.

In this issue:
we extend an invitation to attend the second annual meeting of the network, discuss the melting of the Artic ice cap, loss of bio-diversity as the Amazonian forests are cleared, the impact on food crops of soaring temperatures, news from our partners and our 2012 climate change challenge to schools to do something about limiting climate change.

Invitation to our second annual network meeting

Climate change education will be the theme of this event to be held from October 24 to 26 at the Institute of Education, University of Reading which will include actions that have been initiated by the network members from 6 European countries. On Thursday October 25, a workshop will be held on climate change education which will be most applicable to upper primary and secondary geography and science teachers and will comprise talks, discussions and hands-on sessions.

Sessions will include:

- Innovative and engaging methods for accessing pupil knowledge.
- Practical activities with exemplary questions to challenge thinking
- Games (which will be outdoors if the weather is favourable), with linked explanation of their use in promoting understanding
- Innovative methods for teaching subject knowledge content.
- Novel methods for assessing understanding before and after teaching
- Updates on climate science

The methods used will be active, evidence-based and hands-on, with guidance on their use in the classroom. Attendees will be provided with an evaluation of on-line teaching resources, matched against age range and subjects in the curriculum.

Participants are requested to bring with them a poster which illustrates their activities and be prepared to join and contribute to the group discussions which will be a feature of this event. For network members there is no charge, but for non-members a charge will be made to cover refreshments, lunches and dinners.

For further information on the workshop or to register for the network meeting contact **j.p.oversby@reading.ac.uk**

University of Reading · Ecoserveis · COMUNE DI BOLOGNA · HESPUL · REGIONAL ENVIRONMENTAL CENTER · ICI

We are changing the face of the planet...

as this year's Artic thaw has broken all previous records. The ice pack reached its lowest surface area ever recorded on 13 September with only 3.5 million square kilometres of ice remaining. Some 11.7 million square kilometres has vanished between the 2012 winter peak and the summer minimum.

None of the climate models have predicted such rapid changes which has physically changed the face of the planet. All over the Artic, the effects of accelerating ice loss and a warming atmosphere are being seen. The ecology is changing rapidly as trees and plants move northwards and new beetles devastate whole forests in Canada, Siberia and Alaska.

The Artic sea ice plays a critical role in regulating the earth's climate along with the tropical rain forests. As the Artic ice pack acts as a giant reflector reflecting some of the radiation falling on the earth during the summer, loss of cover will result in increased global warming. Within 20 years the Artic could be ice free during the summer which could result in changes to the global circulation of the ocean currents, a tipping point which simply cannot be reversed.

Source: Guardian 15 September

Losing bio-diversity in tropical rain forests

A changing climate will inevitably lead to a loss of bio-diversity with implications for all species rather than those that become extinct. Over the past 30 years, destruction of significant parts of the tropical rainforest in Brazil to create land for agriculture and animal husbandry has shrunk viable living and breeding territories. This will result in the loss of many more species than was ever envisaged even if deforestation were to be halted tomorrow as a recent study by scientists at Imperial College, London has shown.

This loss in bio-diversity is paralleled by the loss of tropical forest which at its peak was able to absorb some 25% of the world's greenhouse gas emissions. So like the loss of Artic sea ice, the loss of forest cover will result in faster rates of global warming and possible die back of the remaining forest cover.

Source Guardian 13 July

Loss of food crops

The US is the world's largest producer of corn, soya and wheat and the key growing areas of the mid west has been hit by worst drought in 56 years. At the same time. The first seven months of 2012 were the warmest ever and temperatures in July above those of the Dust Bowl period of the 1930's. The result is that the crops have been devastated with half of the nation's corn crop being rated poor to very poor. Oxfam has warned that the combination of rising food prices and reduction of food reserves will result in hardship for millions of people in developing countries who simply cannot afford any further increase in prices

Source Guardian 11 August

Renewable energy makes significant contribution to electricity generation

That the goal of enhanced generation by renewables might be achievable is illustrated by two recent records in Europe. On September 14, for the first time British windfarms supplied more than 10% of electricity going into the national electricity grid whilst microgeneration by solar cells supplied a further 5% directly into local electricity networks.

In Germany, during one day in May some 33% of the national electricity requirements was met by a similar combination of wind and solar generated electricity.

