



THE RIO CLIMATE CHALLENGE 2012
RECOMMENDATIONS

THE RIO CLIMATE CHALLENGE (RCC)

1 – What is it about?

The Rio Climate Challenge is a Brazilian Congress initiative sponsored by the Rio de Janeiro City government, the Pernambuco state government, the Brazilian Forum for Climate Change, the Federation of Industry of Rio de Janeiro (FIRJAN), other public, private and non-governmental institutions and supported by *O Globo* Rio's main newspaper. Its purpose is to facilitate the design of workable contingency scenarios dealing with *“the significant gap between the aggregate effect of Parties' mitigation pledges and (...) aggregate pathways consistent with having a likely chance of holding the increase in global temperature below 2 degree Celsius(...) above pre-industrial levels”* as stated in the Durban Platform for Enhanced Action and previous UN FCCC documents. The RCC wants to stimulate ideas 'out of the box', help facilitate a comprehensive UN Climate agreement, by 2015 but also explore a diversified array of formats dealing with the negotiation and implementation of climate policies that could move us towards a 450 ppm/ 2 degrees pathway.

The RCC held its two inaugural meetings in April and June 2012: the 'preparatory session', in Recife and the 'RCC Rio + 20 side event', in Rio de Janeiro, from the 13th to the 21st of June, 2012, consisting of 'scenario building' exercises, public panels and the Climate Concert. The 'scenario building' workshops with climate activists and experts from 14 countries focused on mitigation, low carbon finance and adaptation. It produced two drafts: **Recommendations for Rio + 20**, sent to the UN event delegations and this **Rio Climate Challenge recommendations** addressed to the UN FCCC process and other instances. The document we are presenting here is currently being refined and should be seen as a work in progress.

The RCC public panels in the FIRJAN Conference Center had an overall assistance more than one thousand participants, with eight thousand viewers following by the FIRJAN internet TV and three million visits to *O Globo's* hot site. The newspaper published, on the 28th of June, a especial 350 000 copies eight page booklet dedicated to the RCC.

The closing session the 21st of June was followed by the *Climate Concert*, at Fort Copacabana, by singer, composer and former

minister of culture, Gilberto Gil, along with three other famous artists: Jorge Mautner, Fernanda Takai and former The Police solo guitar Andy Summers. The media impact of both RCC meetings, in Recife and Rio, was considerable. The original idea for a ‘simulated negotiation’ leading to a 450 ppm/2 degrees imaginary accord -- inspired by the 2003, Middle East Geneva accord-- couldn’t be implemented in Rio due to absence of a critical mass of politicians from some key countries during the Rio + 20 period. New efforts will be put together during the 2013-2015 period to achieve this.

Our goal now is to institute the RCC as a think tank related to other international institutions of different kinds providing independent input into the UN FCCC process, up to 2015 as well as helping to establish other formats for joint international efforts to address the global climate challenge under the ‘Bridging the gap’ perspective.

2 - Recommendations for the Rio + 20 Conference on green economy

2.1 - Reform the GDP to incorporate new metrics reflecting qualitative variables related to sustainable development.

2.2 - Recognize economic value for services rendered by ecosystems.

2.3 - Promote a “Green New Deal”: a massive public investment by governments and multi-lateral institutions in clean energy, environmental recovery, generating jobs as a way out of current economic crisis.

2.4 - Substitute current taxes and subsidies systems by others linked to carbon intensity. Eliminate subsidies to fossil fuels and establishing social compensation mechanisms.

2.5 - Reform the international financial system through a low-carbon “Bretton Woods” – creating mechanisms capable of attracting the financial capital to a productive low-carbon economy.

These actions should be articulated with others committed to establishing a fair and efficient mechanism of technological transfer, as well as the acquisition of patents to create generic clean technology for transfer to the poorest countries. They should facilitate public and private investment to promote universal access to clean energy, and focus on development projects resilient to future consequences of global warming. They should also promote low-carbon agriculture and ecosystem management.

