

## **Climate change and why it needs urgent attention?**

by Frank Owarish, Ph.D., Computer Science, Executive Director International Institute for Strategic Research and Training (think tank)

[www.strategicresearch.info/default.aspx](http://www.strategicresearch.info/default.aspx)

### **Background**

The environment (global and local) has been a subject of major concern to the international community for several decades

Several international conferences have been held on a regular basis and actions taken

### **Milestone 1**

**1972** UNEP established after Stockholm UN Conference on the Human Environment to provide global leadership and encourage partnership in caring for the environment.

**UNEP** is the voice for the environment within the United Nations system. UNEP acts as a catalyst, advocate, educator and facilitator to promote the wise use and sustainable development of the global environment.

UNEP work encompasses:

- Assessing global, regional and national environmental conditions and trends
- Developing international and national environmental instruments
- Strengthening institutions for the wise management of the environment

### **Mission**

"To provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations."

### **Mandate**

"to be the leading global environmental authority that sets the global environmental agenda, that promotes the coherent implementation of the environmental dimensions of sustainable development within the United Nations system and that serves as an authoritative advocate for the global environment"

In its **medium term strategy**, UNEP identifies six cross-cutting thematic priorities (in alphabetical order):

- (a) **Climate change;**
- (b) **Disasters and conflicts;**
- (c) **Ecosystem management;**

- (d) **Environmental governance;**
- (e) **Harmful substances and hazardous waste;**
- (f) **Resource efficiency – sustainable consumption and production.**

Source: <http://www.unep.org/about/>

#### **Milestones 2, 3, 4**

**1973** Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) adopted.

**1975** Adoption of the Mediterranean Action Plan.

**1979** Bonn Convention on Migratory Species (CMS) established.

#### **Milestone 5**

**1982** The Montevideo Program adopted by UNEP Governing Council setting priorities for global lawmaking. Led to major agreements, including the Basel, Stockholm and Rotterdam Conventions and the Montreal Protocol. Assisted 120 governments develop environmental legislation.

#### **Milestones 6, 7, 8**

**1983** The Brundtland Commission established: definition of sustainable development; Published “Our Common Future”, a blue print for work on sustainability.

**1987** Zambezi River Action Plan adopted; Montreal Protocol on Substances that Deplete the Ozone Layer established following the Vienna Convention of 1985.

#### **Milestone 9**

**1988** Intergovernmental Panel on Climate Change (IPCC) established by UNEP and the World Meteorological Organization: Since then it has been delivering the most influential, comprehensive and scientifically reviewed reports on climate change; played a decisive role in the establishment of the UN Framework Convention on Climate Change and the Kyoto Protocol.

#### **Milestones 10, 11, 12, 13**

**1989** Basel Convention on the Transboundary Movement of Hazardous Wastes and their Disposal adopted.

**1991** Business Charter on Sustainable Development issued at the 2nd World Industry Conference on Environmental Management (WICEM II); Global Environment Facility (GEF) established.

**1992** UN Conference on Environment and Development (Earth Summit) adopts Rio Declaration and Agenda 21;

**1992** Convention on Biological Diversity (CBD) established.

#### **Milestones 14, 15, 16, 17, 18**

**1995** Global Programme of Action (GPA) launched as a non-binding agreement to protect the marine environment from land-based sources of pollution.

**1995** Basel Ban Amendment barring export of hazardous wastes adopted.  
**1996** UN Convention to Combat Desertification (UNCCD) entered into force.  
**1998** Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade adopted.  
**1999** UN Global Compact launched.

#### **Milestones 19, 20, 21, 22**

**2000** The Malmö Declaration adopted.  
**2000** Millennium Declaration adopted: “ensuring environmental sustainability” as one of eight Millennium Development Goals (MDGs).  
**2001** Stockholm Convention on Persistent Organic Pollutants (POPs) adopted.  
**2002** World Summit on Sustainable Development

#### **Milestones 23, 24**

**2005** Bali Strategic Plan for Technology Support and Capacity-building adopted by the UNEP Governing Council; Millennium Ecosystem Assessment highlights the importance of ecosystems to human well-being, and the extent of ecosystem decline.  
**2007** Fourth IPCC Assessment Report states that warming of the climate is unequivocal; 2007 Nobel Peace Prize; Bali Action Plan – calling for comprehensive action beyond 2012; Integration of climate change and sustainable development policies.

#### **Milestones 25, 26**

**2007** The Economics of Ecosystems & Biodiversity (TEEB) launched; International Panel for Sustainable Resource Management established to provide the scientific impetus for decoupling economic growth and resource use.  
**2008** UN-REDD program launched to combat deforestation, forest degradation and climate change; UNEP becomes a climate neutral organization (through reducing greenhouse gas emissions and procuring carbon credits to compensate for the remaining emissions); launch of the Global Green New Deal--Green Economy.

#### **Milestones 27, 28, 29**

**2009** International negotiations to prepare a global legally binding instrument on mercury are launched.  
**2010** Nusa Dua Declaration adopted at UNEP’s Global Ministerial Forum in Indonesia; Governments agreed to establish an Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).  
**2011** UNEP launches the Green Economy report: Pathways to Sustainable Development and Poverty Eradication; UNEP and UN-HABITAT open New Energy Efficient Office Facility in Gigiri

**Much done; yet there are still more issues**



**Much done; yet there are still more issues**

### **Kyoto Protocol**

The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change, which **commits** its Parties by setting internationally binding emission reduction targets.

