

OUR UNDER
COMMON CLIMATE
FUTURE CHANGE

International Scientific Conference - UNESCO, UPMC and ESA - 7-10 July 2015 - Paris

PROGRESS REPORT

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Ségolène Royal, French Minister of Ecology, Sustainable Development and Energy
Michel Jarraud, Secretary-General, World Meteorological Organization and representative of Ban Ki-Moon, Secretary-General of the United Nations
Flavia Schlegel, Assistant Director-General for Natural Sciences, UNESCO



**OUR UNDER
COMMON CLIMATE
FUTURE CHANGE**



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MAJOR MOBILIZATION OF SCIENTISTS PRIOR TO COP21



SCIENCE OFFERS ROBUST FOUNDATIONS FOR AMBITIOUS OUTCOMES AT COP21 AND BEYOND

Abstracts from the outcome statement - 10 July 2015

The main objective of COP21 is to produce a cooperation framework among governments for a steady increase of individual and collective ambitions for addressing the challenge of climate change. The new climate governance regime is intended to strengthen confidence, support implementation, maximize benefits of international cooperation, and cement awareness that a new development model (low to zero carbon, resilient) is emerging. For science, the opportunity is progressively broadening from assessing risks and options to also understanding and helping enable transition pathways to sustainable, resilient economies and societies. [...]

Climate change is a defining challenge of the 21st century. Its causes are deeply embedded in the ways we produce and use energy, grow food, manage landscapes and consume more than we need. Its effects have the potential to impact every region of the Earth, every ecosystem, and many aspects of the human endeavour. Its solutions require a bold commitment to our common future. [...]

To limit warming to 2°C, emissions must be zero or even negative by the end of the 21st century. [...]

2015 is a critical year for progress. The window for economically feasible solutions with a reasonable prospect of holding warming to 2°C or less is rapidly closing. [...]

Science is a foundation for smart decisions at COP21 and beyond. Solving the challenge of climate change requires ambition, dedication, and leadership from governments, the private sector, and civil society, in addition to the scientific community. [...]

We in the scientific community are thoroughly committed to understanding all dimensions of the challenge, aligning the research agenda with options for solutions, informing the public, and supporting the policy process.

CFCC15 Scientific
Committee,
chaired by Chris Field

Chairs of the Organizing and
High-Level Committees:
Hervé Le Treut and Jean Jouzel

International organizers:
UNESCO, Future Earth, and
ICSU President Gordon McBean

An unabridged copy of the outcome statement may be viewed online at:
<http://www.commonfuture-paris2015.org/>



In July 2015, the international scientific conference “Our Common Future under Climate Change”, was held at three venues in Paris: UNESCO headquarters, *the Université Pierre et Marie Curie* (UPMC) and the European Space Agency (ESA). Bearing the official COP21 label and supported by the French government, this conference was organized under the auspices of the International Council for Science (ICSU), FutureEarth, UNESCO and several major French scientific institutions.

This 4-day conference brought together the largest forum of the scientific community prior to the 21st Conference of Parties to the United Nations Framework Convention on Climate change (COP 21), hosted by France in December 2015 (Paris Climate 2015). Building on the results of the 5th assessment report of the IPCC, the conference addressed key issues concerning climate change in the broader context of global change. It offered an opportunity to discuss potential solutions concerning both climate-change mitigation and adaptation. It also promoted side-events all over the world and stimulated dialogue sessions in partnership with some of the stakeholders involved.

WHY THIS CONFERENCE?

The main objective of COP21 that will take place in Paris in December 2015 is to produce a cooperation framework for a steady increase of individual and collective ambition of governments who will have presented their contributions early in 2015. The new climate governance regime is supposed to strengthen confidence, support implementation, maximize benefits of international cooperation, and bring all stakeholders to the realization that a new development model (low carbon, resilient) is actually emerging.

For science, the question has progressively shifted from consolidating the scientific basis for assessing risks and options for action, to defining the form that action has to take in order to engage in a necessary transition to low-carbon and adapted economies and societies. For stakeholders, the question has shifted from reasons for action to the form action has to take.

The scientific community, in partnership with a variety of stakeholders, plays a major role for shaping our future under climate change, by identifying potential sustainable futures and innovations at different spatial and time scales, by designing and assessing relevant and coherent solutions, policies and measures, and therefore increasing the credibility of the Paris agreement.

The conference was a major opportunity for scientists, stakeholders and the larger public, to take stock of existing knowledge, explore and identify innovative solutions, discuss them, and prepare for an ambitious post-2015 climate governance regime.



THE MAIN OBJECTIVES OF THE CONFERENCE

Provide state-of-the-art scientific knowledge on climate change, one year after the release of IPCC AR5: physical bases of climate change, impacts, adaptation and vulnerability, mitigation storylines and scenarios.

Special emphasis was placed on explaining, translating and disseminating the key results of IPCC AR5 and major subsequent developments. This Conference offered the opportunity to progress in our understanding of the multiple interactions between climate change, the geosphere, the biosphere and human societies, at a range of spatial and temporal scales. Special attention was paid to transdisciplinary research and emerging concepts.

Explore a wide range of pathways combining climate change mitigation and adaptation, and sustainable development.

Building on forecasts, storylines and scenarios, the Conference discussed uncertainties; identified areas of consensus, and mapped controversies while taking stock of the multiple connections with development and environmental challenges within a large diversity of local, national and regional contexts.

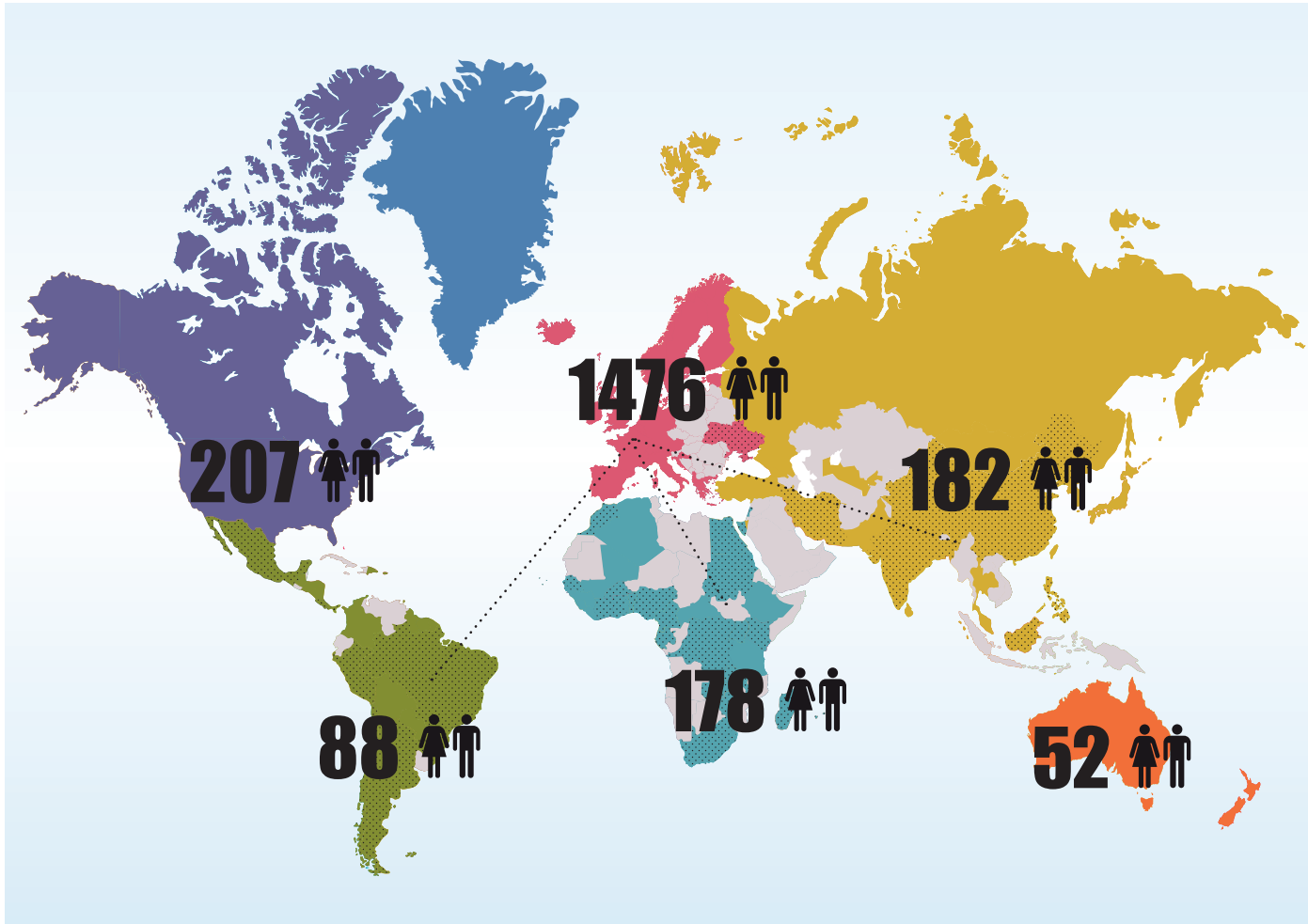
Assess the potential for evidence-based solutions to climate change challenges.