3 – The RCC agenda

The RCC will promote, in the 2013-2015 period, several rounds of high level climate panels and scenario building exercises. The RCC 2013, in October, will focus on developing these 5 green economy recommendations listed above with some of the most important green economy and low carbon finance experts as a contribution to the UNFCCC/COP process as well as the Rio + 20 *Sustainable Development Goals* and other multilateral instances and institutions.

A new tentative “simulated negotiation” exercise engaging proxy delegations from China, USA, EU, India and Brazil, major GHG emitting economies, will be organized to contribute with the 2015 process, in 2014. It should involve: political leaders --including high profile elder statesmen-- and policy formulators; scientists and academics; public and private sector economic experts and industry executives. They should explore imaginative solutions and more ambitious alternatives that could be implemented through the UN FCCC process and/or other more compact multilateral tracks like including the G 20. They are encouraged to consult with their governments and who are welcome to send official observers and/or debaters.

The exercise should address three main climate issues: mitigation, low carbon finance and adaptation. Members of multilateral institutions (World Bank, IMF, etc.), international NGO and global economic sectors like: finance, auto, coal, oil and agro business as well as local and regional government should also be part of the exercise since the solutions demand efforts quite beyond agreements by national governments. In the economic sphere, it is advisable to have public, private and multilateral experts involved working on

models for each big carbon intensive sector: energy, industry, transportation, land use, etc.

The RCC Simulated Accord should ideally establish:

3.1 - A set mitigation strategies potentially acceptable by the key emitting countries capable of “breaching the gap” to keep GHG concentration in the atmosphere and global warming under 450ppm and 2 degrees Celsius.

3.2 – A proposal on adaptation addressing the most serious and inevitable effects anticipated by the IPCC focused on contingency planning for the future food and water crisis.

3.3 – A financial proposal beyond plain “burden sharing” related to historical and future responsibilities in GHG emissions with robust new mechanisms for the ‘economics of low carbon’, figuring out full convertibility of carbon emission reduction to economic value and new financial products related. It should imagine a sort of “low carbon Bretton Woods”, as developed by RCC 2013.

3.4 – A study “translating” our proposals to the specific languages and working channels of UNFCCC, the G-20 and the UN Security Council.

The Rio Climate Challenge 2012 first draft

(Listing the ideas and debates of the first round of the RCC discussions, in June 2012, in Rio de Janeiro)

The Rio Climate Challenge (RCC) met in the City of Rio de Janeiro on days 13-16 June 2012 seeking a new vision for discussions on global climate change and experimenting some innovative methods. The goal was to point feasible solutions to deal with one of the biggest challenges for the societies of modern times. This includes the issue of how to approach the climate issue in a world marked by diverging national interests and social and individual striking differences, which have so far hampered any workable framework to effectively address the challenge.

This first experience focused on 'scenario building' and panels leaving for a future occasion the 'simulated negotiation' exercise for which it is necessary to build more political critical mass. The work developed in June 2012, at the side event to Rio + 20 nevertheless produced several interesting ideas and recommendations. Around 30 experts on climate change from 14 different countries worked in Rio de Janeiro, with the help of teams of facilitators from various parts of the world and multiple methodological approaches. This construction experiment combined a broad range of perspectives and a common set of proposals: the 450 ppm/2 degree objective. It was possible to raise a wide spectrum of recommendations.

Participants worked in three groups: (1) Mitigation (2) Finance for Low Carbon Emissions and (3) Climate Change Adaptation. The final discussions of 1 and 2 were integrated.

1 - Selecting recommendations regarding mitigation and finance

UNFCCC negotiations on mitigation commitments are the result of a process in which national delegations advocate the very often conflicting positions of their governments as they perceive their national interest notwithstanding lip service rendered to the IPCC recommendations. Thus, progress is slow, mainly by the need for consensus by 193 governments inherent to the UNFCCC process. The work of the Rio Climate Challenge started with a shared common imperative purpose: 'bridging the gap' between current mandatory or voluntary commitments and the 450 ppm/2 degree target evocated by the IPCC.

The process resulted in a total of 21 recommendations that include some of the above listed recommendations to Rio + 20 on green economy here specifically addressing the climate issue.

Our discussions and recommendations:

The first set of discussions/recommendations address topics that have already been discussed in the UNFCCC/COP process and can be absorbed by it though some of its aspects may eventually concern other instances as well.

