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This newsletter will appear at three-monthly intervals and will highlight the activities of the CwC network which is supported by a grant from the Lifelong Learning Programme of the EU's Directorate General for Education and Culture. The newsletter will not only describe past and present activities, but will also discuss current issues related to changing with the climate.

Last year was a significant year for actions to limit climate change. The member states meeting in Durban agreed to formulate a new legally binding treaty which for the first time will require all countries to limit greenhouse gas emissions. In addition, the UK became the first country to introduce a feed in tariff for renewable heating as well as renewable electricity.

In this issue we report the strongest comments yet by the International Energy Agency about the need to limit carbon emissions, describe highlights from our first annual network event and linking of schools across Europe as part of our network activities.

## 1. Durban Agreement

Following various scientific studies of the impacts of greenhouse gases congregating in the upper atmosphere, the United Nations Framework Convention on Climate Change was agreed in May 1992 and signed by 155 countries at a conference in Rio de Janeiro in June 1992. The ultimate objective of this convention was –

*To stabilise the concentration of greenhouse gases in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system, such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure food production is not threatened and to enable economic development to proceed in a sustainable manner.*

The subsequent convention signed in Kyoto committed the signatories to reducing their carbon emissions by 8 – 12% by 2012. However not all parties to the Framework Convention signed the Kyoto convention including three of the biggest emitters – the USA, China and India.

Following these agreements there has been an annual meeting of the partners to the Convention in various parts of the world. The most recent meeting was held in Durban, South Africa during the first two weeks of December. The conference reached a significant milestone in that all “developed and developing countries will for the first time work on an agreement that should be legally binding, to be written by 2015 and to come into force after 2020.”

Any new agreement will require targets for each country to reduce their greenhouse gas emissions and this is likely to depend upon the level of their emissions and their emissions per person. “The motivation could come from several sources including people power. By 2015 the world’s young people in particular can be expected demand greater action as the evidence of future damage becomes clear.”

*quotes from the Guardian Durban conference 13 December 2011*



Education and Culture DG

## 2. World given 2017 climate deadline

“The world is likely to build so many fossil-fuelled power stations, energy guzzling factories and inefficient buildings in the next five years that it will become impossible to hold global warming to safe levels, and the chance of combatting dangerous climate change will be lost forever”, according to the most thorough analysis yet of the world energy infrastructure.

Anything built from now on that produces carbon will do so for decades, and this “lock-in” effect will be the single factor most likely to produce irreversible climate change, the world’s foremost authority on energy economics has found. If this is not rapidly changed within the next five years, the results are likely to be disastrous,

“The door is closing,” Fatih Birol, chief economist at the International Energy Agency, said. “If we don’t change direction now on how we use energy, we will end up beyond what scientists tell us is the minimum [for safety]. The door will be closed forever.”

If the world is to stay below 2° C of warming, which scientists regard as the limit of safety, then emissions must be held to no more than 450 parts per million (ppm) of carbon dioxide in the atmosphere; the level is currently around 390 ppm. But the world’s existing infrastructure is already producing 80% of that “carbon budget”, according to the IEA’s analysis, published in early December 2011.

*from the Guardian 9 November 2011*

### Rationale for the our network

The initiation of our network is related to article 6 of the Kyoto convention which calls on all the signatory countries to promote and facilitate at all levels, the development and implementation of educational and public awareness programmes on climate change and its effects; also to cooperate and promote at international level in the development and exchange of educational and public awareness materials.

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## 3. First “Changing with the Climate” network Annual Event

The Open University of Catalunya was the venue for the first annual meeting of our Changing with the Climate network. France, Italy, Romania, Hungary, United Kingdom and Spain were each represented by their network partner and teachers from two schools who had signed up as network members.

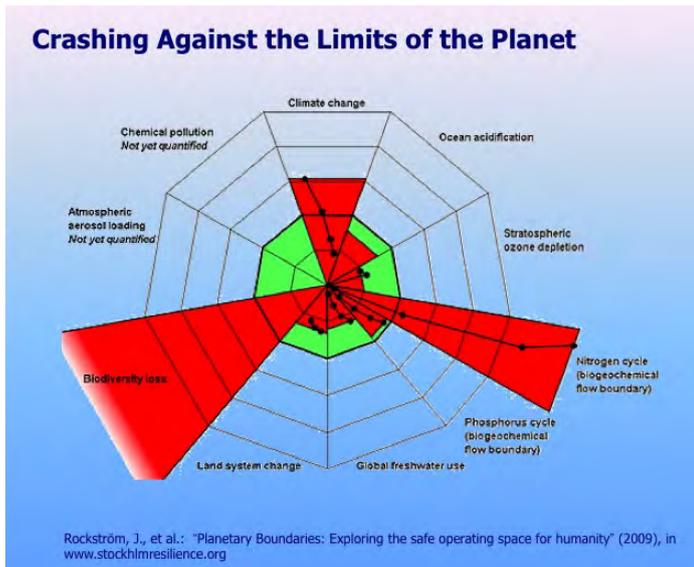
The opening event was a guided visit of the new Science Museum which has a very extensive set of working exhibits to illustrate scientific concepts which form the basis of our current technological society.

