

# PARIS CLIMATE 2015

## THREE INNOVATIVE PROPOSALS FROM ITALY

The "2015 Paris Climate Conference. Three innovative proposals from Italy" will allow a high-level public discussion with the aim of providing an original contribution to preparations for the World Summit in December.

The three proposals have been prepared by a group of leading experts (scientific, economic, legal): Carlo Carraro, Alessandro Lanza, Antonio Navarra, Francesca Romanin Jacur, Riccardo Valentini, under the initiative of the Centre for a Sustainable Future, presided by Francesco Rutelli.

In a nutshell:

**1. Hastening the elimination of Fluorine compounds covered by the Montreal Protocol** (the international instrument that has managed to halt industrial activities harmful for the ozone layer). These compounds contribute about 18% of the "greenhouse effect" compared to carbon dioxide, which is the main compound responsible for global warming. In other words: whilst the entire international community is focusing on the difficult and complex measures to limit CO<sub>2</sub> emissions there is an existing path that could be negotiated with important results, expediting the same process in parallel, and increasing the impact of a legal instrument already in force.

**2. Tackling far more decisively the challenges linked to forests, agriculture, landscape and food.** A topic that is even more important in Italy, in the year of Expo, and in the light of the work of the FAO and United Nations Agencies committed to these topics and based in Rome. In particular, we are proposing the development of "green infrastructures", primarily in urban areas, that can sequester carbon and offset a significant part of greenhouse gas emissions. Actually halving food waste, with a potential saving of 250 million tonnes of CO<sub>2</sub> per annum in Europe alone (topic contained in the "Milan/Expo Charter"). Introducing "land-based accounting", to expand and correctly assess a reduction in emissions linked to proper management of nature.

**3. Making the Agreement as effective and timely as possible, on the legal front, in preparation for Paris.** For the efficacy of the negotiations and their credibility in the eyes of international public opinion (which always run the risk of being undermined by delays, ambiguous interpretations, lack of transparency, complicated last-minute emergency solutions) it is recommended that:

the long-term goal (2 degrees) and interim goals be indicated; the quantification, evaluation and aggregate measurement of the goals and their periodic and automatic review be assured; the accounting rules be agreed at multilateral level. The obligations and financial mechanisms need to be reinforced.

Compliance control should be made more 'facilitative'. Provision should be made for the possibility of expediting the provisional – even partial – application of the Agreement before 2020.

These three areas of proposals are illustrated in brief texts attached hereto, and will be the subject of three main reports (distributed in the Conference).

Two introductory contributions will compare the most "optimistic" case of a positive outcome of the negotiations, and the most "critical" one, illustrating the risks still existing today.

One section, which will include a contribution also by Fatih Birol, new-Director General of the International Energy Agency, will be dedicated to a discussion on the effects of energy prices on the emissions dynamic.

At the end of the proceedings, the conclusions will take account of the contents of the contributions and observations of those responsible in the Institutions. The Rome Document will then be defined. This will be directed to the Italian Government, European Union and then to the Nations party to the Conference, also via the French Government.

## Beyond carbon: an innovative proposal

**Antonio Navarra** - *President of the Euro-Mediterranean Center on Climate Change (CMCC)*

The discussion on human-driven global warming has focused, especially in political debate and public opinion, on carbon dioxide emissions and concentrations. Without a doubt this reflects the fact that carbon dioxide, arising from fossil fuel combustion, is the most important agent in determining climate change and its impact. The international negotiations and lengthy discussions that have impassioned and dominated the debate have focused in large part on issues relating to limiting fossil fuel consumption, increasing energy efficiency, replacing very high density carbon fuels with others producing fewer emissions per unit of energy and so forth. Right at the centre there is always carbon, its derivatives and its compounds that are at the base of the fossil fuels dominating a large part of our energy production and mobility.

