

## Keys to a New Deal on Climate Change

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### Abstract

This article puts the climate crisis into context and after considering its confluence with the energy constraints and the financial-economic crisis of 2008. It analyses different approaches for a more ambitious agreement on climate change for the Copenhagen Conference (COP15) that will be held on December 2009. Finally, it explores institutional alternatives for meeting these targets.

### Resumen

En este artículo sitúa la crisis del cambio climático en confluencia con la crisis económica-financiera de 2008 y la progresiva escasez energética. En este contexto, se analizan diferentes enfoques posibles para un acuerdo ambicioso sobre cambio climático en la próxima Conferencia de Copenhague (COP 15) que se celebrará en diciembre de 2009. Por último, se estudian diferentes arquitecturas institucionales para que los objetivos planteados sean alcanzados.

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## 1. INTRODUCTION

In few months, 195 countries will meet in Copenhagen with a common mission: to find a way out of the climate change crisis. On 7 December 2009, the Climate Change Conference - COP15, in United Nations-speak - will be held. Its objective is to lay the foundations of a post-Kyoto agreement that provides workable solutions for a

problem that threatens "to lead to some impacts that could be abrupt and irreversible" (IPCC 2007) and undermine global security.

This key meeting on the international agenda will coincide with one of the worst economic crises from the Great Depression. What began as a financial crisis with its epicenter in the United States has evolved into a world economic crisis, which still threatens developed and

emerging countries with a long recession. This economic context, together with the geo-political tensions always emerging around energy, adds great uncertainty to the negotiations that seek to provide a solution to the complex puzzle of climate change.

Despite the efforts of the international community, the real advance in terms of mitigation has been limited so far, as Rajendra Pachauri President of the IPCC, stressed in his acceptance speech of the Nobel Peace Prize (Pachauri 2007). Even though the IPCC published its first scientific study on the impact of climate change in 1990, global greenhouse gas (GHG) emissions have continued to increase at a significant rate. They rose by 70% between 1970 and 2004. The signing of the Kyoto Protocol (KP) in 1997 was a significant step forward in the correct direction, but there is a pressing need for the major emitter countries, such as the United States, China and India, to be involved. The expiry of the Protocol in 2012 and its current renegotiation with its sights set on 2020 open up an opportunity to ensure that the climate targets and the involvement of the players are more in keeping with the magnitude and severity of the problem.

Therefore, the 2007 Bali Summit (UNFCCC 2008) established a "route map" that laid down the aspects to be negotiated leading up to the Copenhagen Summit. These aspects include measures regarding mitigation, sinks, adaptation, technology transfer and funding. Even though there is extensive consensus regarding the principles on which this agreement should be based, the heterogeneity of interests and economic contexts of each country makes it more complex to turn into reality. The leading world

powers, the "big players", need to play a clear and decisive leadership role to overcome these barriers. Initiating a new cycle in the world response to changes in the climate requires the countries involved to assess if the existing agreements and institutional architecture is the most appropriate for the size of the challenge and the necessary response times.

The paper is structured as follows: Section 2 briefly introduces the current economic crisis and Section 3 and 4 presents the energy and climate crisis in confluence. Section 5 the Kyoto Protocol agreement is detailed with its strengths and limitations. Section 6 analyzes approaches for a Post-Kyoto agreement and in Section 7 explores different institutional alternatives for meeting these targets. The paper ends with the summary of the main conclusions derived from the article.

## 2. AN ECONOMIC CRISIS WITH LONG RUN IMPLICATIONS

When the Copenhagen Summit is held at the end of 2009, we will probably be suffering the effects of the first major global economic crisis since 1929. According to IMF (*April 2009*) "output is projected to decline by 1.3 percent as a whole in 2009 and to recover only gradually in 2010" (IMF 2009). The downturn in business and rising unemployment is expected to provide be the background music to the climate negotiations.