The Kyoto Protocol was adopted in Kyoto, Japan, on 11 December 1997 and entered into force on 16 February 2005. The detailed rules for the implementation of the Protocol were adopted at COP 7 in Marrakesh, Morocco, in 2001, and are referred to as the "Marrakesh Accords." Its first commitment period started in 2008 and ended in 2012.

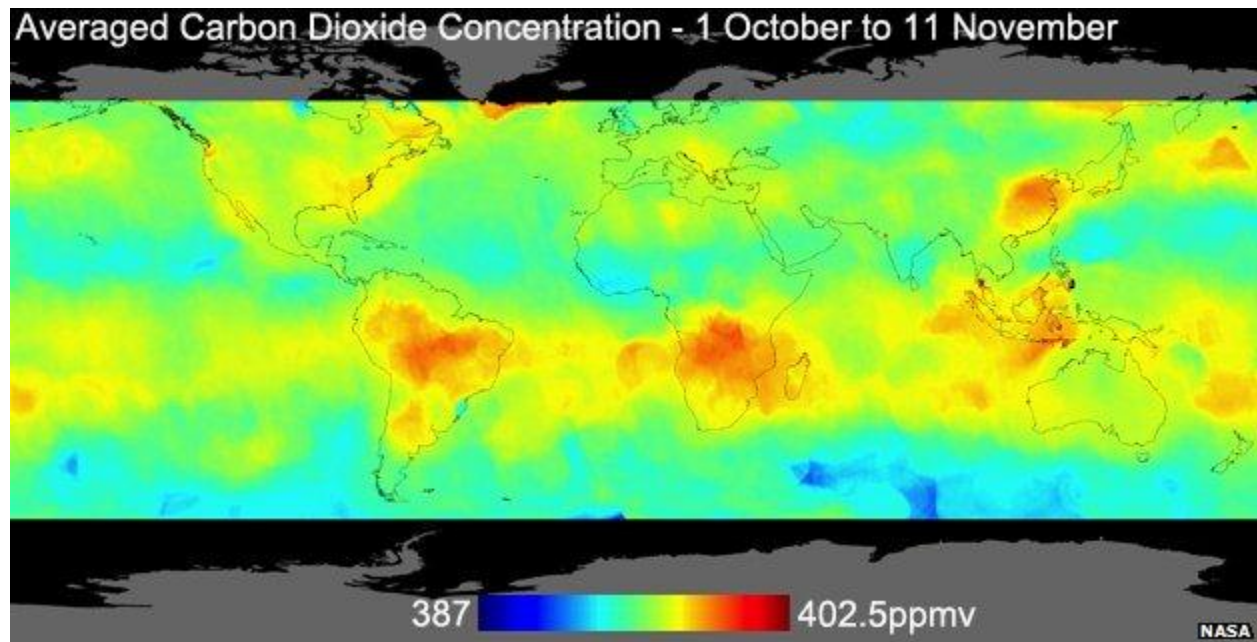
Recognizing that developed countries are principally responsible for the current high levels of GHG (green house gases) emissions in the atmosphere as a result of more than 150 years of industrial activity, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."

### **Doha Amendment**

During the first commitment period (2008-2012), 37 industrialized countries and the European Community committed to reduce GHG emissions to an average of five percent against 1990 levels. During the second commitment period, Parties committed to reduce GHG emissions by at least 18 percent below 1990 levels in the eight-year period from 2013 to 2020.

## **Background: Carbon dioxide satellite mission returns first global maps**

By Jonathan Amos Science correspondent, BBC News, San Francisco Dec 18, 2014



The map contains 600,000 data points

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- [Nasa launches carbon dioxide observer](#)
- [Peat is Amazon's carbon superstore](#)
- [Euro forest disturbances increasing](#)

**Nasa's Orbiting Carbon Observatory (OCO-2) has returned its first global maps of the greenhouse gas CO<sub>2</sub>.**

The satellite was sent up in July to help pinpoint the key locations on the Earth's surface where carbon dioxide is being emitted and absorbed.

This should help scientists better understand how human activities are influencing the climate.

The new maps contain only a few weeks of data in October and November, but demonstrate the promise of the mission.

Clearly evident within the charts is the banding effect that describes how emitted gases are mixed by winds along latitudes rather than across them.

Also apparent are the higher concentrations over South America and southern Africa. These are likely the result of biomass burning in these regions.

It is possible to see spikes, too, on the eastern seaboard of the US and over China. These probably include the additional emissions of CO<sub>2</sub> that come from industrialisation.

"We're very early into the mission and collecting data, yet as we show, we can take five weeks of that information and give you a quick picture of global carbon dioxide," said deputy project scientist Annmarie Eldering.

"It really suggests to us that OCO-2 will be very useful for finding out about where carbon dioxide is coming from and being taken back up around the globe," she told BBC News.

The US space agency researcher presented the maps here at the American Geophysical Union Fall Meeting in San Francisco.