In fact the atmosphere is largely transparent to the Sun's radiation, but our planet cannot store it endlessly and so it has to be emitted straightaway back into outer space achieving a balance between incoming and outgoing energy. The indicator of this balance is surface temperature. But the atmosphere is not a passive subject in this game of balances. In fact it is opaque to the radiation emitted by the Earth's surface and the opacity increases the surface's equilibrium temperature relative to the level that it would have if the atmosphere were completely transparent. This rise in temperature is the greenhouse effect. This greenhouse effect is a natural phenomenon which actually allows liquid water to exist on our planet's surface, an event impossible without the atmosphere's opacity. Water vapour and carbon dioxide are the elements most responsible for the opacity and so are the major greenhouse gases, but whilst water vapour is automatically regulated by the atmosphere itself and hence cannot increase disproportionately, carbon dioxide has very long natural times to evolve and change. Over the past two centuries humanity has hurtled headlong along this path pumping large quantities of carbon dioxide into the atmosphere and altering the atmosphere's opacity very significantly.

However, the story is quite complex because multiple human activities have caused alterations to the atmosphere's composition that not only involve carbon dioxide, but a much broader array of compounds that end up fatally accumulating in the atmosphere. A large part of these compounds, of an unnatural origin, which are generated by our chemical, industrial, agricultural and economic activities in general, have the potential to

create a change in the greenhouse effect equal to or greater than that of carbon dioxide.

We have not emitted only carbon dioxide into the atmosphere. The many compounds that we have released can also increase the atmosphere's opacity and hence change the balance, namely the temperature of the surface. Not all these compounds have the same capacity to alter the equilibrium: some are more powerful than others. It is possible to define an indicator that precisely measures the altering potential of each compound but, without being pedantic: if 100 is the total greenhouse effect, 64 units are due to carbon dioxide, 17 to methane, 6 to nitrogen oxide, about 12 to CFCs and HCFCs, the fluorine compounds covered by the Montreal Protocol.

These "Montreal Compounds" hence represent a not insignificant portion of the greenhouse effect, namely 18% of the total effect of carbon dioxide. So eliminating them totally would be equal to an 18% reduction in concentrations of carbon dioxide. This is an attractive goal if one thinks that these compounds are already included in the Montreal Protocol and hence are in the course of being replaced. However their concentration in the atmosphere between 2005 and 2011 remained virtually constant, because the decrease in CFCs was offset by an increase in HCFCs which replaced them in accordance with the Montreal agreements. A renewed and energetic action to speed up the replacement of CFCs with compounds that do not have the same potential greenhouse effect as HCFCs may be a path that, together with other measures on other greenhouse effect components, could lead to a drastic reduction in the global greenhouse effect. The replacement of CFCs-HCFCs and other similar compounds lies, at least in principle, in a more limited area than carbon dioxide reduction, which originates from combustion and is hence pervasive in our societies and economic systems.

There is still a long way to go to verify the feasibility and impact of this proposal. The economic aspects need to be investigated, the substitutes and their practicality in industrial processes and social acceptability verified. However it is clear that climate change is being tackled with a range of measures, ranging from mitigation to adaptation, and it is time we start to also consider mitigation of other greenhouse gases. Of these gases, the "Montreal Compounds" may play a crucial role.

## **Forests, food and landscape: their contribution to reducing greenhouse gases in the atmosphere**

Riccardo Valentini - *University of Tuscia and CMCC*

The containment of global warming within 2°C (with a 66% probability) envisages that by 2050 the emissions of CO<sub>2</sub> released since the start of the industrial revolution should stay below 3200 Pg of CO<sub>2</sub> (1Pg “Peta-gram” equals 1 billion tonnes). Today we have reached about 2000 Pg of CO<sub>2</sub> and so we have about 30 years in which to consume the remaining 1200 Pg CO<sub>2</sub>. Beyond this limit there should be zero emissions. This is a complicated and urgent challenge, since if we are not to deplete the bonus we have by 2050, the reduction in emissions must start immediately and reach at least 60% of emission cuts by 2050. There are multiple proposals on the table to tackle emission reduction, but none of these can solve the problem on their own. So a range of different measures needs to be instigated, which are more or less significant in certain cases but as a whole could lead to an overall reduction with the required positive impact.

The sectors involved in greenhouse gas emissions also include agriculture, or the necessary production of food for human society. At global level agriculture is responsible for about 10.2 Pg CO<sub>2</sub> equivalent emissions per annum into the atmosphere (about 30% of anthropogenic emissions), subdivided into about 5 Pg due to agricultural production and livestock, 4Pg due to the conversion of forests to agricultural land (deforestation), 1Pg emitted by degraded peatlands and about 0.2Pg from fires.