While the governments are taking extraordinary stimulus measures, the crisis has already had a consequence from which there is no turning back: the awareness that the economic power has globalized, spreading from West to East and to the emerging countries, and that

effective global action is needed to overcome the traditional national sphere.

When the world eventually emerge from this crisis, we will remember that it marked the end of the G-8 and that the G-20 will have permanently replaced it. As the declaration of the G20 meeting held in Washington stated, *"We underscored that the Bretton Woods Institutions must be comprehensively reformed so that they can more adequately reflect changing economic weights in the world economy and be more responsive to future challenges. Emerging and developing economies should have greater voice and representation in these institutions"* (G20 2008).

One of the risks of the economic crisis is that it may postpone the Post-Kyoto agreement in Copenhagen. However, economic recovery and the fight against climate change should not be seen as conflicting as both could function in the same direction. The magnitude of this crisis probably will require probably still a more expansive fiscal policy sustained over time to maintain the economy recovery. This time, given a scenario of climate change and lack of fossil fuels, major and sustain investment in energy efficiency and renewable energies would be more than justified. Even though these policies will be costly and will increase the deficit, they could be profitable in the medium term and create millions of new productive "green" jobs, as many institutions are now defending. A "Green New Deal", as the United Nations Environmental Program (UNEP 2008) has called for, may serve as an urgent stimulus of the economy and to ensure sustainable public expenditure. As an example, in Spain or Germany, the renewable energy sector

currently employs 350,000 people and is expected to overtake the conventional car industry by 2020.

This idea has taken off strongly in the United States, where President Barack Obama wants to allocate \$150 billion over ten years to create five million "green" jobs (Isbell 2009). According to Obama, *"our dependence on oil is one of the greatest threats we have ever faced. It is a threat to our national security, our planet and our economy"*. Obama's new energy policy and targets could transform rapidly United States into a leader on climate change solutions.

### 3. THE ENERGY CRISIS: A REVOLUTION IN PROGRESS

The economic crisis and the climate crisis have converged with another transformation related to the growing lack of fossil fuel, which currently accounts for nearly 80% of the global demand for primary energy. The foreseeable increase in prices and the insecurity regarding the conventional supply of gas and oil will have far-reaching economic and geo-strategic implications.

In July 2008, the price of a barrel of oil reached a record high 147 dollars a barrel, which pushed up the price of food and most products (FAO 2008). Even though there could be a cyclical component to part of this increase, it is widely accepted that conventional fossil fuels will structurally begin to be scarcer in the near future due to the strong increase in demand and to the limited reserves. Probably, when the economy will recover the price will start increasing again.

The International Energy Agency in its last *World Energy Outlook 2008* therefore called for "an energy revolution" (IEA 2008). According to the IEA: "We cannot let the financial and economic crisis delay the policy action that is urgently needed to ensure secure energy supplies and to curtail rising emissions of greenhouse gases". Furthermore, and for the first time ever, the IEA stated that the "peak in oil extraction" was in the near future. In a recent interview (The Guardian, 2008), the chief economist of the IEA, Fatih Birol, stressed: *"we are expecting that the production of conventional oil will come to a plateau around 2020 which is, of course, not good news from a global oil supply point of view"*.

The stagnated growth of conventional oil may be positive for climate change if it leads to a leap in energy efficiency and the use of renewable energies. However, it may be very negative if the technologies tend towards coal and non-conventional oils such as tar and bitumen sands, whose carbon contents are very high. At the same time, the end of oil and cheap gas announced by the IEA will make use of sources that are abundant and close to the markets every attractive, such as coal. This is particularly true in countries such as China, the United States, India and Russia, which hold 65 per cent of the known coal reserves.

Neither can a scenario where the fight for access to increasingly scarce energy resources strains international relations and the adoption of climate agreements be ruled out. One example of these tensions was witnessed 2009 winter in Europe, when the cutting of the gas supply by Russia lasted for several weeks seriously affected countries such as Finland, Bulgaria or Lithuania

that depend 100% on the Russian supplier (The Economist 2009).