## **Sources and sinks**

The satellite was launched this year as a replacement for an earlier venture that was destroyed in 2009 when its rocket failed soon after lift-off.

OCO-2's key objective is to trace the global geographic distribution of CO<sub>2</sub> in the atmosphere - measuring its presence down through the column of air to the planet's surface.

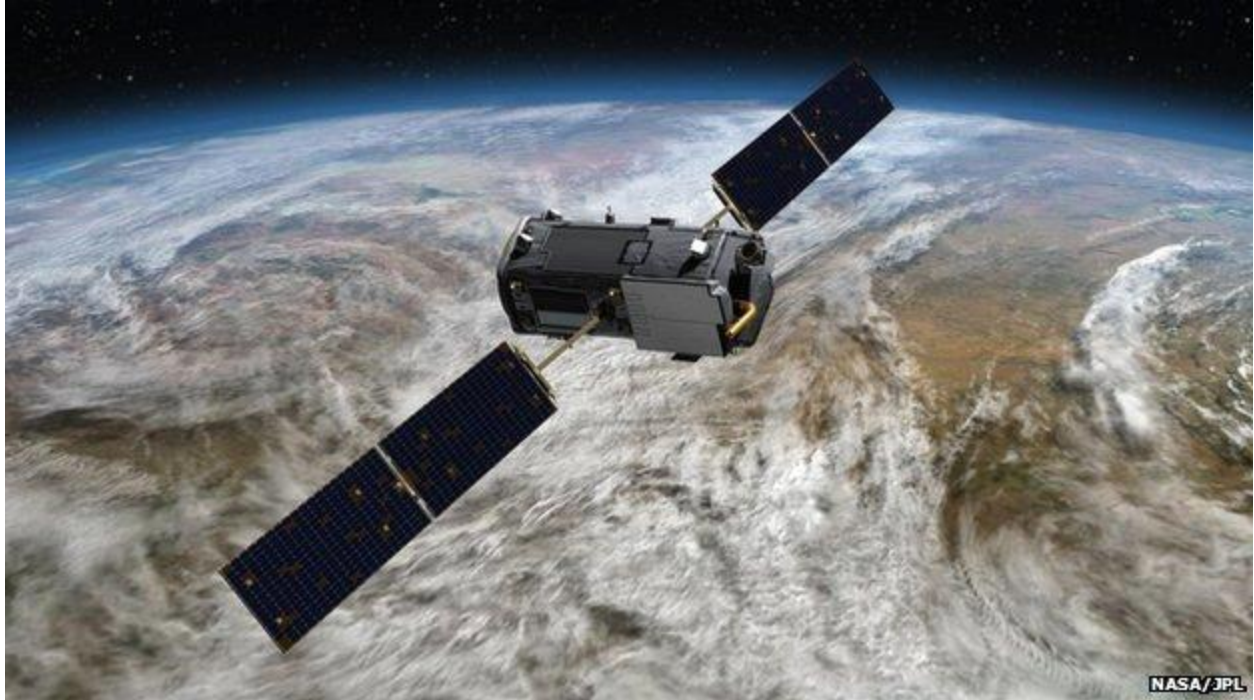
Scientists want to know how exactly the greenhouse gas cycles through the Earth system - the carbon cycle.

Humans add something like 40 billion tonnes of the gas to the atmosphere every year, principally from the burning of fossil fuels.

But the ultimate destination of this carbon dioxide is uncertain. About half is thought to be absorbed into the oceans, with the rest pulled down into land "sinks".

It is hoped OCO-2 can describe those draw-down locations in much more detail.

Even with this snapshot, scientists can see that some of their existing models will have to be revised.



Artist's impression: The OCO-2 satellite has an initial mission of two years

As part of its presentation, the observatory team showed off a special targeting mode that it can employ on OCO-2.

This involves swinging the satellite so that its spectrometer instrument can scan a restricted location in very high resolution.

Currently, these places are ones where the project has sophisticated ground equipment to gather measurements that can then validate OCO-2's observations from orbit. But ultimately, the lessons learned could allow the mission to make detailed surveys at other sites, such as megacities known to be big emitters.

"I think the answer to that is 'yes', and there are discussions going on now as to whether we can increase the number of places that we can target to look at other interesting locations.

"But more importantly, though, we are all hoping there will be a follow-on mission called OCO-3, which would directly provide that flexibility in operations."

The Orbiting Carbon Observatory has been spoken of as the forerunner of satellite missions that would seek to gain the information needed to patrol climate treaties, by helping to check that promises made by nations on carbon curbs were being kept.

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## Related Stories

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- [Nasa launches carbon dioxide observer](#)

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- [Peat is Amazon's carbon superstore](#)

Source: <http://www.bbc.com/news/science-environment-30399073>

### Intergovernmental Panel on Climate Change

The Intergovernmental Panel on Climate Change (IPCC) is the leading international body for the assessment of climate change. It was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) in 1988 to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts. In the same year, the UN General Assembly endorsed the action by WMO and UNEP in jointly establishing the IPCC.

The IPCC is a scientific body under the auspices of the United Nations (UN). It reviews and assesses the most recent scientific, technical and socio-economic information produced worldwide relevant to the understanding of climate change. It does not conduct any research nor does it monitor climate related data or parameters.

