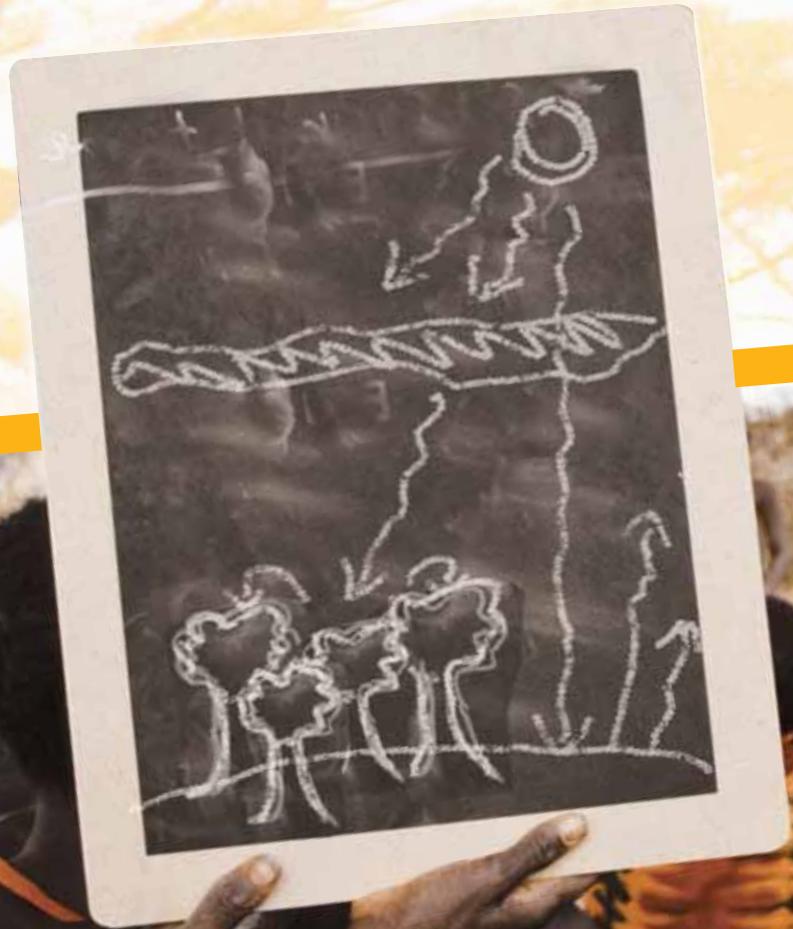




United Nations  
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THE UNESCO  
CLIMATE CHANGE  
INITIATIVE



CLIMATE  
CHANGE  
EDUCATION  
FOR SUSTAINABLE  
DEVELOPMENT





# CLIMATE CHANGE: THE DEFINING CHALLENGE OF OUR TIME

The modern industrial age propelled the economies of the present-day developed countries forward and gave rise to unprecedented improvements in the standard of living for much of mankind. It also gave birth to environmental pollution as we know it today, beginning a slow but accelerating transformation of the Earth's surface and atmosphere.

Meeting the ever-increasing appetite for goods and services of the modern age continues to require extensive use of a seemingly infinite natural resource base. The challenge imposed on the Earth to provide the necessary raw materials, energy, and waste disposal processes for mankind's production and consumption has had many consequences for the health of ecosystems around the globe. The shelter, clothing, nourishment, mobility and other lifestyle components that make up humanity's basic needs and increasing 'Western-style' consumption impose a significant impact on the environment, particularly as the Earth's population increases.

Of the many problems generated by our economic and industrial progress, climate change is one that dominates media headlines in recent memory. The current warming trend of the Earth's atmosphere that started with the industrial revolution has given scientists, politicians, and individuals around the world cause for great concern. Dramatic reductions

## **International Response to Global Warming - UNFCCC & Kyoto**

In 1992, international concern about global warming was translated into the United Nations Framework Convention on Climate Change (UNFCCC) - a global treaty which encouraged action to stabilize greenhouse gas emissions. In 1997, this 'encouragement' was strengthened into a 'commitment' for action via the Kyoto Protocol. In 2005, the Kyoto Protocol entered into force, thus committing the developed country signatories to reduce their emissions of greenhouse gases following the rules outlined in the Marrakech Accords of 2001.

in seasonal sea ice at the Earth's poles, rising sea-level, shifts in precipitation patterns leading to extended droughts or flooding, and more frequent extreme weather events are just some of the effects of global warming and changes to the global climate. The human toll in lost lives and livelihoods is mounting, particularly in Africa and the Small Island Developing States (SIDS). No country will remain unaffected, thus making it clear that climate change mitigation and adaptation are necessary to address one of the greatest challenges faced by the world today.

Climate change is a complex global problem because it is intertwined with many other issues, such as economic development and poverty reduction. Developing countries are the least responsible for climate change, yet the most at risk from its effects. Eradicating poverty and improving living conditions via the attainment of the Millennium Development Goals (MDGs) must remain a priority. The challenge here is to accomplish the MDGs while reducing dependence on carbon, promoting climate resilience and ensuring balanced economic development.

Progress is needed on many fronts: development and transfer of green technologies, greenhouse gas emission reductions, and the establishment of effective government policies. It is of equal importance to provide education and training, and promote public awareness to the broadest audience possible. The need to create an informed global citizenry, a knowledgeable workforce, and enlightened government officials on their roles in climate change mitigation and adaptation is immediate.

UN Secretary-General Ban Ki-Moon has proclaimed climate change to be the defining challenge of our time. It is a global problem, and yet each of us has the power to make a difference. Even small changes in our lifestyle and behaviour can help reduce greenhouse gas emissions while ensuring a minimum quality of life. But how?

## Enhancing and Applying the Climate Change Knowledge Base for Building Green Societies

Addressing global climate change takes more than science alone. To stabilize the increasing concentration of greenhouse gases in the atmosphere and adapt to climate change will take the concerted action of everyone and all parts of society. This is why UNESCO works in all its domains—education, culture, the sciences and communications—to address climate change holistically.