On the other hand forests absorb about 10.6 Pg CO<sub>2</sub> a year, due to photosynthesis, and so restore the balance substantially. Man’s action can therefore alter the terms of this balance, on the one hand by reducing tropical deforestation and increasing the expansion of forests and hence the carbon sink, on the other by cutting emissions of agricultural greenhouse emissions through the promotion of sustainable forms of food production.

In this context certain measures relating to agriculture and forests have been provided for, both in the Kyoto Protocol as well as in the future of emission reduction agreements, that is a second period of Kyoto commitment (supported by the EU and continuing the first period of commitment) and in the drafts of the Paris agreement (as from 2020). However, certain elements have not been considered and may represent innovative proposals both for Italy and for Europe and within the United Nations

context. It is intended therefore to present two proposals adding innovative measures for the reduction of greenhouse gas emission and a recommendation for the Italian position in the Paris negotiations.

### **Proposal 1 – The role of green infrastructures**

The intention is to promote at all levels of territorial aggregation, from rural and urban communities to regions and nations, the development of green infrastructures able to sequester carbon and partly offset greenhouse gas emissions, particularly in the urban context. Green infrastructures are natural areas and parks, shrubs and urban greenery, riverbank vegetation, trees, hedges and rural landscape vegetation, often located in peri-urban areas. This proposal is about the conservation and expansion of everything considered to be “trees outside forests” that are not included in the traditional forest count. In Italy alone a recent study shows how these green infrastructures constitute a reservoir of about 108 Tg of CO<sub>2</sub> (1 Tera-gram equals 1 million tonnes) with a capture capacity of about 3.6 Tg CO<sub>2</sub> a year. To this figure can be added the value of protected areas that currently represent in Italy about 2.8 million hectares. In terms of carbon sequestration, the protected areas absorb about 25 Tg CO<sub>2</sub> a year. A 20% increase in green infrastructures would bring a reduction of 0.7 Tg CO<sub>2</sub> of emissions per annum, whilst an increase of about 10% of protected areas would lead to a reduction of about 2.5 Tg of CO<sub>2</sub> per annum.

On a European scale (EU27) increasing the potential area of green infrastructures by 10%, including the protected areas, would give an absorption of about 104 Tg CO<sub>2</sub> per annum: a reduction of about 3% of total EU emissions.

### **Proposal 2 – Reduction of greenhouse gas emissions from food waste**

Globally about 1.3 billion tonnes of food are thrown away in dustbins. A quantity that could feed the 800 million malnourished people worldwide about four times over. In Italy and Europe food waste represents about 30-35% of total agricultural production. In the case of Italy every year between 10 and 20 million tonnes of food are thrown away in total. The environmental impact of such waste includes the greenhouse gases emitted during the food production (in fact, fertilisers and fossil energy are used to produce the wasted food) and those emitted by the food waste disposal process.

For Italy it can be estimated that every year the equivalent of about 31 Tg CO<sub>2</sub> is emitted for food waste following agricultural production, ignoring the percentage of organic substance that ends up in waste disposal sites and emits methane primarily. In Europe food waste is about 89 million tonnes per annum and estimated greenhouse

gas emissions amount to about 500 Tg CO<sub>2</sub> per annum. If the principles contained in the Milan Charter linked to Expo 2015 were to be adopted, namely a 50% reduction in food waste in 2020, about 15 Tg CO<sub>2</sub> and 250 Tg CO<sub>2</sub> would be saved every year for Italy and Europe respectively.