Scientific evidence was assessed to explore a large array of potential technological, social and institutional solutions to some of the challenges created by climate change. Potential solutions were discussed in connection with the broader challenges of sustainable development, environmental conservation, equity, and cultural diversity.

Contribute to a science-society dialogue.

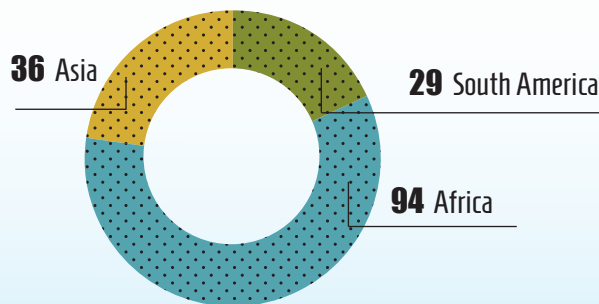
En route to COP21, the Conference offered all interested parties (negotiators, policy-makers, businesses, NGOs, public at large) an up-to-date panorama of the insights that science can provide on climate change and how to tackle it. With the post-2015 agenda in sight, the Conference also offered a venue for scientists, policy-makers, businesses and NGOs to debate the research agenda for the coming years (both via the conference itself and side events organized by stakeholders).

2,200 PARTICIPANTS 95 COUNTRIES 5 CONTINENTS



KEY FIGURES AND HIGHLIGHTS

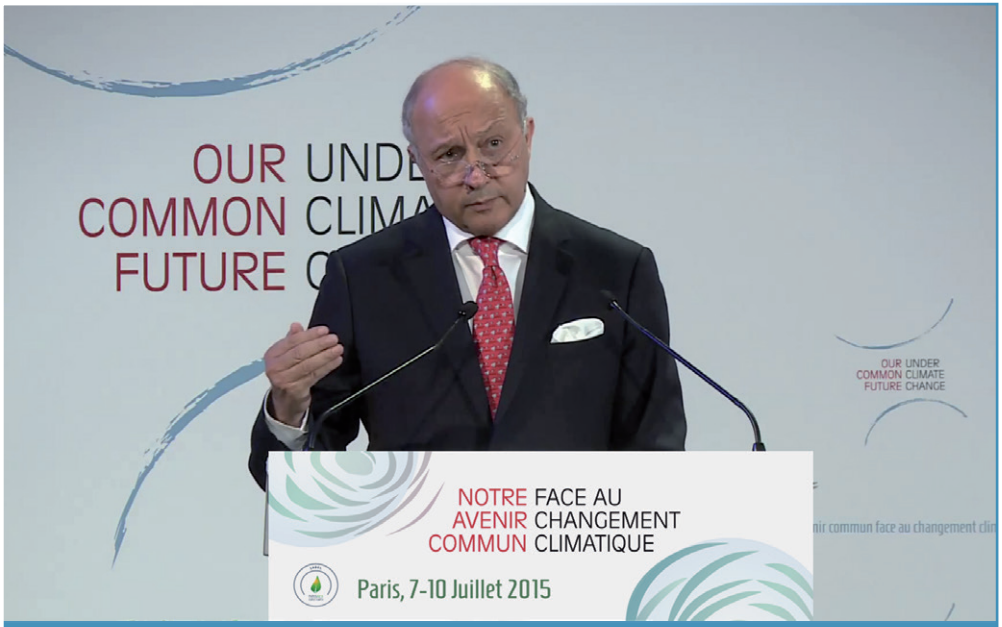
159 RESEARCHERS FROM SOUTHERN COUNTRIES SUPPORTED BY THE CONFERENCE*



* Countries of origin of researchers involved, shown as stippled areas on world map.

4 DAYS OF CONFERENCE AT THREE VENUES IN PARIS
UNESCO, UPMC AND ESA





Laurent Fabius, French Minister of Foreign Affairs and International Development, Closing Plenary Session, UNESCO, 10 July 2015

3 MINISTERS
1 MINISTER OF STATE
 MANY FRENCH AND
 FOREIGN POLITICAL
 DELEGATIONS AND
 DIPLOMATIC
 REPRESENTATIVES

143
 PARALLEL SESSIONS
20 LARGE
 PARALLEL SESSIONS
4 PLENARY SESSIONS

75
 SIDE-EVENTS

7
 DIALOGUE
 SESSIONS

22,000 TWEETS
 ON 22 MILLION SOCIAL
 MEDIA ACCOUNTS
5,000
 CONTRIBUTORS

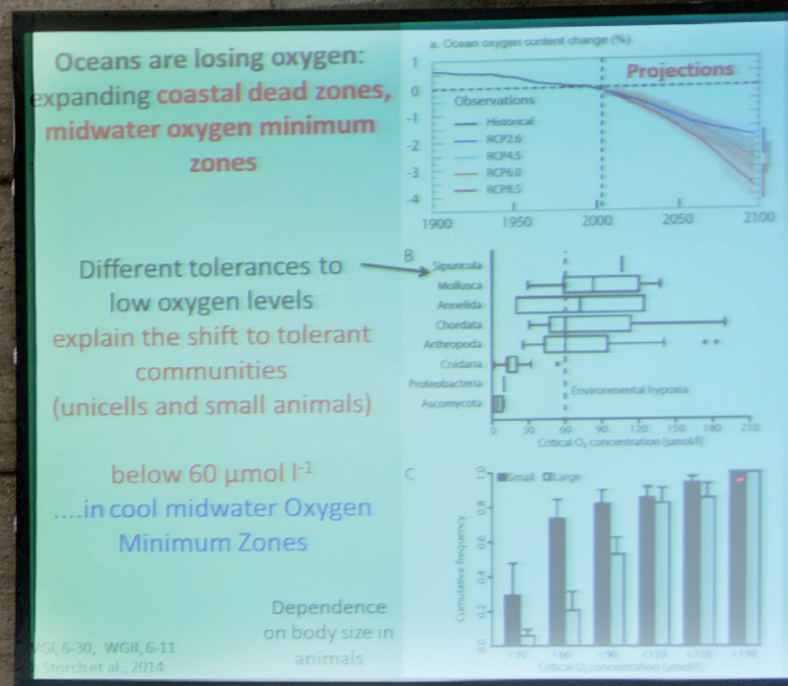
148
 JOURNALISTS
 INCLUDING **45%**
 FOREIGN
 CORRESPONDENTS



Previous page
Left:
 Poster session on 9 July 2015,
 Université Pierre et Marie Curie.
Right:
 A break between two sessions on 9 July
 2015, Université Pierre et Marie Curie.
Below
 Parallel session: Indigenous and Non-Indigenous
 Science in Collaboration for Our
 Common Future, 8 July 2015, UNESCO



FROM DIAGNOSIS TO SOLUTIONS: SCENARIOS AND OPTIONS FOR ACTION



Large Parallel Session, *Climate Change and Ocean Systems: Impacts and Feedbacks*, 7 July 2015, UNESCO



OUTCOMES OF THE SCIENTIFIC SESSIONS

CLIMATE SCIENCES

The main parallel sessions on global diagnosis addressed points that are crucial for future decisions:

- The magnitude of the climate risks we are facing is considerably affected by uncertainties related to “tipping points”, i.e. forest mortality, accelerated melting of the polar ice caps and glaciers, massive methane releases. **Focusing global monitoring on these hazards should be possible and would represent both a major stake for our societies and a high-priority research field for the years to come.** Since it is focused on rare events, this global monitoring should be closely linked with our new understanding of ancient climates and similar events that may have occurred in the past.