The UNESCO Climate Change Initiative was launched by Director-General Irina Bokova in Copenhagen during the 15th Conference of the Parties to the UN Framework Convention

on Climate Change (UNFCCC COP15). It seeks to reinforce the scientific, mitigation and adaptation capacities of countries and communities that are most vulnerable to the effects of climate change. It focuses on a select number of strategic issues in line with **The UN System Delivering as One on Climate Change** action plan and **The UNESCO Strategy for Action on Climate Change**.

The Initiative is based on four thematic areas: scientific, educational, environmental and ethical. Key objectives will be achieved through intersectoral and interdisciplinary cooperation, coordinated field activities, and networking. Special attention is given to UNESCO's two global priorities, Africa and gender equality, as well as to the increased vulnerability of Small Island Developing States (SIDS).

### The UN System “Delivering as One” on Climate Change

During the 13th session of the Conference of Parties to the UNFCCC in Bali, Indonesia, UN Secretary-General Ban Ki-Moon presented an unprecedented coordination effort to bring together all the diverse perspectives, expertise and strengths of the UN system so as to deliver as one in the critical area of climate change.

The initiative brings together expertise and ongoing work in diverse areas ranging from science and technology to agriculture, transport, forestry and disaster risk reduction, to address both mitigation and adaptation. It brings together the normative, standard setting and knowledge sharing capacities of the system with its operational reach in order to support the most vulnerable. The overall objective is to maximize existing synergies, eliminate duplication and overlap, and optimize the impact of the collective effort of the UN system.

To ensure better coordination, convening responsibilities were assigned to UN system entities with a large volume of activities in the five **focus areas** and four **cross-cutting areas**.

#### Focus areas

- Adaptation – High-Level Committee on Programmes collectively
- Technology transfer – UNIDO, UN-DESA
- Reduction of emissions from deforestation and degradation (REDD) – UNDP, FAO, UNEP
- Financing mitigation and adaptation action – UNDP, World Bank Group
- Capacity building – UNDP, UNEP

#### Cross-cutting areas

- **Climate knowledge: science, assessment, monitoring and early warning** – WMO, UNESCO
- Supporting global, regional and national action – UN-DESA, UN Regional Commissions, UNDP
- Climate-neutral UN – UNEP
- Public awareness – UNCG, UNEP

ACTING ON CLIMATE CHANGE:  
THE UN SYSTEM DELIVERING AS ONE



UN System

[www.un.org/climatechange](http://www.un.org/climatechange)



# UNESCO CLIMATE CHANGE INITIATIVE: FOUR CORE PROGRAMMES

## Taking Advantage of Opportunities for Synergy

The four core programmes of the Climate Change Initiative each play a critical role to bring a holistic understanding

of climate change, its underlying causes, driving forces and impacts, as well as options to mitigate and adapt to them. They have been designed to take advantage of opportunities for synergy among UNESCO's existing capacities and programmes, and are described in more detail below.

### 1. Climate Science and Knowledge

Development of a Science-based UNESCO Climate Change Adaptation Forum.

The objective of the Forum will be to inform public and private sector stakeholders (national policy-makers, vulnerable communities and women, the local media, social, cultural and scientific networks and local, regional and international scientific organizations) in agriculture, fisheries (including aquaculture), forestry, alternative energy, fresh water, oceanography, environmental sciences, and coastal services of the longer-term climate projections and their potential impacts, as well as strengthen capacity for appropriate response strategies.

### 3. Climate Change, Cultural and Biological Diversity, and Cultural Heritage

Development of a Global Climate Change Field Observatory of UNESCO Sites.

The objective of this Observatory is to use UNESCO World Heritage Sites and biosphere reserves as priority reference sites for understanding the impacts of climate change on human societies and cultural diversity, biodiversity and ecosystems services, the world's natural and cultural heritage, and the possible adaptation and mitigation strategies, such as in relation to REDD+.

### 2. Climate Change Education (CCE) in the Overall Context of Education for Sustainable Development (ESD)

Development of a Climate Change Education for Sustainable Development Programme.

This programme uses innovative educational approaches to help a broad audience (with particular focus on youth), understand, address, mitigate, and adapt to the impacts of climate change, encourage the changes in attitudes and behaviours needed to put our world on a more sustainable development path, and build a new generation of climate change-aware citizens.

### 4. Climate Change, Ethics, Social and Human Sciences Dimensions

Development of a new policy-relevant, action-oriented Research Programme on the Social, Human, Ethical and Gender Dimensions of Climate Change.

This programme will focus in particular on the design and implementation of appropriate climate change adaptation actions, based on the MOST and environmental ethics programmes, benefitting the most vulnerable related to the cross-cutting issues of energy, water and biosphere management, as well as improve understanding of gender equality issues related to climate change.

## Preparing the Next Generations for Climate Change

Often, people think that problems such as climate change are to be solved by the government or scientists. However, we need to be aware that each of us is involved as part of the problem and part of the solution.

What children learn today will shape tomorrow's world. Climate Change Education for Sustainable Development (CCESD), therefore, has a central role to play in helping the general public and especially the next generations understand and relate to the issues, make lifestyle changes to reduce greenhouse gas emissions, and adapt to the changing local conditions. While CCESD at all levels and in both formal and non-formal settings is needed, instilling climate change awareness and understanding at a young age is ultimately the best way to change behaviours and attitudes. To ensure relevance and uptake, CCESD should be oriented according to the local context and prioritize passing traditional knowledge and practices to learners.

### Implementing UNFCCC Article 6

UNFCCC Article 6, which addresses the issue of climate change related education, training and public awareness, is the main vehicle through which the Convention fosters action to develop and implement educational and training programmes on climate change.