Japan abandons nuclear power

Generating power by splitting uranium atoms has become a major power source in a number of countries over the past 50 years. Its advantage claim its proponents is that it does not result in greenhouse gas emissions whilst its critics point to its radioactive legacy which has to be safeguarded for many thousands of years. In the same week as France has decided to reduce its dependence upon nuclear power, Japan has decided to turn its back on nuclear power and will build no more nuclear reactors. This follows the meltdown of 3 reactors at Fukushima nuclear plant 18 months ago following a severe earthquake and tsunami which resulted in a lack of power to provide cooling water to prevent meltdown of these reactor cores. The perception that nuclear power caries some severe risks has been known since 1956 when Frederick Rasmussen published his report predicting a severe meltdown every 10,000 reactor years of operation.

The intention in both France and Japan is to encourage the uptake of energy savings technology to increase the efficient use of energy and to speed up the deployment and utilization of renewable energy sources.

Source: Guardian 15 September

Climate Change education: the need for a historical perspective

Climate change is a complex phenomenon, and to understand its causes, consequences and what can we do to limit it, it should be dealt from an interdisciplinary perspective. At schools, it can be explained from an historical, social, economical and even philosophical view, apart from explaining it in science classes. In this regard, it is important to explain to the students the historical perspective that has led to the current situation.

Brief history of the causes of the increase of CO2

The atmospheric concentration of CO2 has increased considerably during the twentieth century, mainly in the last 50 years. Before the first industrial revolution, the concentration of CO2 was 280 ppm and currently it is close to 400 ppm. The Earth's climate changes over time, depending on many natural processes: volcanic activity, changes in Earth's orbit around the sun, changes in solar activity, etc. But the Earth's average temperature has increased since the beginning of the industrial revolution. Therefore, the increase in CO2 is mainly attributed to human action derived from burning fossil fuels (first coal and then oil and natural gas), that began with the industrial revolution.

The Industrial Revolution brought the mechanization of industry with the steam engine, the expansion of trade through improved and new means of transport and the subsequent development of railways and technological innovations that favored an increasing of production. Agriculture also benefited from the new technologies, but it led to a progressive rural exodus and to the industrial development in cities. All these technological changes involving the use of fossil fuels entailed a dramatic increase of the CO2 emissions.

Technological advances have improved the quality of life for the population and have caused a parallel population growth. The introduction of machinery powered by fossil energy instead of men's force have resulted in a decrease of commodity prices but increased spending on energy resources that nature had been accumulating through a lot of years, as well as the increase in waste generation.

This way of production has brought many comforts and social welfare, but also has brought a consumer-based society that has an important impact to the environment that sometimes people are not conveniently aware of. Nowadays, this impact is more and more tangible and its consequences are more and more serious, so we don't have much time to take individual and collective actions to change our behaviour before climate change causes irreversible consequences that will affect our planet and our lives. This involves a decrease in consumption, and a culture more based in reutilization, repairing and recycling, issues that students can directly have a bearing on.

Joana Mundó, Ecoserveis

News from partners

Romania

Protecting the environment from climate change effects

A workshop was held at Voievodul Mircea High School, Targoviste, Dambovita County, on 14 June.

which highlighted the experiences of various regional high schools and colleges in protecting the environment and was reflected in network member's actions. Students and teachers from the following schools participated: "I.H. Rădulescu" Targoviste, "Aurel Rainu" Fieni, "Petru Cercel" Târgoviște, "Bălașa Doamna" Art High School Târgoviște and "Voievodul Mircea" Târgoviște.

The workshop sessions were coordinated by Adriana Alexandru from the Computer Science Institute in Bucharest and Nicolae Olariu from Valahia University of Targoviste.

Students and teachers presented the results accomplished in environment protection or climate change effects limitations campaigns and promoted the World Water Day and World Environment Day in their schools. Every participant highlighted the positive experience acquired during his participation in this educational network. Teachers of the two best presentations were invited to participate in the second annual meeting of the network in Reading.

În data de 14 iunie 2012, la Grupul Şcolar "Voievodul Mircea" din Târgovişte, Dâmbovița, s-a desfăşurat workshop-ul cu tema "Protejarea mediului înconjurător de efectele schimbărilor climatice". Workshop-ul a fost organizat în cadrul rețelei educaționale "Changing with the Climate" care are ca scop dezvoltarea metodelor de predare şi învățare şi încurajarea acțiunilor pozitive privind schimbările climatice.