### **Proposal 3 – A new method of land-based accounting**

The current system of accounting for agro-forestry activities, according to the Kyoto protocol, is based on attributing emissions to specific activities according to soil use (activity based accounting). For example, forest emissions are accounted only in relation to man-managed forests, in other words only where a management plan exists; natural areas or green infrastructures, on the contrary, cannot be counted, even for their contribution in reducing emissions. Likewise natural pastures, humid zones, or natural landscape elements are not considered nor accounted. It would be useful, possibly in the next commitment period and definitely in the new Paris Agreement, to introduce the new concept of land-based accounting. This would have many advantages, since the atmosphere does not distinguish human economic activities: emissions reach the atmosphere regardless of the activity that has generated them, and this requires the accounting to be more realistic and rigorously valid. Thanks to this approach, natural areas could be used to offset the emissions of anthropogenic activities both inter-sectorially and intra-sectorially. For example an urban park could partly offset car emissions, or forestation activities performed by farmers could offset livestock emissions. The value of natural capital could be enhanced and quantified in order to expand or conserve it. Through the proposed land based accounting, monitoring and verification would also be far easier thanks to accurate geographical information systems in substitution to simple national statistics on economic activities.

## Regulatory proposals for a timely and effective agreement in Paris

Francesca Romanin Jacur - *Professor of International Environmental Law and Sustainable Development, University of Milan*

These considerations are based primarily on the text of the agreement to be negotiated in the next few months, adopted by the Working Group last February in Geneva, and intend to report and analyse the regulatory options deemed most suitable for reaching an effective long-term agreement broadly shared by the international community at the next meeting of the Conference of the Parties (CoP).

It is in this evolving context that the agreement negotiations and content should be seen dynamically, in appreciation of past experience and with a long-term view. The negotiations aim to achieve the following general goals:

1. The assumption of serious mitigation commitments, allowing the global temperature rise to be kept within 2 degrees centigrade;
2. Wide participation and the sharing of these commitments by all States;
3. The effective implementation of these commitments within scientifically determined timescales, to prevent disastrous damage from climate change.

### **The negotiations in the next few months in view of Paris**

It is essential that States notify the UNFCCC Secretariat of their own mitigation commitments as soon as possible. And it is worrying to report that as of 10 April 2015, only 6 States (Switzerland, Norway, Mexico, United States of America, Gabon and Russia) and the European Union have submitted their commitments, accompanied by information required to contextualise them and ensure that they are fully comprehensible.

As far as the text of the agreement is concerned, as of today this consists of 90 pages packed with square and curly brackets and a long series of options. This text needs a huge amount of work by the negotiators in order to produce a clean text in December that States can finalise and adopt at the CoP.

Keeping to the deadlines for notifying commitments and achieving broad consensus on a text well in advance of the December CoP are not merely necessary conditions for adoption of the agreement text. These elements are essential for strengthening the legitimacy of the negotiations and the end result in the eyes of States and public opinion and for consolidating the mutual trust between States and towards the entire decision-making process, which must be coherent and transparent (avoiding last minute emergency solutions, such as at the Copenhagen CoP in 2009). In this context, in

<sup>1</sup> Ad Hoc Working Group on the Durban Platform for Enhanced Action, *Negotiating Text*, doc. FCCC/ADP/2015/1 (25 February 2015).



addition to legitimacy and trust, the principles of transparency, fairness and justice are recurring themes that have become increasingly important in climate negotiations and it is important that they do not remain abstract principles but are converted into practice and implemented as concrete actions and measures.

### **The contents of the agreement**

Inspired by the experiences of the Kyoto Framework Convention and Protocol, the Paris agreement combines two different regulatory approaches: on the one hand, it recognises the flexibility required to take on mitigation commitments so that all States can adhere to them and, on the other hand, establishes at international level a number of essential points that are valid for everyone to achieve the climate goals.

The agreement must establish only those fundamental aspects that characterise the international community's actions on climate change in the future. So it is neither necessary nor desirable for the agreement to enter into too much detail and technical aspects of how given measures and commitments are to be implemented in concrete terms. The definition of these aspects may be contained in technical annexes to the agreement and/or decisions of the CoP.

### **The assumption of ambitious mitigation commitments**

More specifically, in order for States to take on serious mitigation commitments, the agreement should:

- indicate the long-term goal (2 degrees) and one or more interim goals, allowing the state of progress to be verified against the long-term goal;
- quantify on a scientific basis the mitigation actions required to achieve it.
- declare that the mitigation commitments defined at national level must be:
  - more ambitious than those assumed previously;
  - quantified, quantifiable or qualitatively measurable and be notified accompanied by adequate information to allow their evaluation and aggregate measurement;
  - reviewed periodically and automatically, using simplified procedures founded on scientific bases for introducing new greenhouse gases and/or new sectors (e.g. agriculture, territorial management, sea transport) or increasing the commitment relative to pre-existing obligations.
  - In order to ensure effective comparison between the actions adopted at national level and hence system coherence, the emissions accounting rules must be shared and adopted at multilateral level by the CoP on the basis of previous IPCC recommendations.