1.1 Eliminate subsidies to fossil fuel prices according to their emission intensity and tax carbon

Current taxing criteria should be changed as well as subsidy systems related to carbon intensity. Subsidies to fossil fuels should be gradually eliminated with equitable compensation mechanisms established to deal with social consequences of fuel price increase.

Over the years, many countries have maintained subsidies to keep fossil fuels - gasoline, diesel, natural gas, kerosene and other – affordable to the population for transport, food and in cold climates, heating. Oil prices have risen significantly in the last decades, in the so called ‘oil shocks’. Its social side effects were minimized through these subsidies, most of which continues today. Through these grants, the governments of countries absorbed a portion of the increases in fuel, thus avoiding that the prices of basic services that rely on fossil fuels become inaccessible to the poorest sections of the population, and also bypassing the inflationary pressures that will inevitably be created.

These subsidies stimulate an intensive use of fossil fuel, favor more high income segments, distort economic development and end up hindering the competitiveness of cleaner sources of energy that have become available in recent years, such as wind, solar, biofuels and others. It is certainly not easy to eliminate them, because the structure of relative prices in the economy of many countries would be affected, and would take some time to reach a new equilibrium.

Another obstacle is the political role of powerful economic forces of the oil and coal industry, interested in maintaining or expanding consumption of fossil fuels, there are is also lobbying by some of the exporting countries that depend heavily on revenues from these products for their prosperity. Still, if governments agree on a global task of gradually eliminating such subsidies, in agreed upon but differentiated dynamics like the one proposed by the IMF in “Energy Subsidy Reform: Lessons and Implications”, released in January 2013, the resources could be directed to support the affected populations and deal with the complicated political and cultural side effects as well as supporting clean energy sources. Even in situations where these resources would have to be spent on the former goal the latter would be promoted simply by establishing fossil fuel true pricing.

Certainly such policy would have very scarce chances of success if it relies solely on the UNFCCC process considering the obvious difficulties with governments that believe their economic and social policies would be adversely affected. Eventually a gradual lowest common denominator can be found under the criteria of “shared but differentiated” goals and paces. But more ambitious goals can be eventually achieved by smaller groups of nations by the will of

governments willing to go forward and the need for consensus by 193 governments in the COP process should not inhibit this.

Bodies similar to IEA - International Energy Agency - which already has among its concerns promoting alternative world production and consumption of less carbon intensive energy, could help encouraging a variable geometry of bilateral or multilateral arrangements by governments willing to share efforts on gradually eliminating these subsidies, taxing carbon and promoting clean energy research & development on an ever expanding scale. Therefore, it is critical that the IEA would become a body more representative and opened to other countries, expanding its membership, currently restricted to only 28, all OECD members.

Carbon taxation can also be dealt with in similar criteria: try to find a consensus on gradually replacing one or more current national or regional taxes by a tax on carbon emission intensity. In general it is more convenient and politically palatable to replace existing fees than to institute an additional carbon taxation.

4.2 Promote global low carbon agriculture and improved management of ecosystems.

Land use in rural and forest areas of the planet is a major source of current emissions of greenhouse gases. It is possible to reduce its emissions and increase its ability to sequester atmospheric CO₂. Agriculture needs to be managed in a sustainable bio diversified mode, more energy efficient, maintaining productivity at levels consistent with the needs of expanding global population, equally. We need to reconsider the forms of land use in terms of its spatial and temporal diversity of crops; the balance between animal and plant production, annual and perennial crops, business activities, production of food and non-commercial environmental conservation. These should guide management decisions in the field and the development of policies and regulation for the sector.

It is also urgent to reconsider the intensity of use of non-renewable inputs of high energy intensity and carbon, especially nitrogen fertilizers and other ways of carbon intensive farming. Nitrogen fertilizers are generally not that efficient and release significant NO_x to the atmosphere and nitrate to aquatic systems, polluting groundwater, rivers, lakes and oceans, requiring high investments for their removal from the environment. An overall limit on the use of these inputs and a redirection to other more efficient sources, such as fixation and efficient recycling of organic nitrogen sources of biomass should be established as well a set of low carbon agriculture techniques quite broadly available.