Workshop-ul a evidențiat experiența şcolilor din județul Dâmbovița în protejarea mediului înconjurător datorată schimbărilor climatice, oglindită în acțiuni desfăşurate de membrii rețelei. Au participat elevi şi profesori de la Liceul Teoretic "I.H. Rădulescu" Târgovişte, Grupul Şcolar "Aurel Rainu" Fieni, Liceul Teoretic "Petru Cercel" Târgovişte, Liceul de Arte "Bălaşa Doamna" Târgovişte şi Grupul Şcolar "Voievodul Mircea" Târgovişte. Lucrările workshop-ului au fost conduse de Adriana Alexandru, de la ICI Bucureşti, şi. Nicolae Olariu, de la Universitatea "Valahia" Târgovişte. Elevii şi profesorii au prezentat rezultatele obținute în campaniile de protejare a mediului înconjurător, limitarea efectelor schimbărilor climatice şi au promovat Ziua Mondială a Apei şi Ziua Mondială a Pământului la nivelul şcolilor din care provin. Toți participanții au evidențiat experiența pozitivă obținută datorită participării în această rețea educațională. Cele mai interesante lucrări au fost premiate.

Marius Duta

France

So far, we have 6 new members joining for this school year. They are all located in Lyon within the Rhone departement. Teachers have very interesting projects in mind, that will be presented in further newsletters.

Teaching climate change and education for sustainable development (ESD)

Teaching climate change is a challenge for numerous reasons. Most teachers or educators (for this text, I will use both words indistinctively) have not received an initial training on that subject as in France, "sustainable development" has only recently entered the curricula. Climate change can be studied from a variety of points of view: science, society, ethics, geography, history... Pedagogical resources are abundant, yet how to find them, evaluate their quality, use them in the classroom?

One single educator may feel lonely in front of such a challenge. Teamwork, teacher trainings and networks such as "Changing with the climate" seem essential to me to achieve quality projects and avoid teachers' exhaustion or disillusion.

Likewise, thematic event are the opportunity for educators and stakeholders to gather, exchange on best practices, imagine new projects and partnerships and develop a sense of fellowship.

On March 4 2013 a European ESD Day will be held in Lyon, France. It precedes the 3rd national ESD conference (5th to 7th of March) and aims at "getting to know each other and act together empowered by our differences". ESD stakeholders around Europe are invited. The programme is being prepared in a collaborative way, with representatives of different countries. If there is sufficient enthusiasm about this topic, it may well be the first of a series of European ESD Days, and the beginning of some sort of European ESD network.

CWC partners will hold their project meeting in Lyon around these days, thus allowing them to participate in this event. If you cannot attend this event, entrust the CWC partners with your questions and ideas, and request them to report back to you! (list of partners at the end of the newsletter)

Maite Eyquem

Italy

"Multicentre" education for sustainability

The Municipality of Bologna, has made a Center for education for sustainability that connects the various realities that have worked for some years in the field of environmental education in schools.

The "Project Multicentre" is an opportunity to initiate a process for managing and coordinating all activities of the Municipality of Bologna on the topic of environmental sustainability and at the same time is an opportunity to create synergies and partnerships with associations and private enterprises operating in the area and interested in working together with the administration.

The initial core of the Multicentre consists of three Education Centres: Foundation "Villa Chigi" (including the Municipality of Bologna is one of the founding members), Laboratory of Environmental Education "Villa Scandellara" (District San Vitale) and of course the Show-room energy and environment managed directly by the Department of Environment and Energy. Then begin a collaboration with other municipal facilities such as libraries, museums and universities.

New learning activities in Show-room: for secondary schools

"Glimpses of Industry, Energy and the Environment" is an activity created thanks to the project "Changing with the Climate", which offers integrated courses in science education together with the Museum of Industrial Heritage (associate Member of the CWC network).

New activities on waste for the Primary School: Training course for teachers "Knights of the 3Rs"

A training course to teach six educational activities that teachers can propose autonomously and flexibly to their students during the school year with the goal to transform children into experts in reduction, reuse and recycling of waste.