#### 4. THE UNPRECEDENTED CHALLENGE OF THE CLIMATE CRISIS

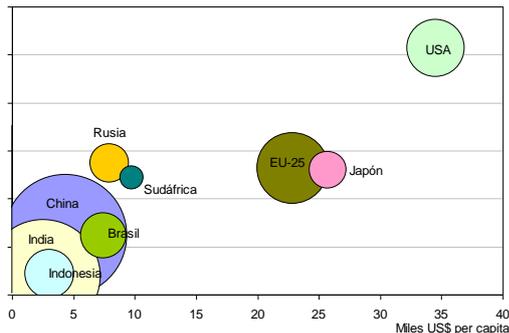
In 2007, the Intergovernmental Panel on Climate Change pointed out that "atmospheric concentrations of CO<sub>2</sub> exceed by far the natural range over the last 650,000 years, due primarily to the fossil fuel use, with land-use change providing another significant but smaller contribution". If specific mitigation policies are not established, the *"average temperature will very probably increase between 1.8 and 4 °C by the end of the century"* (IPCC 2007). In other words, there is a very real likelihood of breaching the "prevention thresholds" identified by the scientific community that consider 2°C as the maximum reasonable limit. Greater increases would take us into unknown territory, as just 5°C is what separates us from the last glacial period.

Reducing emissions so that "they do not interfere with the climate system", by means of a non-traumatic energy transition, requires the world energy system to be deeply transformed towards a low-carbon economy. According to the IPCC, for the climate system to moves towards safe concentration levels global emissions need to peak in approximately 2020, be halved by 2050 and continue to fall until the end of the century.

Taking into account the existing strong economic and demographic inertia this means that the global average *per capita* emissions should be close to two tons of CO<sub>2</sub> per person a year in 2050 and then be reduced to one ton in 2100 (Stern 2008). This goal (see Figure 1) is a long way from the current 20 tons of the United

States or 10.5 in the European Union (EU-25) and has even been overtaken by China and Brazil. One example that can illustrate the magnitude of the challenge is that just one flight from London to New York emits 1.4 tons of CO<sub>2</sub> per person.

**Figure 1:** The magnitude of the climate change challenge, 2005



(Note: The denomination of y-axis refers to current per capita emissions and x-axis to GDP per capita. The centre of each bubble denotes the position of the country on the grid and the size of the bubble represents the population, i.e. USA: 300M)

The only important emitter center that has so far made some progress in mitigation is the European Union. Between 1990 and 2005, the EU-15 reduced its emissions by 2%, although part of this reduction is due Germany's 'wallfall profits' and the gas-to-coal switch in the UK. The reduction of emissions in Russia is explained fully by its industrial-economic collapse after the fall of the Soviet system. Even though it is possible to separate economic growth and emissions, the question is whether this separation is viable worldwide over the coming decades and to the necessary extent.

Emissions in China and India have increased greatly over the last decade, even though in China - and breaking the stereotype - energy intensity has decreased at the double the rate of that of Europe in the last decade. In other countries, such as Indonesia or Brazil, the increase

in emissions it is explained by a rapid reduction of primary forest that also means a great loss in terms of biodiversity.

Given these considerations, two decisive points of reflection emerge. Firstly, by 2020, approximately 90% of humanity is going to belong to emerging and developing countries, whose per capita income will be between seven and ten times lower than in the rich countries. It is logical to think that their absolute priority will be on economic growth to close this breach and that they will opt for an energy model to serve that central goal.

Secondly, a successful climate change strategy is impossible in the medium and long term without the involvement of emerging countries, as their emissions will exceed those of the economically developed countries by 2020. In fact, even if developed countries were to reduce their emissions to zero, the expected growth of the emerging and developing countries would make it highly difficult to achieve the climate stabilization goals.