Having long recognized the mounting challenge presented by climate change, UNESCO has contributed to the implementation of Article 6 through a variety of initiatives described in this brochure, including:

- a **Climate Change Education Seminar** organized with the Danish government in July 2009;
- **Climate Frontlines**, a platform for sharing indigenous peoples', small islands' and vulnerable communities' knowledge on climate change;
- **Sandwatch**, an educational programme through which school students and community members learn and work together to evaluate and solve problems in their beach environments;
- development and diffusion of **pedagogical material, tools and resources** on climate change.

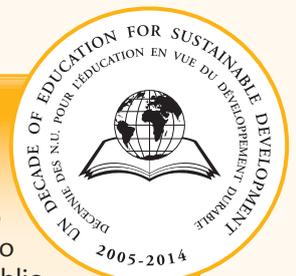
To this end, UNESCO is uniquely positioned to leverage its expertise in education, natural and social sciences, culture and communication in order to lead by example, and raise the profile of CCESD on the international agenda through the Climate Change Initiative.

## Climate Change Education for Sustainable Development core programme – Objectives

1. Strengthen the capacity of Member States to provide quality climate change education for sustainable development at primary and secondary school level through:
  - improved education policy, analysis, research and planning;
  - teacher education and training of education planners;
  - training on curriculum review/reform.
2. Encourage and enhance innovative teaching approaches to integrate quality climate change education for sustainable development in school through:
  - interdisciplinary practices;
  - science education;
  - whole school approaches;
  - technical and vocational education and training (TVET);
  - education on disaster risk reduction.
3. Raise awareness about climate change and enhance non-formal education programmes through media, networking and partnerships.

### UNESCO, Climate Change and the DESD

As Task Manager of Chapter 36 of Agenda 21 – which relates to the promotion of education, public awareness and training – and lead agency for the UN Decade of Education for Sustainable Development (DESD, 2005-2014), UNESCO plays a lead role in promoting Education for Sustainable Development (ESD). Climate change is one of the key action themes of the Decade, as was reaffirmed at the UNESCO World Conference on Education for Sustainable Development held in Bonn in March/April 2009.



## OBJECTIVE 1: CAPACITY DEVELOPMENT

The first objective addresses the need to strengthen capacity, both in the political sphere and the classroom.

### Strengthening Capacity

#### a) for education policy, through analysis and research

Education hardly appears in national climate policies even though it is an obligation for State Parties of the UNFCCC to implement Article 6 (described above). One reason for this could be that the national climate policy documents, for the most part, target industry and the general public.

Thus the challenge is given over to the Ministry of Education to develop and integrate climate change into education policies and also to include the education response to climate change into climate policies and action plans.

#### Action areas

- Assist Member States to improve and reorient their education policies; develop/adapt and use tools.
- Conduct research studies, devise planning models, and undertake scenario-setting.

#### Outcomes

- Improved understanding of the impact of climate change on education systems, and on the educational opportunities and needs of marginalized, vulnerable and disadvantaged groups such as girls and women.
- Increased preparedness of government agencies and stakeholders responsible for the planning, structuring, provision, management and financing of education to be able to effectively respond to CCESD challenges.

### Global Renewable Energy Education and Training (GREET)

A critical element in the successful transfer of renewable energy technologies is a skilled workforce. To address the enormous needs for institutional capacity and human resource development especially in the developing countries, UNESCO launched the **Global Renewable Energy Education and Training (GREET) Programme**. GREET focuses on strengthening national competencies by favouring exchange of knowledge and best practices, and enhancing the use and application of renewable energy sources.

Activities include the organization of training programmes at different levels, design and field implementation of training tools and learning/teaching material, and the promotion of national/regional training centres of excellence.



The screenshot shows the UNESCO website interface for the GREET Programme. The page title is "Global Renewable Energy Education and Training (GREET) Programme". The main content area includes a paragraph explaining the programme's goal: "Recognizing that the supply of a skilled workforce is a critical element in the transfer of technology and due to the immense needs for institutional and human resource development especially in the developing countries, UNESCO launched the Global Renewable Energy Education and Training (GREET) Programme as an instrument to help the international community address this issue." Below this, it lists the GREET programme's strategic objectives and main activities, which include: "Organization of training programmes at different levels, including continuing training for professionals (decision and policy makers, teachers, engineers, university teachers and technicians); Design and field implementation of training tools and learning/teaching material; Promotion of national/regional training centres of excellence at the regional level." The page also features a navigation menu at the top and a sidebar with links to "Natural Sciences", "Strategy & Programmes", "International Basic Sciences Programme (IBSP)", "Partnerships, Networks & One UN", and "Services".

**Developing Countries**  
[www.unesco.org](http://www.unesco.org) → search for GREET

## b) for curriculum review and reform

Integrating CCESD into curricula without compromising already overstretched programmes of study is a challenge. The recommended course of action, therefore, is to integrate CCESD in a transdisciplinary manner into existing subject areas such as science, citizenship education, geography, human rights education, and language courses.

### Sandwatch Web

Sandwatch is a volunteer network of schools, students, teachers and principals; youth groups; non-governmental and community-based organizations, working together to monitor and enhance their beach environments. It seeks to modify the lifestyle and habits of children, youth and adults on a community-wide basis and to develop awareness of the fragile nature of the marine and coastal environment and the need to use it wisely.

The website provides up-to-date Sandwatch news, information on current projects, workshop reports, teaching resources and web links, and a Forum, which provides participating community groups with the means to post questions, exchange ideas and strategies, and share their success stories. Through the audio blog, members can post audio recordings of students discussing Sandwatch, interviews with environmentalists and community leaders, or even “radio plays.”

### Sandwatch Manual

How can we adjust and enhance the way we teach and learn so that we instill an understanding in children and young people of the nature and causes of climate change, while inspiring action to adapt and mitigate? The new, expanded edition of the Sandwatch manual goes some way to address this question.