Even if the INDCs (Intended Nationally Determined Contributions) communicated before the Paris Climate Conference indicate genuine ambitions and efforts that should be taken into account, they nevertheless represent only a first step. Here again, the diagnostic and monitoring work that can be carried out by the scientific community will be essential to support post-COP21 actions.

The various parallel sessions complementing this overview broadly addressed the topic of adaptation, which has become a strong point in climate negotiations, leading to new, dedicated, and difficult research work that is rapidly progressing.

For some workers, this includes research into climate engineering and solar radiation management (reflection of solar radiation using aerosols, for instance). However, the session devoted to this topic revealed that such direct-action techniques were both dangerous and ineffective. Moreover, these approaches did not solve climate change issues, in contrast to carbon capture techniques. The latter will be needed in the next few decades, but their current development is much too slow.

The highlighted need for research to address adaptation covers several rather different fields. Indeed, it is becoming necessary to:

- Acquire a thorough understanding of natural variability, whether external to the climate system (volcanism) or internal (ocean/atmosphere couplings), since disturbances related to human activities are driven by this variability. We particularly need to find appropriate indicators which reflect the impact of greenhouse gases on this natural variability. **We also need to develop attribution methods allowing us to determine the anthropogenic component of current changes as well as the main feedback mechanisms (clouds and water vapour, surface changes, carbon cycle) which are liable to amplify these changes.**
- Give a high priority to global monitoring – with satellite data playing a key role, by providing half the required observations – while strengthening links between the various scientific disciplines and encouraging the development of active synergies between different types of data.
- Set up climate service systems that will allow the various sections of civil society to appropriate climate issues and use the notion of “climate risk” in decision-making processes at all levels. **This goes along with the need to give a major role to education, one of the main components in the fight against climate change, which should include adequate training to cope with the highly complex choices to be made in the future.**

NATURAL RESOURCES, BIODIVERSITY, FOOD AND AGRICULTURE

Plenary sessions showed the extent of the current climate-change footprint on life in the oceans and at the Earth's surface. Discussions took place on the consistency of the different biodiversity scenarios on the one hand and climate scenarios on the other hand.

The state of the art regarding interactions between climate change, continental areas and oceans was presented during two parallel sessions that highlighted the extent of couplings between the dynamics of ecosystems and environments, as well as between radiative atmospheric forcing and climate dynamics.

The coupled pathways of food and water security were identified in the framework of trend scenarios for greenhouse gas emissions and climate stabilization, by analysing adaptation strategies and their limitations in contrasted regional settings. Climate change was shown to have impacts on the modifications of land use caused by agriculture as well as on the utilization of biomass, thus highlighting the integrated character of issues relating to climate, biodiversity, water, bio-economics and food security.



Christina VOIGT, Large Parallel Session, 8 July 2015, UNESCO

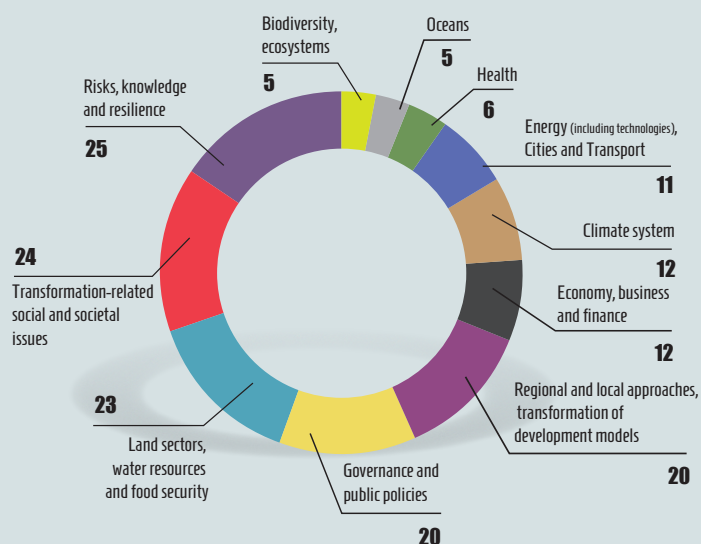
Lastly, the conference discussed the synergies and conflicts between adaptation strategies and landscape-scale mitigation approaches at the scale of landscapes. The potential of adaptation strategies for both ecosystem management and the preservation of biodiversity were also illustrated. In this field, the conference went far beyond the knowledge summarized in the last IPCC report. Indeed, it pointed out the extent of inter-sector interactions and supported a scientific way of thinking aimed at an integrated consideration of adaptation, mitigation and conservation, concerning both the security of human populations and the natural resources upon which they depend. Despite considerable methodological difficulties, the scientific communities involved have demonstrated their capacity to provide an integrated picture stressing the systemic risks of rapid warming for human societies. In the area of adaptation, the conference was a good opportunity to address the development of the knowledge and values of local stakeholders, focusing on the decentralization of decisions, on equity and on education.

Twenty-five parallel sessions – each designed as an interface between scientific communities coming from different disciplines, but all addressing similar issues – were concerned with risks and their management as well as forecasting, feedbacks, adaptation and resilience. These sessions also covered sectoral policies in the field of natural resources and environments as well as their management through human actions. The reports of these sessions do not suggest any solution that might be easily applied, even if several methodological approaches are in common (analysis of vulnerability and adaptive capacity, risk anticipation, etc.), which link climate variables, associated risks, climate feedback, policies and stakeholder responses. These interactions are described by referring to case studies that often involve biophysical modelling, and less often socio-economic studies.

Some original lines of approach are emerging, for instance, concerning the interactions between climate and agricultural markets, diet and metabolic diseases. Many examples of extreme events were presented, including non-linearities, thresholds and possible ruptures. Policies concerning deforestation, bioenergy, agriculture, fishing and water management were debated, based on detailed analysis of their potential consequences on local stakeholders, biodiversity and ecosystem services. The need for training and education was frequently emphasized, as well as the need to reinforce observations and research infrastructures in the Global South.

163 SCIENTIFIC SESSIONS (excluding Plenary Sessions)

Breakdown of issues according to number of sessions

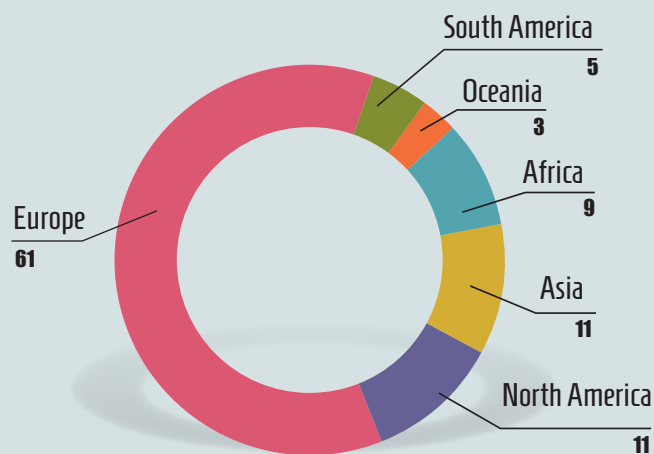


1,800 CONTRIBUTORS

(oral communications and posters)

FROM COUNTRIES ALL OVER THE WORLD

Coming from different geographic regions, expressed in percentages



EXPLORING THE SCOPE OF RESPONSES TO THE CHALLENGES OF CLIMATE CHANGE

The third day offered the opportunity for a joint exploration of solutions in terms of adaptation and mitigation. Strategies were discussed which combine these two aspects, notably regarding cities and agricultural ecosystems.

It was noted that actions were already implemented at a level which, while no longer trivial, nevertheless remains insufficient with regard to the +2°C objective. In 2014, in spite of economic growth, global greenhouse-gas emissions did not show any increase, whereas, previously, the stability of yearly emissions could only be explained by economic stagnation. This reveals the role played by cost-effective energy policies and the expansion of renewable energies. However, despite these efforts, when considering medium-range trends, other factors are involved, such as the fall in prices of fossil fuels, which are leading, all in all, to an increase in the carbon intensity of our economies.

This example of mitigation illustrates the fact that, although numerous solutions exist, they are not yet on the scale of the profound transformation of technical, economic and social systems that is required if we are to remain within the 2°C threshold. Similarly, in many cases, actions aimed at adaptation will only be adequate if they are designed as true transfor-

mations of economic systems and territories.