Thousands of scientists from all over the world contribute to the work of the IPCC on a voluntary basis. Review is an essential part of the IPCC process, to ensure an objective and complete assessment of current information. IPCC aims to reflect a range of views and expertise. The Secretariat coordinates all the IPCC work and liaises with Governments. It is supported by WMO and UNEP and hosted at WMO headquarters in Geneva.

The IPCC is an intergovernmental body. It is open to all member countries of the United Nations (UN) and WMO. Currently 195 countries are members of the IPCC. Governments participate in the review process and the plenary Sessions, where main decisions about the IPCC work programme are taken and reports are accepted, adopted and approved. The IPCC Bureau Members, including the Chair, are also elected during the plenary Sessions.

Because of its scientific and intergovernmental nature, the IPCC embodies a unique opportunity to provide rigorous and balanced scientific information to decision makers. By endorsing the IPCC reports, governments acknowledge the authority of their scientific content. The work of the organization is therefore policy-relevant and yet policy-neutral, never policy-prescriptive.

<http://www.ipcc.ch/>

### What is climate change and why is it preoccupying

Climate change: change in weather pattern; predictability is gone

The extremes: flash flood; mega storms; unusual drought

Melting of the polar caps; rising sea level and temperature; many island countries set to be underwater

One of the main IPCC activities is the preparation of comprehensive Assessment Reports about the state of scientific, technical and socio-economic knowledge on climate change, its causes, potential impacts and response strategies. The IPCC also produces Special Reports, which are an assessment on a specific issue and Methodology Reports, which provide practical guidelines for the preparation of greenhouse gas inventories.

Since its inception in 1988 the IPCC has prepared five multivolume assessment reports. The Fifth Assessment Report was finalized in October 2014.

The Fifth Assessment Report (AR5) was released in four parts between September 2013 and November 2014. It is the most comprehensive assessment of scientific knowledge on climate change since 2007 when the Fourth Assessment Report (AR4) was released.

AR5 is made up of the full reports prepared by the Working Groups (I, II and III) and their Summaries for Policymakers as well as the Synthesis Report.

Click [here](#) for the WGI contribution on the physical science basis of climate change; [here](#) for the WGII contribution on impacts, adaptation and vulnerability; and [here](#) for the WGIII contribution on mitigation of climate change. The Synthesis Report can be found [here](#).

## **AR5 Contents**

AR5 puts greater emphasis on assessing the socio-economic aspects of climate change and its implications for sustainable development

Some new features of AR5 as a whole include:

- ▣ A new set of scenarios for analysis across Working Group contributions;
- ▣ Dedicated chapters on sea level change, carbon cycle and climate phenomena such as monsoon and El Niño;
- ▣ Much greater regional detail on climate change impacts, adaptation and mitigation interactions; inter- and intra-regional impacts; and a multi-sector synthesis;
- ▣ Risk management and the framing of a response (both adaptation and mitigation), including scientific information relevant to Article 2 of the UNFCCC referring to the "...stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system".

The outlines and contents of the AR5 Working Group reports, approved by the Panel at its 31st Session in Bali, Indonesia, can be found in the [AR5 reference document](#). See the [AR5 leaflet](#) for abbreviated outlines of each volume of the report.

Note: Changes in the Working Group III outline, as reflected in the following progress reports, were considered and approved by the Panel at its 34th and 35th Sessions ([IPCC-XXXV/Doc. 21](#), [IPCC-](#)

XXXIV/Doc. 18, Rev.1).

Several cross-cutting themes and methodologies meriting consistent treatment across Working Groups were identified for AR5. The IPCC organized expert meetings and workshops to facilitate consideration of complex topics relevant to the AR5 assessment process, including cross-cutting themes and methodologies.

Key AR5 **cross-cutting themes** are:

Water and the Earth System: Changes, Impacts and Responses;

- Carbon Cycle including Ocean Acidification (see [Meeting Report](#));
- Ice Sheets and Sea-Level Rise (see [Meeting Report](#));
- Mitigation, Adaptation and Sustainable Development; and
- Article 2 of the UNFCCC (see [UNFCCC](#) for definition).

Key AR5 **cross-cutting methodologies** are:

Consistent Evaluation of Uncertainties and Risks (see [Guidance Note](#));

- Costing and Economic Analysis (see [Meeting Report](#));
- Regional Aspects;
- Treatment of Scenarios (see [Meeting Report](#));
- Greenhouse Gas Metrics (see [Meeting Report](#)).

**The AR5 Synthesis Report** - The Synthesis Report synthesizes and integrates material contained within the Working Group reports and Special Reports and is written in a non-technical style suitable for policymakers and addresses a broad range of policy-relevant but policy-neutral questions.

The AR5 Synthesis Report (SYR) was prepared by a [Core Writing Team](#) (CWT) led by the IPCC Chair. The team consisted of authors of the three Working Group report-writing teams and members of the Executive Committee.