Sandwatch links classroom activities to real-life issues relating to climate change, environment, sustainable development, cultural diversity, science and more. It links academic subjects across the curriculum from mathematics and natural science to social studies and the creative arts. Perhaps most important of all, Sandwatch stimulates and encourages practitioners, young and old, to take action by becoming involved in caring for their environment, and in understanding and influencing local government policy and action.

The manual makes particular reference to climate change adaptation within an approachable and interactive framework through which students, teachers and other practitioners can monitor their local environments, identify critical issues, and develop strategies for action. It builds upon more than a decade’s experience of Sandwatch practitioners across the globe – teachers, students, universities, community groups, government agencies and individuals. It integrates the issue of climate change into all chapters and activities and adds a number of new activities.

In this sense, Sandwatch embodies the principles of Education for Sustainable Development and serves as an excellent example of the new and innovative approaches to the kind of education essential for an effective global response to climate change.



# OBJECTIVE 1: CAPACITY DEVELOPMENT

## Climate Frontlines

Despite broad recognition that small island, Arctic, high altitude and other vulnerable communities are on the frontlines of climate change, their voices have remained largely unheard within climate change debates. Indeed, this exclusion has generated discord and protests by indigenous peoples and community representatives at recent international conferences and meetings on climate change.

In response to this outcry, the grassroots Internet forum Climate Frontlines was launched by UNESCO in partnership with the Secretariat of the Convention on Biological Diversity (SCBD), the Secretariat of the UN Permanent Forum on Indigenous Issue (SPFII) and the Office of the High Commissioner on Human Rights (OHCHR).

The goals of the Climate Frontlines forum are to:

- draw international attention to the unique and valuable perspectives, knowledge and experiences of indigenous communities and peoples living in small islands, the Arctic and other vulnerable environments;
- seek community-level observations on climate change impacts, as well as local efforts to cope with and adapt to these changes;



- provide an opportunity for communities to voice their observations, experiences and concerns, and to share and exchange them with other communities;
- build up a global database of local observations, experiences, practices and coping strategies;
- support community-based research and educational activities related to climate change;
- increase the profile of indigenous peoples and their knowledge in international climate change debates.



## YouthXchange Climate Change and Lifestyles Guidebook

The *Climate Change and Lifestyles Guidebook* provides an overview of how youth lifestyles and consumption behaviour contribute to climate change. It is designed to motivate young people to take action as individuals, consumers, and professionals to move towards a sustainable lifestyle.

The Guidebook is targeted toward educators, trainers and youth leaders aged 15-24, especially from the more industrialized countries.

# EXISTING PROJECTS AND INITIATIVES

CCESD-related curricula should focus on the development of knowledge, skills and competencies needed, and contribute to the mitigation of and adaptation to climate change. Further, it should introduce basic scientific concepts, theories and projections of climate change. Themes such as sustainable consumption, disaster preparedness, environmental protection, recycling, water, desertification and renewable energies should be discussed, taking into account their relevance in the specific national and local context. Finally, concepts such as ethics, human rights, gender equality, uncertainty, risk management, social justice, and decision-making are crucial to prepare learners for a changing environment.

## Action areas

- Provision of guidance and resources to mainstream climate change into curricula for primary and secondary education and TVET, using innovative teaching approaches.
- Preparation of country-based reviews and case studies on formal CCESD in school.
- Facilitating regional and inter-regional dialogue on climate change education.

## Outcomes

- Climate change education for sustainable development integrated into curriculum frameworks, the syllabus for secondary education and TVET in target countries, with a priority on those planning a cyclical revision of their curricula.

## c) for teachers and other educational personnel

Promoting lasting change through education requires that teachers' attitudes, motivation and skills contribute fully to the effort. This requires them to understand the implications of such change, to recognize the need for it, and to have the competence and confidence to introduce it into their classroom teaching. Thus, integrating CCESD and new teaching approaches and methods requires teachers

to have a thorough understanding of climate change and its relation to broader sustainable development issues. The CCESD initiative will therefore provide support for teacher training on climate change education.

## Action areas

- Provision of quality resources and country-level support to teacher education on CCESD.

## Gender & Climate Change Training Manual for Policy- and Decision-Makers

**Overview:** The purpose of the manual is to increase the capacity of policy and decision makers so that their efforts to mitigate and adapt to climate change are gender-sensitive. It presents key conceptual and methodological advances in gender relations in the context of climate change.

### Modules:

1. Gender and gender mainstreaming
2. International law instruments as a framework for mainstreaming gender in climate change
3. Overview of gender issues and climate change
4. Gender mainstreaming in adaptation efforts
5. Gender-sensitive strategies for mitigation actions
6. Gender-sensitive strategies on technology development and transfer to support actions on mitigation and adaptation
7. Gender mainstreaming in climate change financing mechanisms

See: [www.generoyambiente.org/archivos-de-usuario/File/ecosistemas\\_especificos.pdf](http://www.generoyambiente.org/archivos-de-usuario/File/ecosistemas_especificos.pdf)



# OBJECTIVE 1: CAPACITY DEVELOPMENT

## Climate Change-related Education Modules for Schools

Several education modules have been developed to provide teachers, educators and curriculum developers and specialists with tools and methods for successfully integrating the key issues and concepts of each topic (e.g. climate change, environment, natural disaster preparedness and response, etc.) into the core curriculum for any subject or discipline in primary and secondary education.

The Modules generally consist of a conceptual framework, a glossary of natural disaster terms, a training manual containing lessons, activities and tasks, and resources including case studies and worksheets.

### 1 Module on Climate Change

**Overview:** The module is designed to help teachers understand climate change issues in a global and regionally relevant context, and incorporate lessons into their curriculum. This module is currently in draft form, for release in 2011.

#### Activities:

1. The Atmosphere and the Earth's Energy Budget
2. Weather and Climate
3. Climate Change
4. Act Now!
5. Developing Lesson Plans

### 2 Module on Environmental Education

**Overview:** This module is designed to help teachers integrate environmental issues and concepts into the core curriculum for any subject or discipline so as to increase the overall environmental literacy of students.