## 5. AS KYOTO PROTOCOL COMES TO AN END, WHAT NEXT?

The KP (UN 1997) was the result of intense political negotiations and represents an initial attempt to contain the risks of climate change. This international agreement enabled specific contents to be given to the undertaking of the Earth conference held in Rio de Janeiro in 1992 where 198 countries agreed to act in a coordinated manner to "reduce greenhouse emission concentrations to a level that does not

interfere with the climate system". The central goal of the KP, signed in 1997 and ratified in 2005, is for developed countries to reduce their joint emissions by 5.2% with respect to the 1990 levels between 2008 and 2012. Even though the KP was a positive step forward in the fight against climate change, its successes and limitations need to be considered in terms of its renegotiation in Copenhagen 2009.

The most notable advance of the Protocol was that the international community managed for the first time to establish mitigation goals and specific timelines. Furthermore, this reduction of emissions was based on two fundamental principles that must underpin any climate negotiation: i) the "cost-effective" reduction of the emissions, by means of using flexible mechanisms and ii) the "equitable" distribution of the burdens, by means of applying "differentiated" targets according to the historical responsibility of each country and their capacity.

At a more technical level, special mention should be made of the important advances made in monitoring emissions, conducting inventories and the accounting of sinks. This work is vital to assess the progress achieved objectively. Another fundamental advance over the years that the Protocol has helped to reinforce is the role and consolidation of the use of science and the scientific system to underwrite and advise on climate agreements. During this period, the IPCC has gained huge credibility among the governments and citizens around the world and this is the key inheritance to build the future post-Kyoto agreement on a solid and objective base.

Along with the advances brought about by the Protocol, there are limitations that should be

pointed out. The main one is that the main GHG emitters have not real mitigation targets. The United States has not ratified it, Russia lacks real targets due to its economic collapse and China and India although incorporated has not reduction targets. These four powers account for half the world's emissions. Furthermore, the Kyoto targets are not binding for the signing countries.

In practice, some of the principles on which a climate agreement should be based have been undermined. Firstly, the "leadership principle" of wealthy countries that inspired the Rio Conference has not been applied due to the USA's refusal under the Bush government to mitigate its emissions. Secondly, the "cost-effectiveness principle" or the possibility to reduce emissions cheaply lost a great deal of its potential as the KP only applied to some countries. In fact, this could have led to a carbon leakage phenomenon. Thirdly, the "equity principle" has become outdated as some countries, such as Rumania or Poland, with KP targets, have been overtaken in per capita income by other countries without any targets, such as Singapore, South Korea or the United Arab Emirates. Finally, the mitigation rate for the Kyoto phase, even though successful as an initial step, is highly insufficient if we want to abide by a "precaution principle".

Despite these limitations, the overall assessment of the KP is positive as it has helped to open up a path full of difficulties. Its fundamental contribution is to have enabled mechanisms and structures to be created that are going to be necessary to make good progress in the future.

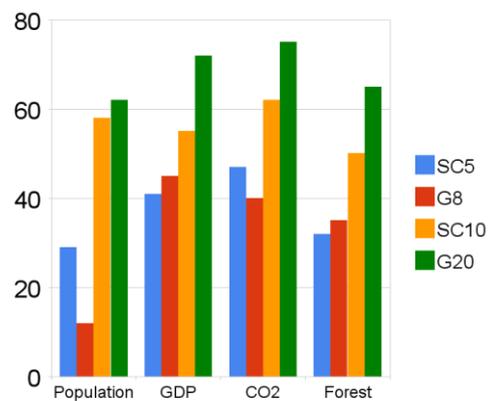
## 6. A “DEEP, THEN BROAD” APPROACH FOR A CLIMATE LEADING

In order to reach an important agreement in Copenhagen 2009, it is necessary to reflect on the format that those negotiations should take. Two fundamental dimensions (Aldy and Stavins 2007, 2008) of any international agreement are, on the one hand, 1) the scope or depth of the commitments and, on the other hand, 2) the participation or breadth in terms of the countries involved. Both characteristics are desirable to achieve the necessary reduction in emissions.