How can we change the scale and orient the economic and social stakeholders towards the achievement of such objectives? How can we unfold the potential for technological and social innovation? Indeed, it seems necessary to build institutions that put a price on carbon and stabilize long-term mitigation objectives, but such institutions are insufficient.

Additional propositions emerged during the conference, particularly in the plenary sessions:

- developing signals in terms of pricing and other forms of policies and public regulations;
- identifying and analyzing situations of blockage and path-dependency which prevent the expansion of innovations;
- analyzing and supporting the functioning of stakeholder networks conducive to innovation;
- innovative funding mechanisms, other than solely the “Green Fund”, for the transition to low-carbon economies.

REDUCING EMISSIONS IN THE ENERGY SECTOR

The conference enabled detailed discussions on the various options available for reducing emissions in the energy sector, as well as nationwide emission-reduction strategies and the public policy tools likely to induce such a transition.

On the first point, the conference provided a good opportunity to compile a state of the art covering the available





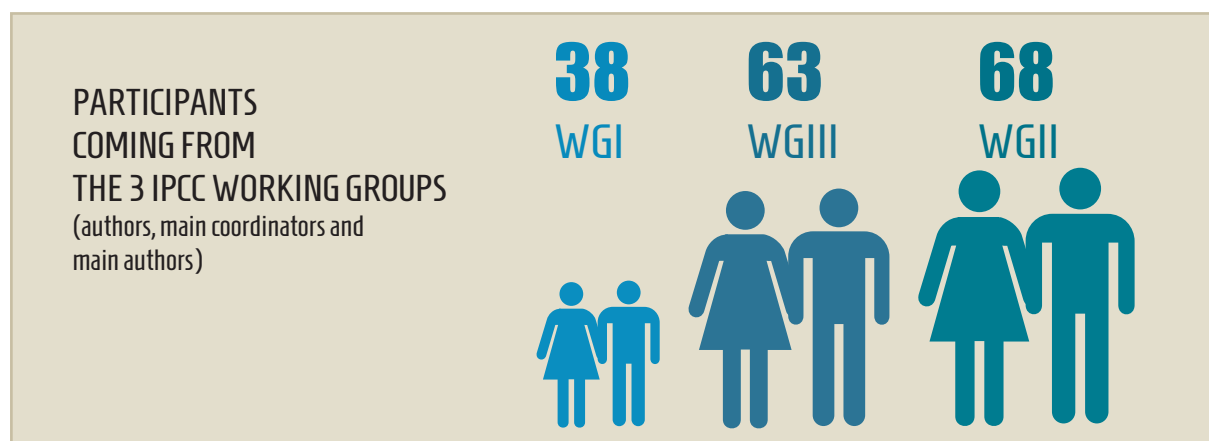
Poster Session, 9 July 2015, UNESCO

technologies and those still under development (carbon capture and sequestration, for instance), and the issues and constraints associated with their deployment. In particular, the debates focused on the issues and constraints connected with innovation and the dissemination of technologies, as well as on actions relating to energy demand, especially energy efficiency.

On the second point, the conference led to an assessment of the many foresight exercises concerning mitigation strategies undertaken on national and regional scales, particularly within the OECD and the main emerging countries. Emphasis was laid on the great diversity of national circumstances and the existence of other priority development issues, and therefore other mitigation strategies. In particular, linkages were pointed out between policies

related to mitigation and those associated with other public policy objectives, via the topic of co-benefits.

Regarding the third point, the conference reminded us that existing public policy tools were not adequate to induce the transition and that additional policies would be required, both nationally and globally. The carbon price (implicit or explicit) was often evoked as an important transversal public policy tool, given that its implementation forms part of a number of policies and measures liable to remove the obstacles to mitigation. Finally, given the importance of the investment risks associated with low-carbon projects and the limitations of current funding systems, the conference explored innovative measures aimed at increasing public and private financial flows towards these projects.



GOVERNANCE AND BUILDING OF COLLECTIVE ACTION FOR TRANSFORMATION

Even if awareness of the need to take action appears quite consensual and universal, the sum of current individual actions remains insufficient, as shown by the initial commitments of governments set out in their INDCs. These sessions explored potential solutions in terms of international coordination.

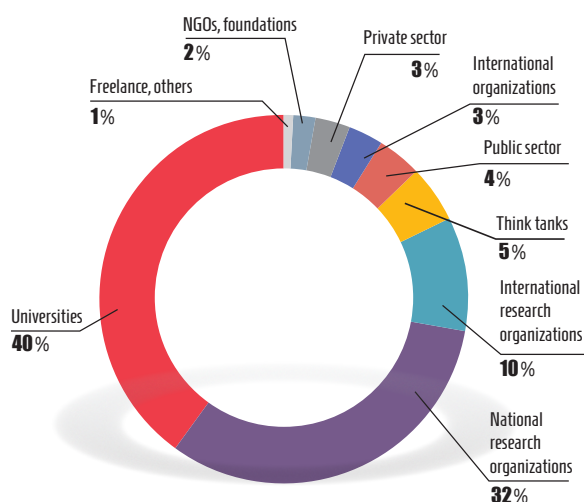
Setting a global price for carbon remains confronted with the political impossibility of establishing an initial distribution of emission quotas among different countries, which brings us back to the problem of shared efforts which led to the collapse of the Copenhagen negotiations.

A combination of approaches could be considered, but further research is needed to:

- develop markets for emission licences and carbon taxes on several scales, and organize these voluntary actions to harmonise the signal sent to economic stakeholders;
- identify the co-benefits connected with the development of climate investments to channel the tremendous funding efforts required towards climate-friendly investments;
- set up signals and instruments to help the financial sector recognize that investments in favour of adaptation and mitigation are less risky than those with a high dependence on fossil energy;
- organize interstate coordination enabling a progressive yet rapid increase of the scope of national commitments.

INSTITUTIONAL REPRESENTATIVES

in percentage of participants



To improve our understanding of the issues of responsibility and fairness, from the viewpoints of economic sciences as well as political philosophy, researchers were also invited to measure up the growing inequalities that would result from a “business as usual” scenario.

In addition, the sessions showed the importance of taking into account the great diversity of viewpoints concerning a problem that is universally recognized as calling for action: how can we develop a capacity for collective actions and strategies while acknowledging the fact that there is no single way of taking into account the varied manners in which climate issues are perceived by local or indigenous communities, cities, states and transnational stakeholders? The input of social sciences will be crucial to understand the levers and blocking-points of a global coordination generated by the stakeholders (“bottom up” approach), nowadays too slow given the urgency of the climate challenge.

More precisely, several sessions gave greater thought to governance and collective action. They explored the need for intergovernmental mechanisms that would acknowledge the actions of non-governmental stakeholders and guarantee some form of follow-up and accountability. They also investigated the improvement of the international coordination framework in terms of adaptation (stabilization of its principles, clarification of the international nature of adaptation issues, acknowledgement of the role played by private actors). Different institutional arrangements were suggested to improve relations between the different levels of governance, aimed at supporting the local and national implementation of innovative climate policies as well as extending their scope, progressively, but rapidly.

Some sessions presented innovative analysis of the links between health and climate change, based on a framework for interrogating all the scenarios. This approach revealed the co-benefits related to climate change mitigation in terms of health, thus providing us with another perspective in the overall assessment of risks and benefits of climate-friendly actions.

Other sessions highlighted the importance of improving our understanding of the social dimensions of transformation pathways in relation to technical aspects. This dimension is as important for lowering the carbon intensity of the economy as it is for pathways increasing society’s exposure to risks. These pathways are the major challenges facing adaptation strategies, which are too often designed based on society’s current structures (structure of the economy,

Our Common Future under Climate Change Notre avenir commun face au changement climatique



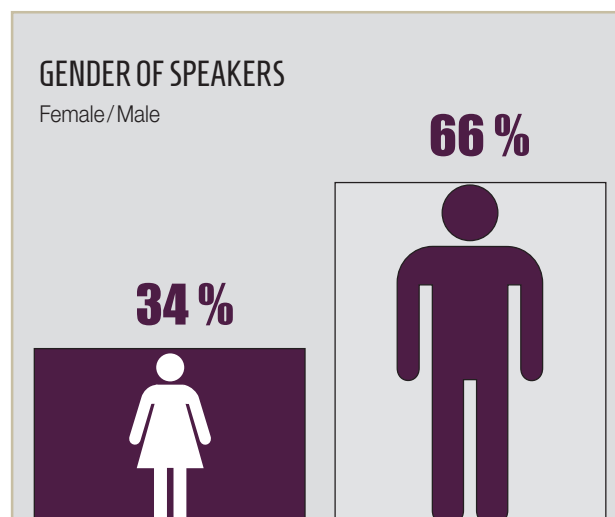
Responding to Climate Change Challenges, Plenary Session, 9 July 2015, UNESCO:
Diana Ürge-Vorsatz, Zhu Dajian, Ken Caldeira, Carlos Nobre, Frank Geels, Jean-François Soussana

urbanization models, infrastructures, etc.). However, these structures will continue to change in the coming decades and could aggravate risk exposure. In particular, such studies clearly reflect situations of socio-technical blockage and path-dependency which explain the difficulties encountered when changing pathways.