## Synthesis Report

The Synthesis Report comprises an SPM and a longer report. The draft of the longer report and its SPM undergo a simultaneous government and expert review. The longer report and the SPM are then revised by the authors with the help of Review Editors. The revised drafts of the longer report and SPM are submitted to governments and observer organizations and are both tabled for discussion in a Session of the Panel. This took place as follows:

|                                                 |                                            |
|-------------------------------------------------|--------------------------------------------|
| SYR government and expert review                | 21 April - 13 June 2014                    |
| SYR government review of final draft            | 25 August - 10 October 2014                |
| Approval and adoption of the SPM and AR5<br>SYR | 27-31 October 2014, Copenhagen,<br>Denmark |

The Synthesis Report distils and integrates the findings of the three working group contributions to the IPCC Fifth Assessment Report -- the most comprehensive assessment of climate change yet undertaken, produced by hundreds of scientists -- as well as the two Special Reports produced during this cycle.

#### **Important resources on line:**

- [Summary for Policymakers](#)
- [Synthesis Report](#) - Longer Report
- [Headline Statements](#)
- [Factsheet](#)
- [Quick link](#) to report PDFs

#### **2014 Climate change tops world agenda**

IPCC Assessment: grim picture  
Large-scale marches worldwide September 2014  
UN Summit UNHQ September 2014  
WAFUNIF UNHQ Conference October 2014  
Lima, Peru Negotiation Conference December 2014

Climate change and global warming, both are terms you've likely been hearing more and more over the past few years, but what exactly are they?

"Global warming refers to the fact that the average temperature of the Earth is warming...is increasing, and that has been happening for decades now. Climate change is a term that encompasses all that comes along with what happens when the average temperature of the planet is warming" says Alyson Kenward, Senior Scientist and Research Director at Climate Central.

So, how does all of this work? For that, let's take you back to some elementary school science. As we all know, energy from the sun helps to warm the Earth. Some of that energy escapes back out to space but some of that is held in by the Earth's atmosphere. The latter is known as the Greenhouse Effect, and without it, it would be way too cold for life here on Earth. But there can be too much of a good thing.

Greenhouse gases, like CO<sub>2</sub>, are being added to the atmosphere by carbon emissions from burning fossil fuels like coal and gas. With more greenhouse gases in place, more heat is held in the atmosphere, and as a result, the Earth's average temperature has been climbing in recent years. Now, history tells us that there are natural variations in climate, but more and more, scientists believe that some of the changes in climate we've seen recently, have been influenced by us.

"Since the beginning of the Industrial Age, humans have been adding more of those types of Greenhouse gases into the atmosphere because of their burning of fossil fuels and other activities...deforestation, certain types of farming. There's a lot of ways we're adding Greenhouse gases to the atmosphere" according to Kenward.

According to the Intergovernmental Panel on Climate Change, or IPCC, the Earth's average surface temperature has increased by over one and a half degrees in the last century. This may seem like a small change, but with more and more warnings coming from the IPCC every day, it's a problem that's hard to ignore.

Kenward says "Not only are temperatures getting warmer but that means precipitation patterns are also changing. Many parts of West Virginia have seen an increase in precipitation and rainfall over the past several decades."

Whether you believe climate change is happening because of us or not, there will be impacts here in the Mountain State.

"West Virginia and across the Northeast overall the amount of heavy rainfall, the really extreme downpours have been increasing over time. Those heavy downpours as you would know in West Virginia can lead to really severe flooding" according to Kenward.

In Part 2 of this series, we'll take a look at more of the local changes we've already seen and what may be to come here in West Virginia.

Source: <http://www.wdtv.com/wdtv.cfm?func=view&section=5-News&item=Climate-Change--WV-Part-1---What-Is-Climate-Change-19579>

### **The divest movement**

Universities and various groups to remove their investments from companies which contribute to increase in CO2 emissions

### **The UN World Summit 2014: gateway to Paris Conference**

Called by UN Secretary General in September 2014

High level attendance: head of states; business executives and NGOs

Get countries to gear up for the 2015 Paris Conference

### **WAFUNIF International Conference on the Global Environment**

Key points:

Held at UNHQ in October 2014

Participants: members of the UN and international communities inc academia

Stakeholders: representatives of the transportation sector

Transportation sector:

US automobile

Japan automobile

Canada automobile

European Commission

Focus on solutions

Carbon reduction: the transportation sector has over the years been making effort to improve fuel efficiency, cut down emissions, use hybrid technologies, use electrical energy, use natural gas, use clean diesel  
Case study; ASUA, Japan: EcoDrive

### **WAFUNIF Conference Summary**

WAFUNIF felt the need and urgency to convene an international conference on the environment at United Nations headquarters in New York on October 17, 2014 in light of the pressing issues being debated, taking a positive approach evaluating solutions already being worked on with a caveat that these may need to be further developed. The participants were members of the United Nations community as well as of the academic and business communities. In September this year, there were large-scale marches in New York City and many other parts of the world showing clearly that people are worried as they try to cope with the vagaries of climate change. In September this year as well, UN Secretary General Ban Ki Moon called a Summit on the Environment at the highest level at UN headquarters. Meanwhile the SPCC had sounded the alarm that the world may be reaching the point of no return where whatever we do will not be able to prevent disasters from happening, for example many island countries disappearing. It is therefore imperative to take preventive measures ensuring that the situation will not get worse. The WAFUNIF Conference reviewed the key issues on the subject and looked at specific focus on solutions, specifically carbon reduction and ecodrive. WAFUNIF was able to get the support of the Permanent Mission of Romania to the UN to host the Conference under the sponsorship of ASUA, a Japanese company known for its pioneering work on environmental solutions. WAFUNIF Conference dealt with four major areas in a technocratic manner: (1) Global Environment: Factors of Sustainability (2) Global Environment: Energy and Transportation (3) EcoDrive as a Solution and (4) Environmental Policies. The most important aspects of a very complex subject were thus covered by leading experts, both practitioners and scholars.