#### Activities:

1. What is "environment"?
2. Why do we need to protect the environment?
3. Environmental literacy and ESD
4. Integrating environmental issues into the curriculum

**More information:** [www.unescobkk.org/](http://www.unescobkk.org/)



Classroom / Global

Available from various web sites

### 3 Module on Natural Disaster Preparedness and Response

**Overview:** The module promotes the inclusion of natural disaster preparedness and response in school curricula, involves young people and teachers in action plan development and teaches community participation strategies.

#### Lessons:

1. Learning about Earthquakes
2. Learning about Floods
3. Learning about Typhoons/Storms, Hurricanes, and Cyclones
4. Learning about Tsunamis
5. Learning about Volcanoes

**More information:** [www.unescobkk.org/](http://www.unescobkk.org/)

### 4 Train the Trainers Climate Change Module

**Overview:** This web-based module focuses on training educators, students, key stakeholders, UN agencies and UNESCO staff to communicate and advocate for ESD and its practical implications, with reference to climate change issues.

#### Contents:

1. ESD: A worldwide priority
2. How to implement ESD
3. We all have a role
4. Challenges
5. The Big Vision quiz

[www.unesco.org/en/education-for-sustainable-development/esd-e-module/](http://www.unesco.org/en/education-for-sustainable-development/esd-e-module/)

## OBJECTIVE 2: INNOVATIVE TEACHING & MAINSTREAMING CLIMATE CHANGE

### Satellites and World Heritage Sites: Partners to Understand Climate Change

Around the globe, UNESCO World Heritage sites are being affected by climate change: the pyramids of Ghyza are being invaded by sand, world renowned glaciers (e.g. Mount Killimanjaro image, below) are receding, unique coral reefs are dying.

With the goal of monitoring, assessing and raising awareness of these impacts, UNESCO and its space partners – the European Space Agency, NASA, UNEP, Planet Action and the German Aerospace Centre – are pooling their collective know-how, and have designed an outdoor exhibition of satellite images and information to be held in Cancun, Mexico. The exhibition aims to give the people of Cancun and the delegates to COP 16 an opportunity to see how useful space technologies are to assess the effects of climate change, with a focus on World Heritage Sites. Thirty large panels profile situations which are currently unfolding, including disappearing glaciers on Mount Kilimanjaro, flooding in Venice, mangrove destruction in the Sundarbans, and one of the first migrations due to climate change in Uxmal, Mexico.

UNESCO has produced educational material to be used in classrooms based on the satellite images of the exhibition, and workshops with local teachers will maximize the exhibition's benefit to local schools.



The second objective of the CCESD programme seeks to encourage and enhance innovative teaching approaches to integrate quality climate change education for sustainable development in schools.

### Interdisciplinary Practices

Climate science is a highly interdisciplinary, pedagogically challenging subject that does not fit easily into discipline-based science curricula or assessments. Curricula and the teaching of climate change therefore need to promote pedagogical approaches that take the challenges of interdisciplinarity into account.

### Action areas

- Provision of guidance on the implementation of innovative teaching approaches aimed at integrating quality climate change education for sustainable development in school, to be adapted for local needs as required and used by government ministries, higher education institutions and schools.

### Outcomes

- Educational approaches to climate change and sustainable development are promoted in ways that respect both the strengths of discipline-based knowledge and the benefits of interdisciplinarity.



## OBJECTIVE 2: INNOVATIVE TEACHING & MAINSTREAMING CLIMATE CHANGE

### Science Education

Science education can make an important contribution to students' awareness and competencies to adapt to climate change. The reverse also seems to hold true, namely, that climate change education can contribute to the relevance and quality of science teaching. Strong performance in science and awareness of global environmental problems tend to go hand-in-hand, and both are associated with a sense of responsibility supporting sustainable environmental management. Conversely, weak performance in science is associated with lower awareness of environmental problems. Failure in scientific education will mean less widespread – and less informed – public debate on issues such as climate change and other sustainability challenges.

#### Action areas

- Integration of climate change into science education curricula, programmes and material promoting a participatory and interdisciplinary teaching of the science of climate change.

#### Outcomes

- Strengthened knowledge and understanding of climate change and sustainability (on the basis of scientific methods, disciplines and evidence).

### Whole-School Approaches

Whole-school approaches advocate for active and participatory learning, a hallmark of ESD, and call for the entire school, including students, educators and administrators and communities, to be actively engaged in working towards a sustainable school with ESD and climate change fully integrated into the curriculum.

#### Action areas

- Promotion of whole-school approaches to ESD and climate change, including the development of case studies, best practices and lessons learned in collaboration with the UNESCO Associated Schools network.

#### Outcomes

- Established means for the promotion and monitoring of climate change and sustainability learning through whole-school approaches.

### Technical and Vocational Education and Training (TVET)

TVET performs a crucial role in developing the skills, knowledge and attitudes needed for the world of work and human well-being. TVET also plays an essential role in promoting a country's economic growth and reduction of poverty, while ensuring the social and economical inclusion of marginalized communities and sustainable development.

TVET's contribution to CCESD is divided into three core areas:

- provision of upstream policy advice and related capacity development in a changing economic environment and in the drive towards green economies;
- conceptual clarification in the development of green skills and improvement of monitoring; and
- acting as a clearinghouse and informing the global TVET debate.

On the ground, TVET helps young people to develop competences and skills that can help them contribute to the mitigation of climate change. It can also help young people, affected by climate change, to adapt to the changing environments through skills training.

#### Action areas

- Preparation of guidelines for the incorporation of elements of climate

# EXISTING PROJECTS AND INITIATIVES

## Greening TVET

Green Jobs exist in many sectors of the economy from energy supply to recycling, agriculture and construction to transportation. They have in common the fact that they reduce the consumption of energy, raw materials and water through high efficiency strategies, reduce greenhouse gas emissions, minimize waste and pollution and protect and restore ecosystems and biodiversity. But all jobs have the potential to become greener.