Furthermore, the conference analysed the conditions under which stakeholder networks could enable the emergence and large-scale deployment of innovations for mitigation and adaptation. These studies stressed the limitations of the most widespread innovation strategies, which are insufficiently targeted on stakeholders such as SMEs (small and medium enterprises) or which do not sufficiently involve users and novel usages upstream in the technological innovation process.

Several sessions addressed the importance of re-examining equity, justice and ethics in relation to climate change, beyond the issues of historical responsibility or fair sharing of burdens between countries. Specific issues were pointed out, such as acknowledgement of the differential impacts of climate change on certain human groups (women, indigenous peoples and communities) and their specific responses. These sessions also warned

against overly simplistic or all-encompassing approaches to the politicization of these issues. For instance, such a pitfall might prevent us from taking into account those women who are the most vulnerable. Moreover, several sessions suggest that, on the global scale, the continuing growth of inequalities within countries means that the notions of historical responsibility and capacities specific to each country should be complemented by new representations of equity (the principle of shared but differentiated responsibility, as stated in the Rio Declaration).



THE CONFERENCE IN LINK WITH CIVIL SOCIETY

Two major objectives : to strengthen links between scientists and stakeholders already engaged in problem-solving and foster the involvement of civil society prior to COP21.



The multiple themes of the side-events reflect the complexity and diversity of domains concerned by climate change. This word cloud shows the main themes. The size of the characters is proportional to the importance of each theme (number of events).

SIDE-EVENTS

Aimed at a wider audience, the side-events echoed the conference and built bridges between science and society.

Side-events were organized in Paris and worldwide by the private sector, NGOs, think tanks, artists, young scientists and student organizations.

To come under the COP21 label and be integrated into the conference programme, side-events had to satisfy the following three criteria:

- Relevance to the scope and objectives of the conference
- Openness to diversity of view
- Side Event to be held between 1st June 2015 and 15th July 2015 (excluding the slots dedicated to Plenary Sessions)



In all, 75 side-events were held in 20 different countries: 62 in Europe and 13 in Asia, Africa and South America, while 50 took place in France, most of them (45) in the Paris area.



COP simulations brought together young people from all over the world in Berlin, Paris, Zurich and Ambovombe (Madagascar). Designed and coordinated by members of the “CliMates” association, the “COP in my City” project was set up in collaboration with several partners and local teams.

These simulations were personally and collectively rewarding, raising awareness of the issues and complexity involved in climate negotiations; they also offered new opportunities for youth-led climate action.



IFREMER’s photo exhibition, displayed last summer in Paris, Brest and Cherbourg, will also be posted as a gallery on the COP21 site at the beginning of December. Twenty photos with fact sheets and comments illustrate the research carried out by IFREMER on the links between ocean and climate, showing the stakes involved in improving our understanding of the movements of oceanic water masses for forecasting climate change.


Further information on the side-events is available on the conference website:
<http://www.commonfuture-paris2015.org/Side-Events>

DIALOGUE SESSIONS

To boost communication between scientists and stakeholders committed to fighting climate change and feed future research agendas, dialogue sessions were organized throughout the conference. These enabled scientists, public deciders, students, media people, company members and NGO representatives to debate on specific topics. Seven sessions were held, under Chatham House Rules, on the Paris premises of the European Space Agency (ESA).

Water

in partnership with *Le Partenariat Français pour l'Eau*¹



Due to climate change, water quality, river discharges, ice melting and the frequency, intensity and duration of rains will all be affected by rises in temperature, by changes in extreme weather conditions, or variations in the distribution of precipitation on both local and global scales. How can we improve water management in the context of climate change?

The aim of this session was to define the criteria for a climate-compatible project in the water sector. During the session, a few sample projects supported by the water industry or NGOs were critically examined by scientists. While all stakeholders of the water sector are now faced with this issue, the methods remain disparate and could be improved as regards their consistency.

Education

in partnership with *CliiMates*

What types of education, training, instruction and awareness-raising can be used in relation to climate change according to age, place and living conditions?

Climate change increases the vulnerability of children. Their right to education is threatened by extreme climate events, an issue which is linked to the adaptation and synergies that can be found in strategies for the alleviation of poverty and the fight against climate change.

Indeed, the reduction of greenhouse-gas emissions could be regarded as a restriction of individual rights. This problem could be examined at school – where both rights and obligations are learnt – together with democratic values.

To allow children and students to acquire general notions on the functioning and evolution of the climate implies training school teachers and helping scientists to pass on their knowledge and communicate with the widest possible audience. But there are other ways, such as artistic and literary approaches. The world

around us can be approached very early at school as something which is “constructed” rather than “taken for granted”, with the help of poetry, climatic metaphors and vocabulary.

Finance

in partnership with *FutureEarth*

Climate change imposes major risks on the perspectives of development. Since our current economic system relies for the most part on fossil fuel resources, we need to rethink our funding systems while bearing sustainable development in mind. The objective of this session was to explore solutions in this context, as well as lines of research for the post-2015 agenda.

The creation of a sustainable world is unlikely if companies do not become progressive social institutions that are respectful of nature, future generations and the common good. Social innovation is crucial for this transformation. Participants in this session confirmed their commitment to take up the challenge of creating sustainable funding systems and supporting the research action programmes of our large communities of researchers and professionals.

Media

in partnership with *Sparknews*

The diversity of the disciplines represented at the conference illustrates the complexity of climate change and its varied aspects. However, the media are mainly viewing this event through the lens of their science or environment sections, which strongly undermines the description of what is at stake and its impact on citizens. Why are the economic and political aspects of climate so seldom analysed by journalists? The media session discussed this question and explored various ways of collaboration between scientists and the media.

Speaking clearly and precisely of material solutions would most certainly be an advantage when communicating with the general public in view of the bad news which nowadays guarantees a larger audience. An integrated approach to climate change, breaking down the walls between different perspectives, would require the production of cross-cutting syntheses by scientists. However, the question of the political impact and effect on the



media of certain scientific data will remain a key aspect of relationships between journalists and scientists, which the latter must bear in mind if we are to progress.

Health

in partnership with the "Institut de veille sanitaire"²



Human health is directly related to the key aspects of climate negotiations: mitigation, adaptation, funding and developmental capacities. However, it is seldom discussed as such. After examining climatic issues in the light of human health and well-being, scientists, deciders and NGO representatives made the following recommendations:

- The impact of climate change and related adaptation and mitigation strategies on health must be explicitly acknowledged and taken into account.
- Public health experts and epidemiologists should study the health consequences of climate policies.
- Researchers need to design health indicators to be integrated in the evaluation and monitoring of mitigation and adaptation plans.
- Public health professionals must offer a vision of the world that is respectful of health and climate, in connection with the other stakeholders and disciplines involved.
- The relevance of local adaptation measures and empowerment should be studied in the framework of defining strategies that are beneficial for adaptation, mitigation and health. Research and training should be reinforced in this respect.

Food security

in partnership with Action Contre la Faim³ (ACF)



The international community is extremely concerned by the impacts of climate change on food security. Farming is one of the sectors where carbon dioxide emissions are the highest. This session reviewed the main challenges posed by climate change in terms of food and nutrition security as well as appropriate innovation trajectories to face the threefold challenge of food security, mitigation and adaptation.

The session notably laid stress on recent work aimed at anticipating the impact of change, not only on agricultural production and the average yield of the main cereals, but

also on the entire food system, in order to achieve a better understanding of the various impacts on nutrition, and the differential impacts on the economic situation of different groups.