The 5<sup>th</sup> assessment report of the SPCC shows that there is no doubt that warming of the climate system has kept on increasing with human beings being the dominant factor in the process. Based on data from 1986 to 2005, projections show that with a continuation of the current scenario including a cumulative emissions of CO<sub>2</sub>, mean world temperature will rise 2.6 to 4.8 degrees Centigrade and mean sea level rising 0.45 to 0.82m for the years 2081-2100. If appropriate measures are taken, the increases will only be 0.3 to 1.7 degrees Centigrade and 0.25 to 0.55m. Thus reduction of greenhouse gases is necessary. Under the international agreement, which was agreed in COP 18 on November 2012, even if rise of the world mean temperature in comparison to pre-industrial revolution was limited to within 2 degrees, the combination of the rise of temperature, the change in amount of rain fall, other changes in weather, the rise of mean sea level, acidification of the sea will all have a significant influence in many aspect of areas, such as disaster, food and health. For this reason, it is necessary to take action towards mitigation as well as countermeasure so as to avoid the impact of what is already being experienced and reduce the unavoidable impact of what may happen in the near future. There is a need for a substantial multi-century climate change commitment to deal with the negative effects of CO<sub>2</sub> emissions of the past, the present, and the future.

At the high level climate summit held at the United Nations in September, statements were made by head of states and ministers with a clear understanding that countries are responsible for finding solutions to the growing problems of climate change and that it is important for countries to come to an agreement under the new international framework set for Paris for 2015, and the need to focus on method to reduce the greenhouse effect gas, and global warming; also considered were issues of finance, energy, forest, farming, industrial transportation and urban development bringing together entities such as the private and public sectors and civil society organizations joining together to formulate a policy towards global warming called "Multi stake holder action announcement". The WAFUNIF Conference dealt with the issues head on engaging major stakeholders from the transportation sector to intensify what they do to make a difference. There is no doubt that policy is an important consideration but the transportation sector has itself been in search of solutions, ranging from improvement of fuel efficiency to reduction of carbon emission; we have cars ranging from hybrid to electrical and natural gas hydrogen fuel cell; we have trucks that run on clean diesel and buses on natural gas. The Conference took a close look at the pioneering work done by ASUA on EcoDrive as a solution which brings significant improvement with a cost-benefit ratio showing that it warrants attention and adoption. EcoDrive is a mindset as well as a skill set. EcoDrive is a method of retraining of motorist so as to help drivers from all countries and cultures improve their behaviors making the driving experience more pleasurable while saving energy, minimizing pollutants, and reducing the number of traffic accidents. EcoDrive is enlightened global driving for the 21<sup>st</sup> century. EcoDrive is more than a simple process that reduces automotive operating costs, gas consumption, and pollution. It is more than an easy technique that helps improve the driving experience by making it more comfortable for the driver and safer for all. In its broadest definition, Ecodrives is a set of tool that drivers can use to improve the way they interact with one another in situations which are both in-and-out of a vehicle. The method reminds us that being considerate is a valuable human quality that we should nurture while teaching mindfulness, a key skill for anyone who drives an automobile. The Ecodrives technique reduces mental tension and fatigue thus encouraging peace of mind. It helps the practitioner to become fully aware and fully engaged in the present moment. More importantly, the skills practiced through Ecodrives reverberate in other areas of our daily lives. The calming concentration technique that is primarily practiced at the wheel spills into our relationships in the world around us. Ecodrives's skill makes us better at handling the unexpected twists and turns on the road and in our lives. The WAFUNIF Conference shows that much is being done by the transportation sector which remains committed to doing even more.

### **Newsworthy development**

In December 2014, Toyota announced that it was moving away from fossil fuel powered car to fuel cell technology.

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### **Peru climate talks to pave way for Paris treaty**

The annual UN climate conference gets underway in Lima, Peru on December 1. It is more important than ever. Negotiators will hammer out the nitty gritty of a new World Climate Agreement to reduce CO2 emissions.



After five years of frustration following the failure of the Copenhagen climate summit in 2009, 2014 may well go down in history as the year when climate change made a comeback on the international agenda.

Although there is still one year to go until the key Paris meeting scheduled to deliver a new World Climate Agreement to replace the Kyoto Protocol, 2014 has seen several milestones on the path to a low-carbon future.

In September, the UN Secretary General Ban Ki-moon gave the issue top priority by holding his own special climate summit in New York. It was accompanied by marches in the US and other parts of the world, organized by a growing grassroots movement to combat climate change.

Meanwhile, the world's biggest emitters, China and the US, finally signaled their intention to commit to action on climate change.

## No time for delay

Nor has the latest report by the Intergovernmental Panel on Climate Change, the IPCC left any doubt about the need for urgent action, says Professor Stefan Rahmstorf of Germany's Potsdam Institute for Climate Impact Research.