The KP and the UNFCCC have a “broad, then deep” type structure; it enables great participation in the agreements, but is limited due to the absence of the key players. In the current context, a “deep then broad” approach could help to achieve a rapid and substantial reduction of the emissions. The most pressing current need is for the main emitter countries to sit down at a negotiating table to reach an agreement on the key climate aspects. The prior leadership of these powers would ensure the ideal conditions to tackle and extend these agreements to the 195 UNFCCC countries at the December meeting in Copenhagen 2009.

Figure 2 sets out the different “small-n” combinations of negotiating groups and some variables associated to them. These coalitions or groups are based on the different structures adopted to deal with other global problems, such as the G8, the G20 the permanent members of the Security Council (SC5) – United States, China, United Kingdom, Russia and France – or a possible expansion of the Council would included Brazil, India, Japan, Indonesia and South Africa (SC10).

Figure 2: Coalitions for negotiation prior to Copenhagen (% world total), 2005



Source: World Resource Institute (2005)

(Note: SC5 refers to the five permanent members of Security Council and SC10 is an expansion of the Council that includes Brazil, India, Japan, Indonesia and South Africa)

The extent of the representation of the G8 in the current world context is clearly out of step. The SC10 coalition has many characteristics desirable to reach a climate agreement: i) the number of countries is limited, ii) it represents nearly 4000 million inhabitants, iii) it accounts for over 60% of world emissions, iv) contains half the planet's forests and, furthermore, iv) it is a benchmark of today's leading cultures. These characteristics will be increasingly more marked in the future given the energy, economic and demographic inertias. Other configurations are undoubtedly possible (i.e. Jeffrey 2008), this is just an example of few entities that could reach to an agreement on the three fundamental issues: 1) reduction of global emissions, 2) maintaining the forests and 3) transfer of technological and financial resources needed for mitigation and adaptation.

## 7. THE ROLE OF THE UNITED NATIONS

Probably, and given the past results, the Copenhagen Summit will require also a debate on the design of the most effective institutional framework for a post-Kyoto future. There are currently two complementary approaches that can be figure out: architectures where the United Nations plays a fundamental role as the administrative and executive authority, and *ad hoc* architectures that would operate parallel to international institutions.

The first approach (Stern 2008) reinforce of the current architecture where climate decisions are taken at the United Nations Conference (UNFCCC). Managing and controlling the magnitude of the required programs and funds totally swamp the current capacity of the Environment Program (UNEP) or to scale-up the role of UNFCCC Secretariat. Another possibility would be to create a new specific institution similar to the International Monetary Fund or the World Bank. This institution could be in charge of managing the global mechanisms that could be created, such as the setting up of an international emissions market. The World Bank has already offered to assume part of those tasks and, in particular, those relating to the funding mechanisms (World Bank 2009).

The second approach is to assign the management of the climate targets to a G-type group, which would operate in a similar way to the G8 or G20. That body would function in a coordinated way with international institutions and would transfer compliance of the targets and actions to the national sphere, to the regions and to the cities.

The main advantage of the *ad hoc* or G-type structures is their potential for quick decision taking, but their greatest limitation lies in the difficulty to ensure that they are “binding” and stable in time. Furthermore, there would be an undesirable drain of the contents that come under the United Nations as the entity entrusted with managing global public assets. Therefore, should *ad hoc* structures be necessary for go-between purposes, they should end up being integrated within the United Nations bodies.

The Earth’s climate as a public asset and its worrying evolution bring us to a debate regarding institutional architecture that transcends the debate on the modernization and effectiveness of the United Nations. Ultimately, climate change raises the recurrent dilemma of where to place the frontier between the sovereign right of the States and the need to protect global common assets, such as the Earth’s climate.