The opening lecture was given by Jordi Pigem who described how our energy usage had evolved since the start of the Industrial Revolution.

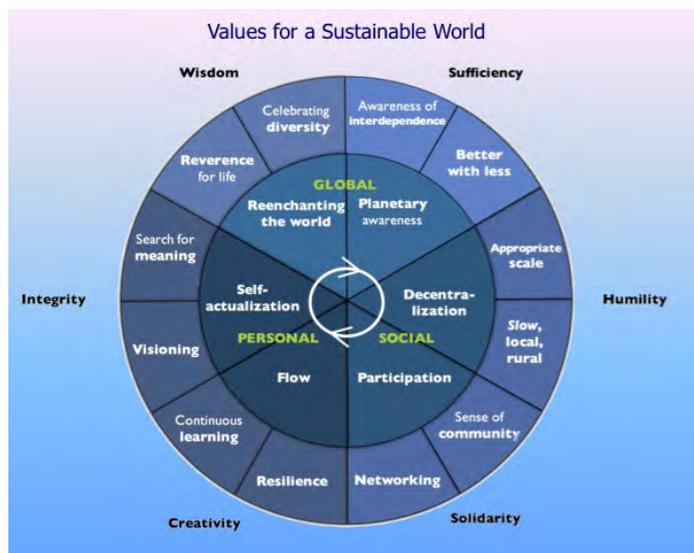


Participants at the first annual event in Barcelona

## Education for a changing world with climate change



Jordi Pigem looked at the earth from an ecological viewpoint and considered that all the earth's ecosystems were in crises today and that consumerism was destroying our possibility of survival. Of the nine parameters measuring the health of the planet, three were already beyond sustainable limits; loss of biogeodiversity, biochemical boundary flow of the nitrogen cycle and impacts of climate change.



The solution he advocated was to revise our world view by accepting that man was part of the biosphere and that we had to understand our interdependence with nature and work with it and not against it. We had to agree a set of global, social and personal values which each of us had to introduce into our lives and teaching.

## Actions to limit climate change

**Ecological lens:** environmental problems are the result of indifference for the planet's ecosystem on which all life depends.  
**Solution:** understanding this and providing people with mechanisms to express that understanding in their daily choices.

**Economic lens:** environmental problems are the result of misleading market signals (prices).  
**Solution:** Ensuring that the prices of goods and services reflect their total costs, including environmental damages.

**Technological lens:** environmental problems are the result of inappropriate or misused technologies.  
**Solution:** improving or correcting technology.

All three require different skills and therefore educational needs

Parker, L. et al. *Global climate change: three policy perspectives*. CRS Reports for Congress 2008. 3

The other keynote talk was given by Salvador Samitier, Director of the Department for Sustainability in Catalonia. He argued that limiting climate change was one of the defining issues of this century. If we looked at the earth through an ecological lens it seems as though we have disregarded the planet's ecosystems on which all life depends and that looking through an ecological lens, prices did not reflect the full environmental and social cost.

### EUROBAROMETER 75 – SPRING 2011 – PUBLIC OPINION IN THE EU

What do you think are the two most important issues facing the EU at the moment?

	EU-27	Es		EU-27	Es
Economic situation	43%	54%	Crime	8%	4%
Unemployment	23%	45%	Energy supply	7%	3%
State of MS public finances	22%	8%	EU's influence in the world	6%	3%
Immigration	20%	14%	The environment	6%	3%
Rising prices inflation	17%	12%	Climate change	5%	3%
Terrorism	13%	12%	Taxation	4%	4%

Country most concerned about CC: Sw (23%) Country less concerned about CC: It, Gr (1%)

Like other observers, Dr Samitier accepted that the world had to move to a low carbon economy which would limit the global temperature rise to 2° C and require us to reduce global emissions of greenhouse gases by 50% by 2050. This required a set of actions which would enable us to use our existing resources in a more sustainable way. The call for action was necessary because in a recent Eurobarometer poll climate change came far down the list of issues facing Europe at the present time. However, the objective of developing a sustainable economy should result in long-term employment to introduce technologies to use energy in a more efficient and sustainable way.

## School activities

Eleven teachers from five countries then described some of their activities they had undertaken with their students to understand and to initiate actions to limit climate change. The audio visual evidence presented by the teachers illustrated that the students had accepted the need for change; they had enjoyed the challenge of deciding what actions were needed and how they would inform and influence other students and their families.