Greening TVET aims to promote creativity, innovation, critical thinking and the ability to recognize opportunity and stimulate social awareness around the central issue of environmental protection. It helps learners



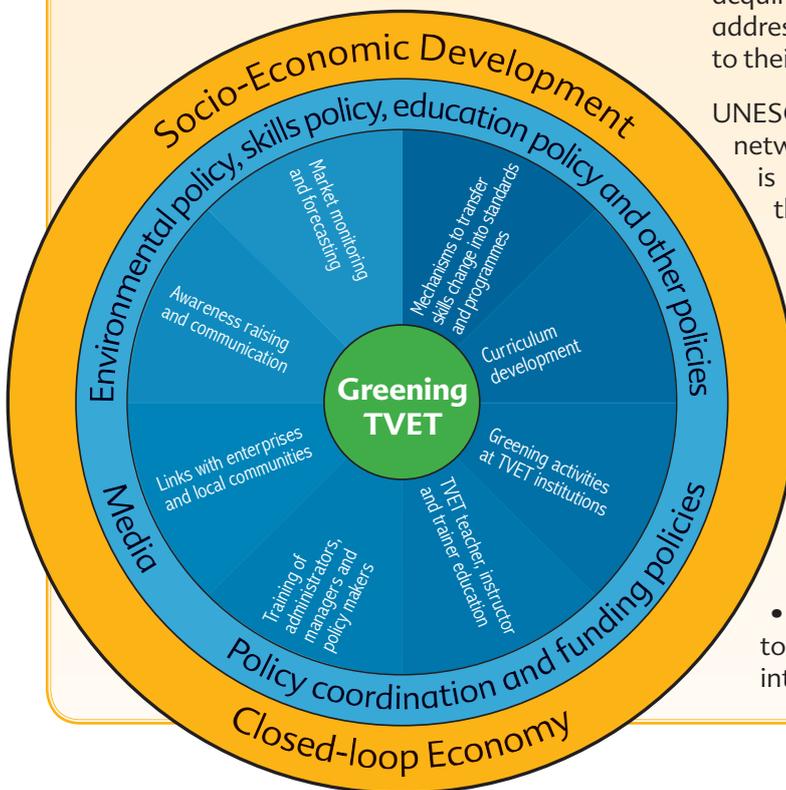
Global

[www.unevoc.unesco.org](http://www.unevoc.unesco.org) → sustainability

acquire skills, knowledge and attitudes needed to address environmental issues as these issues relate to their field of work.

UNESCO through UNEVOC (with its international network of TVET Institutions and its partners) is leading the way toward Greening TVET through various means, including:

- holding international experts' workshops to gauge skills needs, monitor trends, identify models and record current success stories of greening TVET;
- developing an international framework for action on Greening TVET, covering policy development, green skills identification, curriculum development, and awareness-raising, among others;
- providing on-line ESD resources and hosting the TVET e-forum;
- researching core skills needed with respect to climate change and guidelines for their integration into TVET.



change adaptation and mitigation into TVET programmes that will contribute to reductions in energy consumption and CO<sub>2</sub> emissions, create opportunities for marginalized and vulnerable groups, and enhance the cognitive and life-skills needed in socio-economic contexts affected by climate change.

- Development of a framework for skills needed in communities affected by climate change (e.g. climate refugees)

to help affected youth adapt to their changing environment.

## Outcomes

- Operational TVET programmes with climate change and sustainability integrated, and aligned with new trends in skills development.
- Functional TVET strategy focusing on skill development for adaptation to climate change.

## OBJECTIVE 3: NON-FORMAL CCESD & NETWORKING

The final programme objective is to raise awareness about climate change and enhance non-formal education programmes through the media, networking, and partnerships.

Participatory, practice-centred methodologies need to be well researched and prepared to ensure maximum benefit and real engagement for change. The successful development, testing, dissemination and uptake of new curricular modules and non-formal teaching programmes will thus require input from a broad range of experts, policy-makers and practitioners in the field.

UNESCO is poised to leverage its existing programmes and networks, and with the assistance of partner organizations, lead the process for promoting CCESD inside and outside the classroom.

Increasing media literacy through training for journalists on facts and myths around climate change provides another means to deliver and reinforce relevant and accurate messages.

### Action areas

- Establishment of an on-line information clearinghouse on teaching and learning about climate change.
- Promotion of CCESD through formal and non-formal education, using existing networks such as the UNESCO Associated Schools Network, World Heritage sites, Biosphere Reserves, the International Hydrological Programme networks,

### ESD Policy Dialogue Brief on Climate Change Education

Simply introducing new content about climate change science, causes, consequences and solutions will not be an adequate response to climate change. New values, creative thinking and problem solving-skills need to be instilled at all school levels through teaching and learning methodologies that are participatory, experimental, critical and open-ended.

This UNESCO Policy Dialogue brief (#4) provides recommendations and guidance to decision-makers in terms of how education systems need to be adapted and re-oriented to best address the challenge of integrating CCESD. A series of targeted Policy Dialogue Questions provide an opportunity to review education and development policies. Short descriptions of tools already in use, and links to further resources provide relevant, practical information to set the integration of the climate change education agenda in motion.