Many research studies are based on a perception in which solutions and innovations must be co-built by researchers and stakeholders, notably farmers. Research could help design new innovation networks, which are themselves a source of improved adaptation capacity. While it is a major challenge to design integrated adaptation and mitigation strategies, assessing the performance of such innovations with respect to the three pillars (food security, mitigation and adaptation) represents a real frontier of research, since the innovations are often specific to certain situations. An assessment of the nutritional performances of these systems when subjected to climatic constraints also needs to be developed, to account for multiple effects (diversification of production, but also post-harvest health risks and stock management), particularly in terms of food security.

Cities

in partnership with the "Institut pour la ville durable"⁴

The session established a link between the CFCC15 conference and the World Summit for Climate and Territories, held in Lyons on 1 and 2 July 2015. During this session, participants were reminded that the inhabitants of cities and urban communities represented two thirds of the world population and that urban populations were mainly located in areas where climate hazards are the greatest. Moreover, cities are motors for economic growth and they are often incubators for technological and social innovation.



The general declaration of the World Summit for Climate and Territories states that territorial action should be at the core of our response to climate challenge. For this response to be effective, we also require closer collaboration and improved relationships between national and local authorities, along the same lines as those between scientists and politicians.

1 - French Partnership for Water

2 - French public health surveillance institute

3 - Action against Hunger

4 - Institute for sustainable cities

THE MEDIA AND SOCIAL NETWORKS PERVADE THE CONFERENCE



INFORM, FEED AND OPEN UP THE DEBATE

Digital communication, focused on the use of social networks and the Internet, makes it possible to reach a wider public, while informing the audience in real time and limiting printing of paper documents.

Inform, convince, supply data and spark off contributions

- Remind non-scientific stakeholders that the scientific community has a major role to play faced with the challenges of climate change, i.e. notably to propose solutions.
- Produce popularized content in connection with the topics reviewed during the conference, available online, before and after the event.
- Enable virtual participation of stakeholders unable to attend the conference.
- Involve participants on social networks and improve their communication skills.

Massive involvement of stakeholders:

- Intense Twitter activity:
22 million accounts worldwide
- Strong contribution of participants to conference blog and session reports.
- The mobile application and online programme allowed the limiting of printed copies whilst offering updated information in real time.
- Nearly one third of participants downloaded and used the application.

Site Web

<http://www.commonfuture-paris2015.org/>

- 60,000 visitors since March 2015
- 400,000 pages visited
- 4 minutes = average duration of visit

Blog

<http://www.commonfuture-paris2015.org/Blog.htm>

- 98 articles and interviews between May and July
- 5% of website traffic – 15,000 pages viewed

Twitter

[#ClimatParis2015 #CFCC15](https://twitter.com/ClimatParis2015)

- 2,500 followers
- During the conference, 22,000 tweets sent using #CFCC15 by 5,000 contributors, reaching 22 million accounts, i.e. 1 tweet every 6 seconds

Youtube

<https://www.youtube.com/channel/UCQSkqUkg9mB-sipnmYaNArwg/>

- 34 videos from plenary and large parallel sessions
- Over 7,000 viewers
- Average viewing time: 8'10

Slideshare

<http://slideshare.net/CFCC15>

- 502 PowerPoint presentations
- 50,000 visits

Storify

<https://storify.com/ClimatParis2015>

- 4 daily rundowns by tweet

Flickr

<https://www.flickr.com/photos/132732276@N08/albums>

- 196 photos during the 4 days of the conference

Newsletter

- 11 newsletters sent to over 3,000 subscribers
- During the conference, daily newsletter including the day's highlights
- 50% opening rate

Programme

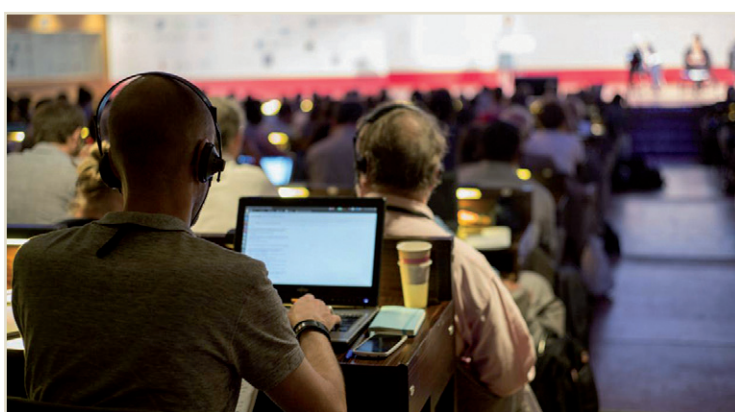
- Abridged paper programme
- Extensive interactive programme online

Mobile application

- 570 downloads, 18,000 used

Training

- Media training for conference spokespersons
- Media workshops for volunteers, provided by The Carbon Brief
- Training of social network reporters: 103 volunteer "social media" reporters among the conference participants (blog/twitter)





148 JOURNALISTS - 24 COUNTRIES - 5 CONTINENTS

INTERNATIONAL MEDIA COVERAGE

The conference was mentioned on the five continents in newspapers, on the web, on radio and television.

Print media/web

20 Minutes La Vie L'Express Le Figaro
 L'Humanité Le Monde Le Parisien Libération
 Le Point Le Soir El Diario El Pais La Vanguardia
 Huffington Post The Guardian La Liberté
 The Daily Nation The Nation The Standard
 Costa Rica Hoy Chronica Mexico El Liberal
 El Comercio Christian Science Monitor
 Science NY Times National Geographic
 Le Devoir The Times of India L'Orient Le Jour

Radio/web

France Inter RFI France Info RTBF
 EFE BBC Radio America
 Radio Habana ABC
 Radio Monte-Carlo Moyen-Orient

Television

France 2 France 24 TV5 Monde

Information website

AllAfrica SciDev

The conference covered by the specialized press

Nature National Geographic Science Sciences et Avenir
 Le Journal de l'environnement Médiaterre Terra Eco
 Reporterre

Major coverage by press agencies

Reuters Bloomberg AFP IPS
 Before, during and at the end of the conference

News releases widely available on the web, notably from the regional press

Groupe Centre France : L'Est Républicain Le Berry
 La République du Centre

The conference, a platform contributing to investigative and background articles

- Series of reports on climate change by Roger Harrabin, broadcasted by the BBC up until the beginning of COP21.
- Production of a documentary film about Saleemul Huq by Emmanuel Cappelin (ArtLine production), filmed during the conference.



The communication team, 10 July 2015, UNESCO



Press conference, 10 July 2015, UNESCO. From left to right: Jean Jouzel, Karen O'Brien, Christopher Field, Hervé Le Treut, Laurence Tubiana, Youba Sokona, Jean-François Soussana

Many articles on declarations published the day before or on the day of the event

- *Scientists point to narrowing gap for averting climate disaster* AFP
- *Les scientifiques chauffent la salle avant la COP21* Libération
- *Le climat met la recherche scientifique en ébullition* Les Echos
- *Paris déjà capitale du climat* La Vie
- *En París, dos mil científicos discuten soluciones frente al cambio climático* El País

Several articles on the conference outcomes

- *Paris : la conférence sur le climat s'achève sur une note d'optimisme* RFI
- *Climat : les scientifiques veulent passer du constat à l'action* Afrique Expansion
- *Climat : plaidoyer des scientifiques pour une action rapide et ambitieuse* 24 heures
- *Climate: in Paris, Scientists chart varied paths to a sustainable human relationship with earth's climate* nytimes.com

Focus on three major topics

Oceans and climate change

Jean-Pierre Gattuso was frequently consulted:
Les océans ont-ils un avenir ?
 Sciences et Avenir

The economic issues of climate change

Nobel Prize in economics
 Joseph Stiglitz gave several interviews including *Le défi climatique peut renforcer l'économie* Le Monde



Climate change and the development of Southern countries

Carbon capture is a mirage for poor nations SciDev.com
Mombasa Island stands to lose billions if rising sea level is not checked
 The Standard



MÉDIAS 21 JOURNALISM AND CLIMATE CHANGE

Fourteen East African journalists, including three Kenyans, two Tanzanians, one Rwandese and eight Madagascans, covered the conference in the framework of a training project on COP21 coverage in East Africa: Media 21, a project carried out by the French agency for media cooperation (CFI) in partnership with UNESCO. They interviewed the main conference speakers, who gave them the keys to understanding climate change issues as well as a specialist insight on the issues relevant to their countries.