## Outcomes of the first annual meeting

Much was needed to be done and there was little time in which to initiate actions to limit climate change. Teachers could all learn from one another so the teachers agreed in Barcelona to link with one or more of the other schools and exchanged contact details.

A potential barrier was finding the time to undertake activities relating to changing with the climate and partners might need to explain to Head Teachers why this topic should be included within the curriculum teaching.

Planning would now begin for our second annual network meeting to be held at the University of Reading from 24 to 26 October 2012.

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## 4. News from partners

### Climate Challenge Day UK

We organised another activity day in Reading in December, this time for older students aged 17 and 18 years old. The three activities in the morning were selected to illustrate topics in the curriculum for physics and geography:-

#### Activity 1: Melting of glaciers

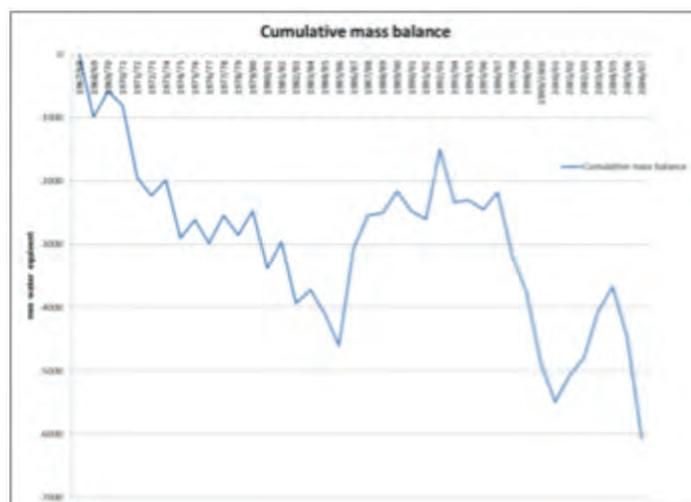
Data that have been collected over a 40 year time period were analysed by Maria Shaganova of the University's Geography Department for Djankuat Glacier in the Caucasus Mountains which form the boundary between Russia and Georgia.



Djankuat Glacier

The cumulative mass balance over this time period is shown below from which it can be seen that there is a clear reduction in glacier mass even though the

year on year variations could be up or down. Other data show a clear correlation with increasing temperature.



Cumulative mass balance (year against mm water equivalent) over a 40 year time period

The long term impact of such a continuing trend would be a decrease in melt water from glaciers located in this region. This could affect the lives of people living locally in countries that contain one third of the world's population.

## Activity 2: Extreme weather events

Jane Strachen of the University's Meteorological Department has been studying the occurrence of extreme weather conditions in the UK.



Extreme weather events in the UK

Each team of six students were required to plot on a map of the UK which areas were most likely to suffer such events and what could be done to limit their impact.



## Activity 3: Renewable heating

The third activity was to calculate the heat loss of two buildings at Leighton Park School and to decide the size of the ground source heat pump and the length and location of the collector loop.

### Should renewable energy be subsidised?

This question is under serious discussion in the UK which has now introduced a feed-in-tariff for renewable sources of heating as well as for renewable electricity and this topic was debated during the afternoon. It was agreed that such sources should receive a subsidy alongside those for other energy sources such as nuclear power (£6.8 billion this year) and society meeting the social and environmental cost of burning fossil fuel because energy was a fundamental human need.