Moreover, as science has advanced in the understanding of climate change, the emphasis on global security is now being explored. Therefore it could be consider the role that it can play within this institutional architecture the United Nations Security Council (Sindico 2006, Penny 2007, Olabe and Gonzalez 2008). In fact, the United Nations Security Council has already chaired a session dedicated exclusively for the first time to climate change (SC 2007). For the United Nations Security Council to have the sufficient capacity and representation to turn round the global climate crisis, it would be necessary to extend and reformulate the current veto right of the so-called major powers.

## 8. CONCLUSIONS

The 2009 Copenhagen summit is a key moment to achieve a post-Kyoto climate agreement. The magnitude of the challenge is huge, and urgent and drastic durable actions are required to turn around the climate crisis.

The current economic crisis and the emerging energy constrains should not delay the necessary adoption of an ambitious climate agreement. Firstly, as the implications of climate change will be notable and will affect the most vulnerable countries and because deferring it will only serve to aggravate the damage. And, secondly, because there is the possibility, if a Keynesian environmental policy is used, to be tackled in a single direction. Strong private and public investment in developing a low-carbon economy is the lever to stimulate the economy and to yet again generate long-term and productive jobs. This transformation would help to avoid the risk in terms of competition and guaranteed supply and also possible conflicts between states arising from a lack of energy. The massive development of clean and renewable energy sources is necessary and it is also fundamental that they are more evenly distributed.

The KP experience has shown that the main emitter countries need to be proactive and take the leadership role for the Copenhagen negotiations to be successful. The big players: United States, the European Union, China, Russia, India, Japan, Brazil and Indonesia are responsible for two out of every three tons of greenhouse gases currently emitted to the atmosphere. Among them, the United States needs to be the driving force that is expected of it and, in this new

era, its innovative and technological machinery have to be used to fight against climate change and to ensure international cooperation.

An effective approach to these agreements is, as the Secretary General of the United Nations, Ban Ki Moon, has already requested, for the main emitter countries to hold a meeting prior to the Copenhagen summit. This meeting would be the antechamber where agreements would be discussed and possibly reached on different key aspects, such as establishing mitigation targets, maintaining forests and the funding of mechanisms for technology transfer and adaptation. This meeting should also be attended by the top politicians from each country. An agreement in political terms between Heads of State and Government regarding the four or five fundamental elements would facilitate the subsequent establishing of the more technical aspects and their extension to the other countries within the UNFCCC.

Once the agreements have been reached, they will need to be implemented and durable in time. Even though these negotiations may eventually take place in *ad hoc* structures in the interest of expediency, it is important that they are then incorporated into the United Nations. The proliferation of Groups (G-8, G-10, G-20) outside the UN threatens to make the institution irrelevant and this would be a serious setback.

Some specific architecture will be necessary in accordance with the magnitude of the challenge. It is also required to control and coordinate the enormous quantity of resources that will need to be mobilized, as the architecture and implementation of the United States Framework Convention on Climate Change in

1992, although positive, is clearly insufficient. The negotiations in Copenhagen not only have to be the opportunity to reach a climate agreement, but also to design an institutional architecture to enable international governance to be improved by ensuring that the United Nations institutions continue to be its backbone. Despite their limitations, the UN institutions continue to be the most effective and natural place to manage the global assets across state frontiers.

During September 2009, four important preparatory or pre-Copenhagen meetings have taken place: the Major Economies Forum (G17) in Washington, which together with the G8 and the EU is China, India, Brazil, Mexico, South Africa, Australia, Indonesia and the Republic of Korea, the Climate Conference at the General Assembly of the United Nations in New York, the *G-20 Summit* in *Pittsburgh* and, pre-Copenhagen talks in Bangkok. Time will say if this “mini-lateralism” summits among big players had positive effects in Copenhagen Summit.

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