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### Education for Sustainable Development and Climate Change

Policy Dialogue 4

The Intergovernmental Panel on Climate Change (IPCC), in its 2007 report, stated unequivocally that humans are contributing to climate change. People's actions are intensifying the climate's natural variability, and the Earth's temperature is rising. Scientists make a distinction between climate variability (where climatic variations are attributable to natural causes) and climate change (where human activities are altering the atmospheric composition). Human-induced (or anthropogenic) climate change is caused by increased production of greenhouse gases, including carbon dioxide (CO<sub>2</sub>), methane and nitrous oxide. Carbon dioxide, the main contributor, is produced primarily by the burning of fossil fuels – oil, gas and coal. Although methane occurs in smaller quantities than CO<sub>2</sub>, it has higher warming effects. Increased methane production is linked to increased levels of livestock farming for meat production. Warming of permafrost areas in Siberia and Canada may also contribute significantly to the increase of methane emissions, since permafrost holds large quantities of methane. Greenhouse gas emissions are increasing rapidly, and the concentration of CO<sub>2</sub> in the atmosphere is rising. This might speed up warming, temperatures are likely to rise, and the amount of water vapor in the atmosphere would go on increasing. Changes in temperature will impact on the whole of the earth's system, and on human activities everywhere. Projected impacts include warming of the oceans, melting of the icecaps, sea level rise, unpredictable weather patterns, increased flooding and droughts, loss of biodiversity, changes in agricultural productivity, increased health risks, and loss of coastal areas. Scientists have not yet reached a consensus on the exact magnitude of these impacts, but they are likely to be significant.

Policy / Global

unesdoc.unesco.org → "policy dialogue 4"

# EXISTING PROJECTS AND INITIATIVES

Carboschools, UNEP Youth network, Sandwatch teams, UNICEF child friendly schools, UNEVOC network, etc.

- Establishment of a community of practice on CCESD as a means to exchange experiences through network meetings and a web-based platform, enhance information-sharing, collaboration and professional development, and interact with established networks and partners in related fields.
- Support awareness-raising on climate change through the development and distribution of media kits and media training sessions.

## Climate Change @ ASPnet

The UNESCO Associated Schools Network (ASPnet) reaches out to more than 9,000 educational institutions in 180 countries. Member institutions range from pre-schools, primary, secondary and vocational schools to teacher training institutions.

Many ASPnet schools around the world work on Climate Change Education as one of the main ASPnet study themes and an integral part of Education for Sustainable Development. This is a key element in ASPnet's work in support of quality education to meet the pressing educational needs of the future generation.

ASPnet plays a vital role as a laboratory for developing, pilot-testing and implementing educational methods and materials that can provide examples of good practices for other schools and eventually be taken to scale.



## Outcomes

- A more informed general public through print media, TV and radio, and Internet-based channels of communication with clear messages and reliable information about climate change.
- Raised awareness about climate change among schools, education networks, and practitioners.
- Strengthened partnerships and collaboration within the community of practice including civil society, in particular youth and women's organizations, media networks, local and indigenous communities, social entrepreneurship NGOs and faith-based organizations.

## UNESCO Chair in Climate Science and Policy at TERI University

The Bonn Declaration emanating from the UNESCO World Conference on Education for Sustainable Development in 2009 requested UNESCO to "Intensify efforts and initiatives to put climate change education higher on the international agenda, in the framework of the DESD, in the context of UNESCO's strategy for action on climate change, and as a component of United Nations-wide action"

In response, the UNESCO Chair in Climate Change has been established at TERI University, related to the Energy and Resources Institute in India. The two-year programme provides a context for the study of climate change, covering theory, science and policy, and is supported by a laboratory component.



# OBJECTIVE 3: NON-FORMAL CCESD & NETWORKING

## World Water Development Report (WWDR)

Most people will experience climate change through water—either too much of it, or not enough. The United Nations World Water Development Report, released every three years in conjunction with the World Water Forum, is the UN’s flagship report on water. It is a comprehensive review that gives an overall picture of the state of the world’s freshwater resources and aims to provide decision-makers with the tools to implement sustainable use of our water.

The development of the WWDR, coordinated by World Water Assessment Programme, is a joint effort of the 26 UN agencies and entities which make up UN-Water, working in partnership with governments, international organizations, non-governmental organizations and other stakeholders. The third edition of the United Nations World Water Development Report (WWDR3) was presented at the 5th World Water Forum in Istanbul, Turkey in March 2009.

WWAP intends to involve decision-makers and stakeholders inside and outside the “water box” to ensure that the 4th edition of the WWDR is relevant to the targeted audiences and provides solutions for actions on water-related issues. It is planned to be launched in March 2012 at the 6th World Water Forum in Marseilles, France.

## UNESCO Climate Change Education Clearinghouse

UNESCO is committed to working alongside the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Environment Programme (UNEP) and other partners in helping Member States comply with Article 6 of the Convention.

The UNESCO Climate Change Education Clearinghouse complements UN clearinghouse platforms in support of Article 6 such as CC:inet and CC:Learn. It is designed to support education professionals, ministries of education, development agencies, civil society, researchers and other partners by providing a comprehensive knowledge base of climate change policies, programmes and advocacy within the education sector.

The CC Education Clearinghouse will provide:

- a trilingual (English, French and Spanish) website and database;
- a virtual library, updated monthly, including pedagogical materials, research documents and case studies;
- a calendar of CCE-related events;
- links to complementary CCE resource collections;
- a directory of organizations involved in CCE.

The UNESCO Climate Change Education Clearinghouse contains a large number of links to documents and materials from non-profit organizations, research institutions, government agencies and other sources outside of the UN system.



# EXISTING PROJECTS AND INITIATIVES

## Media as Partners in ESD - Training and Resource Kit

Why is media engagement vital in raising awareness on sustainable development? What will make the media consider covering sustainable development issues? Where can the media find accurate and reliable information? The **Media as Partners in ESD training kit** lays out the essentials on climate change and its relationship to environmental issues (e.g. water supply, resource depletion, etc.) giving journalists the grounding they need to report coherently and accurately for the general public. The manual contains a wealth of training materials including group exercises, role playing, lesson plans, relevant quotes, case studies, as well as story angles, case studies, sources of further information, and visions of a sustainable future.



## Youth Visioning for Island Living

Youth Visioning for Island Living is a capacity-building initiative that aims to empower young people in small islands to make a difference. Through Youth Visioning, enthusiastic and dedicated young people have worked on many projects particularly on the issue of HIV/AIDS, human rights, and the environment.