Archaeologists in the trash

An obscure lot of waste to be investigated: who will have produced? A society that throws debris everywhere? Another that hides them from view? Or the mysterious civilization of the 3Rs? To find out, the students become "archaeologists in the trash," rebuilding step by step actions that produced the objects enclosed in the bag.

Daniele Zappi and Matteo Pompili

Archaeologists in the trash

Il Comune di Bologna, realizzato un centro per l'educazione alla sostenibilità ambientale che mette in collegamento le varie realtà che da anni lavorano a Bologna nel campo dell'educazione ambientale nelle scuole.

Il "Progetto Multicentro" è l'occasione per avviare un processo finalizzato alla gestione coordinata di tutte le attività del Comune di Bologna sul tema dell'educazione alla sostenibilità ambientale e nel contempo è una opportunità per creare sinergie e collaborazioni con le realtà associative e private operanti sul territorio e interessate a cooperare con l'amministrazione.

Il nucleo iniziale del Multicentro è costituito da tre Centri per l'Educazione: Fondazione Villa Ghigi (di cui il Comune di Bologna è uno dei soci fondatori), Laboratorio di Educazione Ambientale di Villa Scandellara (Quartiere San Vitale) e naturalmente la Show-room Energia (presso Istituto Aldini Valeriani) gestita direttamente dal Settore Ambiente ed Energia. Successivamente inizierà anche una collaborazione collaborazione, in con altre strutture comunali come biblioteche, musei e università.

Nuovi percorsi della Show-room per :

Un nuovo percorso per le scuole secondarie:

"Sguardi tra industria, energia e ambiente" è una attività nata all'interno del progetto "Changing with the Climate" che propone percorsi integrati di didattica scientifica assieme al Museo del Patrimonio Industriale (partner del progetto Associate Member of the project)

Due nuovi percorsi sui rifiuti per la Scuola Primaria:

Corso di formazione per insegnanti "I cavalieri delle 3R" - Un corso di formazione per apprendere sei attività didattiche che si potranno proporre autonomamente e in maniera flessibile ai propri studenti durante l'anno scolastico. Lo scopo: trasformare i ragazzi in esperti di riduzione, riuso e riciclaggio dei rifiuti.

Archeologi tra i rifiuti - Un oscuro sacco di rifiuti da indagare: chi l'avrà prodotto? Una società che getta rifiuti ovunque? Un'altra che li nasconde alla vista? O la misteriosa civiltà delle 3R? Per scoprirlo, i ragazzi si trasformeranno in "archeologi tra i rifiuti", ricostruendo passo passo le azioni che hanno prodotto gli oggetti racchiusi nel sacco nero.

Climate change challenge to schools 2012

The network has issued its climate change challenge to all schools to initiate an action to reduce the increasing emission of greenhouse gases in order to reduce global warming.

For further information and to download an entry form, go to our website **www.changingwithclimate.info**

Closing date for expression of interest has been extended to 31 October 2012.

Diary

2012

24 – 26 October 2nd annual CWC network meeting, Institute of Education, University of Reading

31 October Closing date for expression of interest in taking part in 2012 climate change challenge

15 December Closing date for submission of entries to 2012 climate change challenge

2013

4 March European day for discussion of education for sustainable development, Lyon, France

Contacts

If you would like to join the network, or require further information go to our website **www.changingwithclimate.info** blog site **www.changingwithclimate.tumblr.com** or contact the network partner in your country

UK John Oversby **j.p.oversby@reading.ac.uk**

ES Joana Mundo **joana@ecoserveis.net**

RO Adriana Alexandru **adriana@ici.ro**
or Elenora Tudora **gilda@ici.ro**

IT Daniele Zappi
daniele.zappi@comune.bologna.it
or Matteo Pompili
matteo.pompili@comune.bologna.it

HU Peter Szuppinger **pszuppinger@rec.org**
or Julia Schuchmann
jschuchmann@rec.org

FR Maite Eyquem
maite.eyquem@hespul.org

Next issue

Reflections on the 2nd annual meeting of the CWC network; all contributions to editor by December 1; publication date December 15

Editor

Rayner Mayer,
Institute of Education, University of Reading
r.m.mayer@reading.ac.uk
tel: +44 118 378 6357.