Given the urgency of climate change, the agreement may provide for its – even partial – provisional application before 2020, in order to accelerate action times.

### **Wide participation and sharing of commitments by all States**

The variety in the choice of type of actions that States may take should encourage States to participate in the agreement: every State takes on different commitments depending on national circumstances relevant for purposes of climate policies (economic, energy, vulnerability to climate change, etc.). In the current global scenario marked by multipolarity and major evolution, this type of voluntary national regulation is more realistic in representing the different characteristics of countries and is the ultimate expression of the principle of common but differentiated responsibilities (and related capacities), which has always been central to the judicial regime regarding climate. This overcomes the rigid distinction between 'Annex I' and 'Non-Annex I' country categories, with greater differentiation for each State based on indicators that reflect the actual circumstances of countries. This type of classification is already adopted, for example, by the World Bank (based on Gross Domestic Product) and the United Nations (based on Gross Domestic Product jointly with other social indicators).

In addition, assurance should be given to reinforcing financial obligations, which must be:

- ambitious and the level of financial contributions must be established based on criteria that reflect the principle of the common and differentiated responsibilities and related capacities of the various States;
- quantified, measurable and predictable, with periodic refinancing;
- monitored and verified. To this end the measurement and traceability system for UNFCCC public financial assistance needs to be strengthened, increasing cooperation with other economic-financial institutions;
- the agreement – as already envisaged by the Green Climate Fund – must provide for private sector involvement.

In addition, it is desirable to reinforce the mutual support between mitigation and adaptation measures, on the one hand, and technological and financial assistance on the other, with mechanisms of 'cross-cutting conditionality', whereby:

- certain mitigation and/or adaptation commitments depend on the prior receipt of financial assistance; and
- viceversa, the payment of financial resources may be suspended if the communication, monitoring, mitigation or adaptation obligations are breached.

### **The effective implementation of commitments within given timescales**

The agreement must contain a provision that provides for the creation of a compliance system and defines its essential features. The compliance system must be facilitative and non-penalising in order to strengthen the capacities of States and apply a certain pressure for them to be more compliant. It also collects and analyses the information to provide a better understanding of the level of compliance and the causes for a failure to meet obligations. The experience gained by the Kyoto Protocol's Compliance Committee is valuable in this regard. The compliance control system should have the following characteristics:

- Facilitative approach;
- Wide jurisdiction over all the commitments assumed by States;
- Inclusive: the system must be open to the participation and contribution of other inter-governmental institutions and non-state entities. For example, for the start up of the procedure or the possibility of obtaining information during the procedure;
- Strong scientific basis;
- Judicial nature: the decisions do not have to be legally binding.

### **Conclusions and recommendations**

The agreement must adopt a regulatory approach with elements of flexibility, such as the individual differentiation of States in relation to their mitigation, adaptation and financial obligations, which meets scientific and objective criteria that are as far as possible shared at multilateral level, such as those drawn up by the competent international organisations (e.g.: IPCC, World Bank, OECD, other regional development banks).

The agreement must also include clear rules that are uniformly applicable to all the party States: in the first place, general substantial rules, such as the 2 degrees centigrade goal and the forecast of interim and long-term time objectives, and secondly, procedural rules such as:

- the technical-scientific basis of the decisions to be achieved reinforcing involvement in the adoption of decisions by institutions, by other multilateral treaties (Convention on biological diversity, IMO, ICAO), by inter-governmental organisations (FAO, World Bank, OECD) and by non-state entities (non-governmental organisations, private sector, local communities);
- Emissions accounting rules decided at multilateral level;
- A compliance control system for all commitments that is cooperative, transparent, and has wide jurisdiction.

Finally, given the urgency of climate change, the agreement may provide for its – even partial – provisional application before 2020, in order to accelerate action times.