The group has published around ten articles: *The Nation (Kenya) Experts say coal plants bad for health*, *The Standard (Kenya) Kenya among countries yet to commit to reducing greenhouse emissions*, *Le Blog d'une femme curieuse malgache (Madagascar) Pourquoi le changement climatique devrait intéresser Madagascar?* *Dewjiblog (Tanzanie) Research in Africa requires investment to achieve its goals*- Say Dr. Mutabazi from Tanzania, *The New Times (Rwanda) Indigenous knowledge key to climate change adaptation*, ...



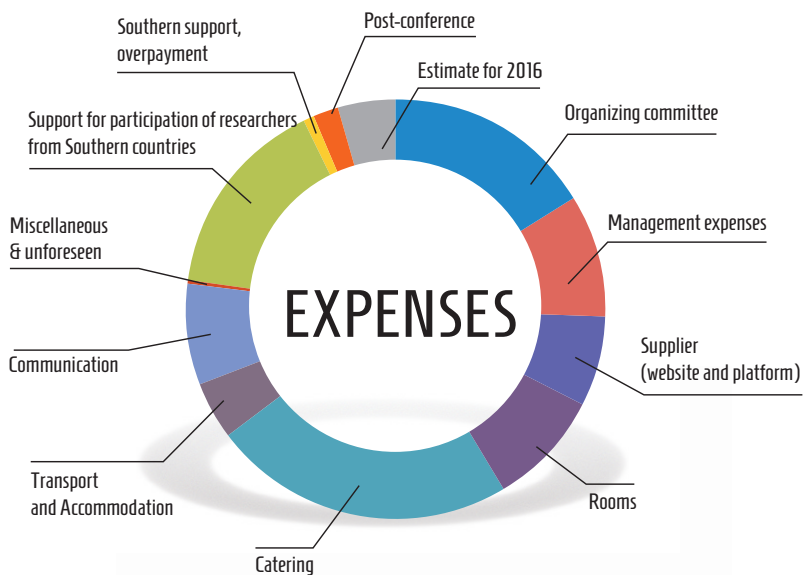
the guardian

The Guardian's Divestment Campaign, 8 July 2015, UNESCO

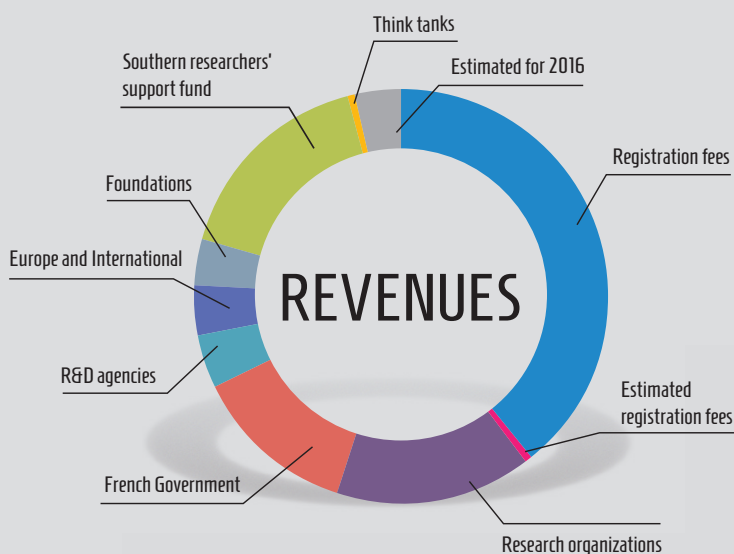
A PUBLICLY FUNDED CONFERENCE



Funded at a level of 40% by the registration fees of participants, the conference was supported by French, European, and international public organizations. A specific fund financed by development stakeholders enabled the setting up of a financial support system for researchers from Southern countries. The sound management of these funds has allowed us to reserve them for the promotion of the key messages of this conference up until COP21, as well as undertake capitalization throughout 2016.



Organizing committee	290,846 €
Management expenses	165,111 €
Supplier (website and platform)	125,561 €
Rooms	157,699 €
Catering	411,634 €
Transport and Accommodation	79,380 €
Communication	138,723 €
Miscellaneous & unforeseen expenses	3,119 €
Support for participation of researchers from Southern countries	277,132 €
Southern support, overpayment	15,534 €
Post-conference	33,200 €
Estimate for 2016	77,168 €
TOTAL	1,775,108 €



Registration fees	695,579 €
Estimated registration fees	13,362 €
Research organizations	271,000 €
French Government	225,000 €
R&D agencies	76,000 €
Europe and International	70,000 €
Foundations	59,661 €
Southern researchers' support fund	292,666 €
Think tanks	11,840 €
Estimate for 2016	60,000 €
TOTAL	1,775,108 €

Costs non including overheads⁵

IN KIND CONTRIBUTION

CNRS ⁶	82,927 €	Assistance in drawing up specifications for conference registration, management platform and associated website, followed by technical interfacing with the supplier throughout implementation of the "Technical secretariat - logistics and organization" service.
IDDR ⁷	70,000 €	Recruitment of international staff for the Scientific expertise conference, contribution to outreach and communication activities.
INRA ⁸	329,199 €	Secretary General. Communication Officer. Main manager of the conference. Management of revenues (registration fees and grants from French organizations, including drawing up of conventions; management of expenses: UNESCO, other suppliers (catering, Université Pierre et Marie Curie [UPMC]), reception staff, communication, technical services (website and platform), public calls for tender and corresponding contracts, hosting of invited speakers).
IRD ⁹	124,371 €	Secretariat – in charge of partnerships, researchers from Southern countries and overall budget monitoring.
Météo-France	115,000 €	Secretariat – in charge of outreach mission
Université Pierre et Marie Curie	141,820 €	Hosting of the conference secretariat (1 December 2014 – 31 December 2015). Provision of rooms and associated services. Hosting of the "social event".

5) Expenditure other than direct costs of the conference.
6) CNRS stands for "Centre National de Recherche Scientifique" = French National Center for Scientific Research.
7) IDDR stands for "Institut du Développement durable et des relations internationales" = Institute for Sustainable Development and International Relations.
8) INRA stands for "Institut National de la Recherche Agronomique" = French National Institute for Agricultural Research.
9) IRD stands for "Institut de Recherche pour le Développement" = French Institute for Research for Development.

THE COMMITTEES

The Scientific Committee

- Chris FIELD (*Carnegie Institution, USA*) - Chair
- Philippe CIAIS (*CEA, LSCE-IPSL, France*)
- Wolfgang CRAMER (*CNRS, IMBE, France*)
- Purnamita DASGUPTA (*IEG, India*)
- Ruth DEFRIES (*Colombia University, USA*)
- Navroz DUBASH (*CPR, India*)
- Ottmar EDENHOFER (*PIK, Germany*)
- Michael GRUBB (*University College London, UK*)
- Jean-Charles HOURCADE (*CNRS, France*)
- Sheila JASANOFF (*Harvard Kennedy School of Government, USA*)
- Vladimir KATTSOV (*MGO, Russia*)
- Jiang KEJUN (*Nanyang Technological University, China*)
- Hervé LE TREUT, France (*CNRS-UPMC, France*)
- Emilio LEBRE LA ROVERE (*National University, Brazil*)
- Valérie MASSON-DELMOTTE (*CEA, LSCE-IPSL, France*)
- Cheikh M'BOW (*ICRAF, Kenya*)
- Isabelle NIANG-DIOP (*IRD, Senegal*)
- Carlos NOBRE (*SEPED/MCTI, Brazil*)
- Karen O'BRIEN (*University of Oslo, Norway*)
- Joe JACQUELINE PEREIRA (*University Kebangsaan, Malaysia*)
- Shilong PIAO (*Peking University, China*)
- Hans OTTO PÖRTNER (*Alfred Wegener Institute, Germany*)
- Monika RHEIN (*University of Bremen, Germany*)
- Johan ROCKSTRÖM (*Stockholm University, Sweden*)
- Hans Joachim SCHELLNHUBER (*PIK, Germany*)
- Robert SCHOLLES (*University of Witwatersrand, South Africa*)
- Pete SMITH (*University of Aberdeen, UK*)
- Youba SOKONA (*The South Centre, Switzerland*)
- Jean-François SOUSSANA (*INRA, France*)
- Mark STAFFORD-SMITH (*Future Earth, Australia*)
- Thomas STOCKER (*University of Bern, Switzerland*)
- Laurence TUBIANA (*Special Representative of the French Minister of Foreign Affairs for the 2015 Paris Climate Conference (COP-21) and French Ambassador for Climate Negotiations*)
- Diana ÜRGE-VORSATZ (*Central European University, Hungary*)
- Penny URQUHART (*Independent analyst, South Africa*)
- Carolina VERA (*University of Buenos Aires, Argentina*)
- Alistair WOODWARD (*University of Auckland, New Zealand*)