Civil society is concerned about climate change

"We see that global temperatures have risen by almost one degree centigrade in the last 100 years. We see that global sea level has risen by nearly 20 centimeters (eight inches) in the last 100 years. We see that the mountain glaciers and the Arctic ice cover is in retreat, the continental ice sheets in Greenland and Antarctica are shrinking, losing mass, contributing to sea level rise."

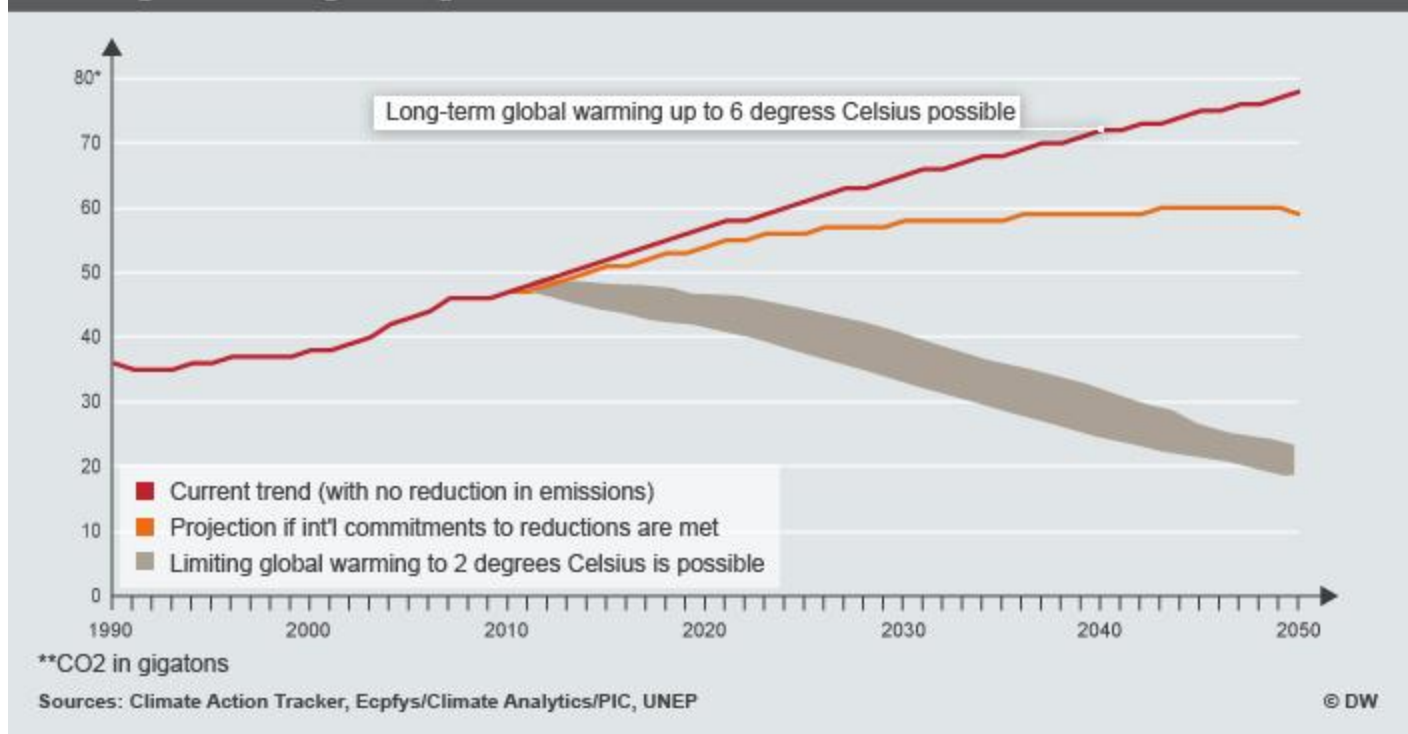
Rahmstorf also cites the number of record-breaking hot months, which have increased five fold on what would happen by chance in a stationary climate.

Based on the scientific evidence available, the international community agrees that a temperature rise of two degrees is the maximum possible without exposing the world to potentially devastating climate change. That means limiting greenhouse gas emissions that are warming the planet. With those emissions still on the rise, that goal is nowhere in sight, says Rahmstorf - and climate change is already having an impact at just under one degree of warming.

## Paving the way for Paris

Experts see the world on track for a temperature rise of at least four degrees, unless emissions are reduced substantially in the very near future. That would take us out of the range we are familiar with throughout human history and into uncharted and very dangerous waters, says Rahmstorf. The latest figures indicate that to stay within the two-degree limit, not only would emissions have to peak within the next ten years, but the world would have to become virtually carbon-neutral in the second half of this century.

## Missing the two-degree target?



### Heading for uncharted waters

That is why the Lima Climate Change Conference in December is important as part of an ongoing process, says UN climate chief Christiana Figueres. Negotiators assembling in Lima will have to make progress on drafting the universal climate agreement, which is scheduled to be agreed in Paris in December 2015 and to come into effect in 2020.

Regarding Paris, countries have until March 2015 to put their planned contributions on the table. The EU made a start by announcing its targets last month, while the US and China followed up with encouraging signals. Most countries are currently doing their homework and figuring out what they can contribute, Figueres says.