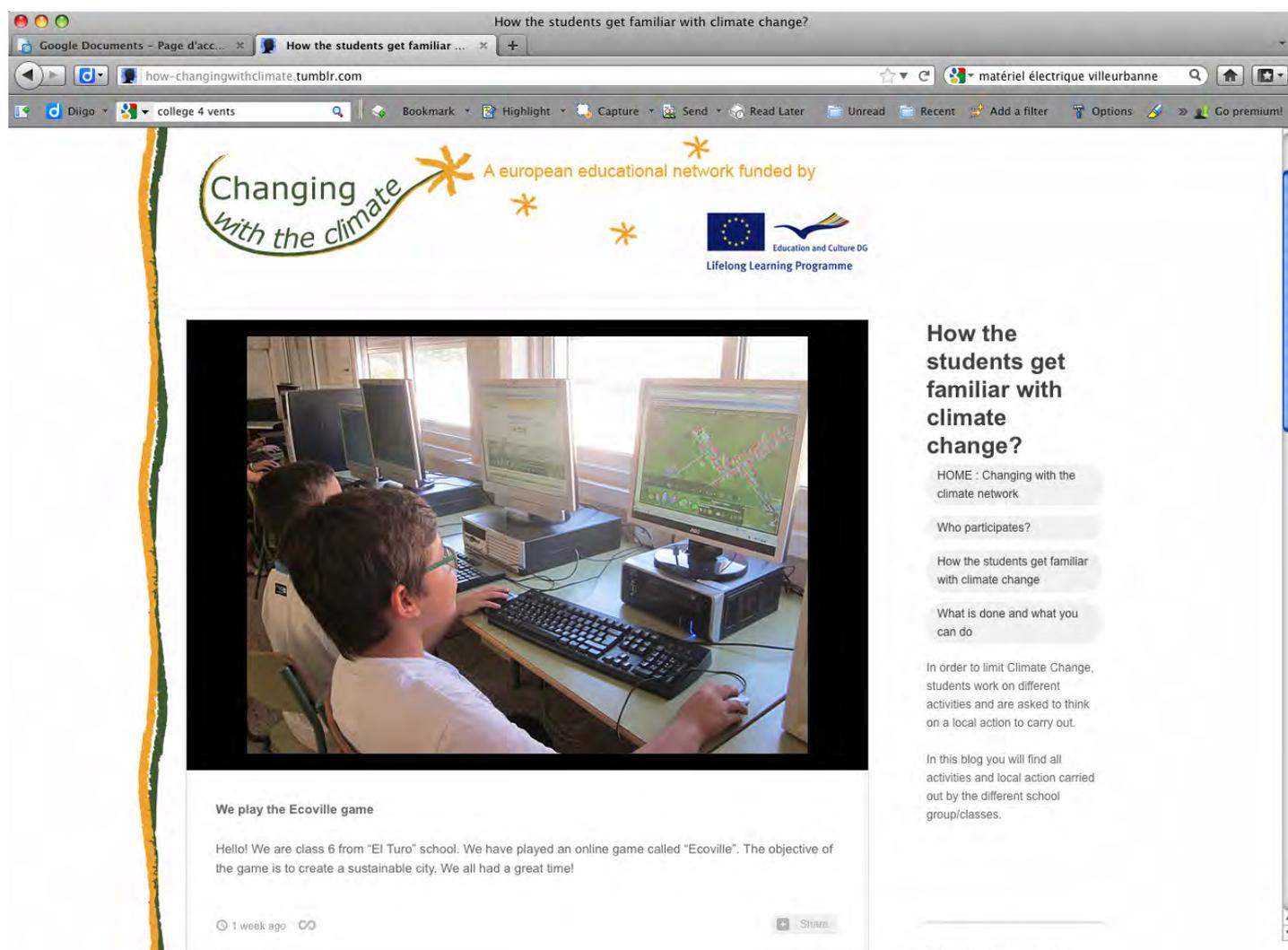
The consensus was that the renewable energy subsidy was necessary in order for these sources to be able to compete with more mature technologies. They were the only source which was sufficiently abundant to meet our needs and not produce greenhouse gases that result in global warming.



Measuring the building to calculate the heat loss

## Blog! France

Changing with the climate's blog is launched! It was decided at the project meeting in Barcelona to set up a blog. All participating classes can introduce themselves, write about their projects, send pictures and videos to be published under the three sections of the blog. Twinned classes may use it as an exchange media, in complement to email or video calls. Some posts are already online, you can read them on: <http://changingwithclimate.tumblr.com/>



The screenshot shows a web browser window displaying a Tumblr blog. The browser's address bar shows the URL [how-changingwithclimate.tumblr.com](http://how-changingwithclimate.tumblr.com). The page header includes the logo for 'Changing with the climate' and text indicating it is a European educational network funded by the Education and Culture DG Lifelong Learning Programme. The main content is a post titled 'How the students get familiar with climate change?'. The post includes a photograph of students sitting at desks in a computer lab, looking at monitors. Below the photo, the text reads: 'We play the Ecoville game. Hello! We are class 6 from "El Turo" school. We have played an online game called "Ecoville". The objective of the game is to create a sustainable city. We all had a great time!'. The post is dated '1 week ago' and has a 'Share' button.

**In France** three participating classes this year are working hard on their projects. At Jean Macé's school, students have interviewed the "chef" about the food prepared, and the teachers about the paper they use. Their objective - to estimate the carbon footprint of food and paper in their school.

At Quatre Vents' school, students have received a compost expert as they have to create three posters on this subject for a primary school.

At Pierre de Ronsard's school, the school administration has officially asked the students to analyse the use of electricity in the main corridor of the first floor. They will have to elaborate recommendations about how to reduce the electricity consumption there. Twinning is being organised with all three groups, so exchanges with other classes should start soon!



Jean Macé's students have renamed their group "JeanMacécolo"

## 5. Coming Events

**22 February** Network workshop, Bucharest Romania for further details contact Adriana Alexandru

**24–26 October** Second annual meeting of the network, University of Reading, Reading, UK

## 6. Contacts

If you would like to join the network or would like further information please contact the network partner in your country or visit our website [www.changingwithclimate.info](http://www.changingwithclimate.info).

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### Next issue

Partnering schools; all contributions to editor by 1 April, publication date April 2012

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