Organizing Committee

Chair: Hervé LE TREUT (CNRS-UPMC/IPSL)

Members

- Wolfgang CRAMER (*CNRS/Future Earth*)
- Pascale DELECLUSE (*CNRS*)
- Robert KANDEI (*CNRS/Ecole polytechnique*)
- Frank LECOCQ (*AgroParis Tech/CIRED*)
- Lucilla SPINI (*ICSU*)
- Jean-François SOUSSANA (*INRA*)
- Marie-Ange THEOBALD (*UNESCO*)
- Stéphanie THIÉBAULT (*CNRS*)
- Sébastien TREYER (*IDDRI*)

Conference Secretariat

- Claire WEILL, Head (*INRA*)
- Géraldine CHOUTEAU (*Météo-France*)
- Aimie ELIOT (*INRA*)
- Aglaé JEZEQUEL (*INRA*)
- Gaëlle JOTHAM (*INRA*)
- Eve LE DEM (*INRA*)
- Ingrid LE RU (*IDDRI*)
- Benoît MARTIMORT-ASSO (*IRD*)
- Nadia MERSALI (*IDDRI*)
- Catherine MICHAUT (*CNRS-UVSQ/IPSL*)
- Aline NEHMÉ (*INRA*)
- Jeanne POUGET (*INRA*)
- Jeremy ZUBER (*INRA*)

Communication Advisory Board

- Richard BLACK (*Energy and Climate Intelligence Unit*)
- Hunter CUTTING (*Climate Nexus*)
- Owen GAFFNEY (*Future Earth/Stockholm Resilience Centre*)
- Michelle KOVACEVIC (*Communications consultant*)
- Kalee KREIDER (*United Nations Foundation*)
- Jonathan LYNN (*IPCC*)
- Kim NICHOLAS (*Lund University*)
- Tim NUTHALL (*European Climate Foundation*)
- Nick NUTTALL (*UNFCCC*)
- Roz PIDCOCK (*Carbon Brief*)
- Charlotte SMITH (*Communications INC*)
- Sue WILLIAMS (*UNESCO*)
- Denise YOUNG (*ICSU*)
- Jeremy ZUBER (*INRA*)



Team in charge of the organization of the conference, 10 July 2015, UNESCO

High-level Board

As climate change issues go beyond the interest of the scientific community, one of the aims of the Conference is to encourage dialogue between academics and non-academics, including the public, in order to jointly achieve the objectives of the Conference. The High-Level Board helps to promote the Conference both within and outside the scientific community, accredits Side Events, is responsible for fundraising, and provides strategic

- Jean-Pascal VAN YPERSELE (*Université Catholique de Louvain, GIEC*)
- Claude HENRY (*IDDRI, Université de Columbia*)
- Future Earth
- Intergovernmental Panel on Climate Change (*IPCC*)
- International Council for Science (*ICSU*)
- United Nations Educational, Scientific and Cultural Organization (*UNESCO*)
- World Meteorological Organization (*WMO*)
- European Commission - Climate action
- European Investment Bank (*EIB*)
- The World Bank
- Ministère de l'Agriculture, de l'Agroalimentaire et de la Forêt, France
- Ministère de l'Ecologie, du Développement durable et de l'Energie, France
- Ministère de l'Education nationale, de l'Enseignement supérieur et de la Recherche, France
- Ministère des Affaires étrangères et du Développement international, France
- Observatoire national sur les effets du réchauffement climatique, France
- Bureau de recherches géologiques et minières (*BRGM*), France
- Centre de coopération internationale en recherche agronomique pour le développement (*CIRAD*)
- Centre national d'études spatiales (*CNES*)
- Centre national de la recherche scientifique (*CNRS*)
- Commissariat à l'énergie atomique et aux énergies alternatives (*CEA*)
- Institut de recherche en sciences et technologies pour l'environnement et l'agriculture (*IRSTEA*)
- Institut de recherche pour le développement (*IRD*)
- Institut français de recherche pour l'exploitation de la mer (*IFREMER*)
- Institut français des sciences et technologies des transports, de l'aménagement et des réseaux (*IFSTTAR*)

advice to the Organizing Committee and the Scientific Committee on key interdisciplinary issues and solutions.

Chaired by Jean Jouzel (*CEA*), the High Level Board include representatives from major French and international institutions supporting the conference. It also includes representatives of the Organizing Committee (*Hervé Le Treut and Sébastien Treyer*) and of the Scientific Committee (*Jean-François Soussana*).

- Institut de recherche pour le développement (*IRD*)
- Institut français de recherche pour l'exploitation de la mer (*IFREMER*)
- Institut français des sciences et technologies des transports, de l'aménagement et des réseaux (*IFSTTAR*)
- Institut national de la recherche agronomique (*INRA*)
- Météo-France
- Muséum national d'Histoire naturelle (*MNHN*)
- Alliance nationale de coordination de la recherche pour l'énergie (*ANCRE*)
- Alliance nationale de recherche pour l'environnement (*AllEnvi*)
- Alliance nationale des sciences humaines et sociales (*Athéna*)
- Alliance nationale pour les sciences de la vie et de la santé (*Aviesan*)
- Agence de l'environnement et de la maîtrise de l'énergie (*ADEME*)
- Agence française du développement (*AFD*)
- Agence nationale de la recherche (*ANR*)
- Conférence des présidents d'université (*CPU*)
- Université Paris Saclay
- Université Pierre et Marie Curie (*UPMC*)
- Kic Climat
- Institute for Sustainable Development and International Relations (*IDDRI*)
- International institute for environment and development (*IIED*)
- Sustainable development solutions network (*SDSN*)
- The Energy and Resources Institute (*TERI*)
- Universcience
- Ville de Paris
- Région Ile-de-France



THE PARTNERS



Social Event, 9 July 2015, Université Pierre et Marie Curie
Thierry Mandon, *Minister of State for Higher Education and Research*

Acknowledgment: The organizers wish to express their warm thanks to the following persons who, along with the committee members and partner institutions, helped organize the conference.

CIRED : Catherine BOEMARE, Yaël SERFATY ; **CNRS** : Agathe EUZEN ; **Future Earth** : Wolfgang CRAMER, Sandrine PAILLARD ; **ICSU** : Denise YOUNG, Gisbert GLASER, Anne-Sophie STEVANCE ; **IDDRI** : Harriet BIGAS, Tiffany CHEVREUIL, Michel COLOMBIER, Lisa DACOSTA, Lucilia TANCHEREAU ; **INRA** : Sophia BANZOUR, Marie-Flore CANEVET, Chris CHAU, Frédéric FÉRON, Claude HERSANT, Glenn GORLIER, Karine GUÉRITAT, Rachel KOUANDA, Christophe MAÎTRE, Hugues MAUVIEUX, Bertrand NICOLAS, Marielle POUGNON, Juliette LOUIS-SERVAIS, Christophe ROCLE, Monique THOMAS, Caroline THOMAS, Arnaud VELDEMANN ; **IRD** : Dominique BOTREL, Danièle CAVANNA, Dominique CAVET, Annabelle MELLOTT, Elisabeth PEREIRA ; **UNESCO** : Yacine ABBAS, Nadia MEDJAHED ; **UPMC** : Françoise BEAUD, Claire LAVAL-JOCTEUR, Arnaud MAGNIN, Mina MELLOULCHI, Blandine MOUTIERS, Irini PALTANI-SARGOLOGOS, Nicolas PLAUDET, Valérie ROGE



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International partnerships



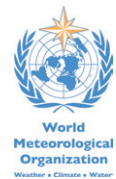
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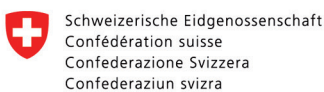
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