To commemorate “International Youth Year: Dialogue & Mutual Understanding”, the UNESCO Office for the Pacific States has made funds available for young people and/or youth organizations to implement their own projects in their community to address local climate change or environmental sustainability issues.



## Policy Research on Skills and Climate Change: Ten Case Studies

UNESCO is developing 10 country case studies taken from both developed and developing countries world-wide which show best practices for TVET system reorientation towards skills development that address the new realities of climate change.

The countries represent diverse climate change related issues and different approaches towards adaptation and mitigation issues.



## REGIONAL INITIATIVES

### Meeting the Needs of the Most-Affected Countries

Through its Climate Change Initiative and in particular, through the CCESD programme, UNESCO recognizes the urgent need to focus on regions, countries, and groups which will bear a significantly higher share of the brunt of climate change. Some recent and upcoming examples of regional projects and initiatives are described below.

#### ➤ Small Island Developing States

Small Island Developing States (SIDS) today face unprecedented challenges. In a globalized and interconnected world subject to changing climatic conditions,

small islands are particularly at risk from increasingly unpredictable and severe weather, the prospect of rising sea levels, or their geographical isolation and economic vulnerability. Communities which are already experiencing environmental changes are responding as best they can – some inhabitants have already relocated.

#### Interacting Intersectoral Platforms

UNESCO has several SIDS-specific initiatives underway to assist affected communities to learn to adapt to new realities, headlined by the Intersectoral Platform on SIDS. The SIDS Platform pursues an integrated approach to sustainable island living and development, and interacts substantially with the platforms for climate change and education for sustainable development.

#### International Seminar on Climate Change Education Focusing on SIDS

The UNESCO International Seminar on Climate Change Education was held in July 2009 in Paris, with financial support from the Government of Denmark. It focused on the role of education in addressing climate change with particular emphasis on the challenges faced by SIDS. The recommendations of the Seminar form an important contribution and provide a “way forward” for UNESCO’s action on climate change and climate change education.



#### ➤ Country Focus: Maldives

The Government of the Maldives has defined its development strategy through a recently completed Strategic Action Plan in which climate change adaptation is one of five priority areas. A UNESCO workshop in September 2010 brought local and international experts together to share understanding and knowledge on climate change education within the context of the Maldives and SIDS, and to identify ways of strengthening the role of education, thereby enhancing the sustainability of the livelihoods of the communities living on islands.

#### ➤ Country Focus: Viet Nam

The Ministry of Education and Training of Viet Nam recently finalized its Action Plan on the Education Sector Response to Climate Change, which identifies non-formal education as one of four priority areas. UNESCO, having supported the effort to include CCESD into the action plan, is now supporting the research and development of a CCESD booklet targeted at non-formal or life-long learners, as well as traditional students for use during extra-curricular activities.

## Walking the Talk: Working Green at UNESCO

The mantra “think global and act local” has been used by the sustainable development movement for many years. UNESCO has integrated the mantra into its own activities by establishing the Greening UNESCO Working Group, which leads the efforts to address the challenging internal environmental issues faced by a global institution.

Internal consultations organized by the Working Group have already led to a growing internal greening movement, including the development of a Greening UNESCO Charter that acts as a personal commitment and reminder to staff on their role in greening the Organization.

### Staff Education and Engagement

As lead agency for the Decade of Education for Sustainable Development, UNESCO is taking the recommendations and strategies to heart by creating internal awareness-raising material and spreading the greening ‘gospel’ to staff members in a wide variety of ways. For example, the **Staff Guide to Greening UNESCO** provides a wealth of background information, tips and further references, not only for the workplace but also for lifestyles in general. In addition, an internal **Greening UNESCO web site** also provides the means to pass on details about internal initiatives to involve staff in greening practices (e.g. video clip competition open to staff of all ranks, geographic locations, as well as delegations) and promote new internal programmes (e.g. IT recycling).

### Towards a Climate-Neutral UNESCO

UNESCO has been involved in Climate Neutrality initiatives since 2007 and aims, in line with overall UN objectives, to lead by example and reduce its greenhouse gas (GHG) emissions to the extent possible. Concrete actions already implemented include:

- Building renovations leading to environmental improvements including more ef-

- ficient heating and ventilation systems;
- Multi-functional energy-efficient copier-printers were purchased in 2008;
- Travel has been reduced, with greater use of video conference and teleconference facilities.

In addition, as part of its commitment to the Climate Neutral UN efforts, UNESCO is conducting an annual Greenhouse Gas Emissions Survey using accepted international standards, taking all offices into consideration and reporting the results to UN HQ,

UNESCO has also drafted an Emissions Reduction Plan with reduction targets. A target has been set for a 5% overall GHG emissions reduction from 2011 through 2013, the ultimate goal being a 15% emissions reduction by the end of 2013 compared with 2008 figures.

### Staff Guide to Greening UNESCO

Developed by the Greening UNESCO Working Group, the Staff Guide to Greening UNESCO offers simple tips for all employees in both Headquarters and Field Offices to learn how to easily incorporate environmentally-friendly behaviour into work life. Topics include greening for: daily commutes, the office, missions, meetings, coffee and lunch breaks, correspondence, personal lifestyle, field offices, and offers a list of “top 10 tips” as a starting point to participate in greening efforts. The Greening UNESCO Charter is included in the guide and can be signed as a personal and public commitment to incorporate greening into day-to-day office life.



Internal UNESCO Initiative

[www.unesco.org](http://www.unesco.org) → search “greening”

UNESCO Director-General Ms Irina Bokova



United Nations  
Educational, Scientific and  
Cultural Organization



# THE UNESCO CLIMATE CHANGE INITIATIVE

## CLIMATE CHANGE EDUCATION FOR SUSTAINABLE DEVELOPMENT

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