### A price on CO2

Ottmar Edenhofer co-chairs the IPCC group concerned with tackling climate change and is also a chief economist at the Potsdam Climate Institute. He says the world has only around 20 to 30 years left to solve the emissions problem. He stresses it is not a question of technology.

Alternative energy technologies are there. Yet fossil fuels have been enjoying a renaissance, the expert says, and the key is to put a price on carbon, making it too expensive to pump CO2 into the atmosphere.

Since the world only has a limited carbon budget, that would mean allowing just a further thousand gigatons of CO<sub>2</sub> into the atmosphere to keep temperature rise below the two-degree threshold and avoid the risk of what Edenhofer describes as "very severe climate change impacts."



Low-lying island states like Kiribati are under threat

UN climate chief Figueres agrees that putting a price on CO<sub>2</sub> pollutants is a very important component of the shift towards a low carbon economy.

"What we have done over the past 150 years is assumed there is no cost to the irresponsible use of the environment, and we have proceeded as though the environment were constantly renewable, where it is not," Figueres told DW.

### **Hammering out the details**

Negotiators in Lima have their work cut out for them. Countries with large fossil fuel reserves are reluctant to agree to emissions reductions that would destroy their source of revenue. But Edenhofer is optimistic that all countries will realize that climate change will pay off in the end.

"We have to assume that people will see the sense in it. They will realize that the long-term consequences of business as usual will be irreversible climate change, with all the problems that brings."

The economist says protecting the climate would also bring the kind of short-term benefits politicians are looking for. He cites the change in China's policies as an example:

"The reason the Chinese government is thinking very seriously about reducing emissions is because it would also be a step towards improving their air quality."

### **Funding boost**

After years of stagnation and frustration, there are signs that progress is being made. At a key meeting in Berlin this month, countries pledged a total of almost 10 billion dollars (eight billion euros) to the Green Climate Fund, which was set up to help poorer countries adapt to

climate change. This could motivate developing countries and emerging economies to sign up to a new world climate agreement. So far, many of them have been reluctant to limit their own emissions, as the wealthy industrialized states are the ones who have caused the problem by emissions in the past.



German development and environment ministers welcomed new funding pledges in Berlin. Although both the money and the emissions cuts currently on the table are still insufficient, German scientist Rahmstorf compares the likelihood of a breakthrough to the fall of the Berlin Wall 25 years ago.

"If you had asked people just a few months before that how likely it was that the wall would come down, nobody would have said it's going to happen," says the Potsdam expert and IPCC author. He says these kinds of processes in society are hard to predict - and the signs are encouraging.

He cites the "huge success story" of renewable energies and the considerable emissions reductions by EU countries since 1990. This did not hamper economic growth, says Rahmstorf:

"It shows that you can decouple emissions from economic growth and welfare."

This year, for the first time, a pre-conference meeting was held in Peru to involve non-governmental groups in the climate process. The transition to a low-carbon society requires action across the board.

But it is the governments of the world who have to enter into binding agreements. That means plenty of hard work ahead for the negotiators in Peru over the next two weeks.

## DW RECOMMENDS

### UN Emissions Gap report: World falling short on climate

The world still isn't even close to preventing what scientists consider a dangerous level of man-made emissions, a new United Nations report says. Scientists predict that 2014 will rank among the warmest years on record. (19.11.2014)

### Climate fund hopes to raise billions at Berlin meeting

Delegates from some 20 countries have gathered in Berlin to pledge money to the Green Climate Fund. Organizers hope to raise billions to help developing countries cope with the effects of climate change. (20.11.2014)

### China-US pledges spark hope on climate issues

A joint announcement by the USA and China on emissions reductions has met with widespread approval. While the pledges are still considered insufficient, they signal growing acceptance of the need for climate action. (12.11.2014)

### Kell: 'Climate change is bad for business'

One thousand companies as well as investment powerhouses such as BlackRock and BT Pension and the Rockefeller and Rothschild funds are pushing for a global carbon deal. UN Global Compact founder Georg Kell tells DW why. (11.11.2014)

Source: <http://www.dw.de/peru-climate-talks-to-pave-way-for-paris-treaty/a-18083496>

### **Paris Framework Conference 2015**

**Purpose:** continue negotiation among countries to commit to specific targets for CO2 reductions

**Expectations:** better than those of the 2009 Conference

**Realism:** targets without commitments

**Intervening factors**

Rift between the scientific assessments and political decision making

Rift developed-developing countries, with the latter thinking that the former is pushing them to do more environmental protection which could hamper their economic growth

**Action needed**

Developed countries: reduce activities that contribute to climate change (CO2 emissions); diversification of energy sources

Developing countries: reduce activities that contribute to climate change (CO2 emissions, deforestation, diversification of energy sources)

Global Fund for developing countries

Set up to assist the developing countries in their efforts

France contributed \$1 billion followed by Germany also \$1 billion; US pledges \$3 billion, Japan over \$1 billion, other countries following

Given the dire assessment made by the scientific community (via IPCC) and empiricism such as the vagaries of climate change, it is expected that countries will be willing to work together at the Paris Conference 2015 on finding and implementing solutions

Private sector companies are also making serious efforts at becoming 'green'

'Green' seen as a new developing business opportunity