4.3 Promote public and private investment towards global R & D and easier access to clean energy.

Renewable energy is growing rapidly, however not on scale and speed required for significantly replacing fossil fuels in a pace compatible with a 450 ppp/2 degree paradigm. Much more action is essential. Also, a considerable part of the world population doesn't have access to electricity. Many countries try to do so has relying too much on connecting local populations to a centralized

national grid which can cause great financial and environmental costs in remote and sparsely populated areas. The initiative for sustainable energy for all (*Sustainable Energy for All*), the General Secretariat of the United Nations, has the ambition of achieving the electric inclusion of the entire world population by the year 2030, while promoting the widespread use of sustainable energy and energetic efficiency. The challenge is to expand the access to energy and simultaneously reduce significantly carbon emissions.

Clean energy as wind and solar, are especially promising for local and decentralized generation, reducing dependence on energy from the grid which in many countries comes predominantly from non-renewable sources. A commitment to common but differentiated national goals on promoting the research & development, investment and implementation of wind, solar and other clean energy technologies is crucial.

4.4 Contain deforestation and promote proper reforestation

Intergovernmental Panel on Climate Change estimates that 20% of global emissions come from deforestation - and it continues to occur globally without sight of interruption. We believe that stronger international action is needed to finally halt *deforestation*.

The containment of deforestation is a concern for many governments and has been present in the COPs. The theme, as well as impact on climate change, also affects other environmental aspects such as biodiversity, preservation of fresh water sources, reduction of erosion, etc.. The question that arises is **how** to stop deforestation, and with what resources. In most developed countries, this deforestation occurred in the past and is not considered a problem of the present. But in the developing countries, where we could still find most of the remaining rainforests, demographic and economic pressures make it difficult to interrupt the practice.

The set of policies, technical and legal measures adopted by our country could be replicated, as well as other successful experiences of other countries. The resources required for its implementation would be subject to international financing. The discussion on REDD + fits in this concern, and our recommendation is the acceleration mechanisms of this nature, to contain the global deforestation in the shortest time possible.

We believe that reforestation is vital in order to expand the potential of services provided by forests as a carbon sink and to promote biodiversity. However, it is important that these policies are well evaluated and monitored in order not to aggravate the destruction of native forests.

Some considerations can fit on this topic, similar to those made to the previous item. Reforestation is viewed with suspicious when it is placed as an alternative to the preservation of native forests, however, if one is aware that deforestation is being simultaneously contained, reforestation may be welcome. Anyway, there should be distinguished two types of reforestation, which uses homogeneous species and that is more commercially profitable, aiming only to commercial exploitation, particularly in the production of wood and cellulose,

and which is done with native species, and that may therefore result in restoration, though imperfect, of natural forests their biodiversity.

The first type thrives and expands, regardless the actions to confront the climate change, because it is economically profitable. From the point of view of climate change, it fulfills the role of creating carbon sinks, but falls short in other aspects of ecological importance, especially biodiversity. And there should never be used as a compensation for the simultaneous deforestation and in the same scale of native forests, because on the final balance, environmental losses are huge.

The second type, which could cope with the sustainable forested areas, has proven its economic viability, and deserves to be stimulated through specific actions. These could involve governments, NGOs, multilateral organizations, etc., And would aim to clarify and put a value on the environmental services provided by forested areas, so that it becomes so rewarding to reforest degraded areas as give them a agro-pastoral use, as it is done today.

4.5 Develop an approach based in rules of effective implementation.

We believe that we need national carbon reduction targets, legally binding and voluntary, to facilitate the reduction of emissions. The mitigation group of Rio Climate Challenge agreed with the following statement, which we propose to be adopted by the UNFCCC, and worked by the international community:

*"Respecting the principle of common responsibilities, but differentiated, based on a fair and equitable sharing of the commitments, all governments should formulate national goals quantifying emissions * for the year 2020 (for the high-income countries and middle), and for 2025 and 2030 for all using a common baseline. ** These goals should be enshrined in national legislation. The UNFCCC should establish procedures for monitoring, reporting, verification and compliance in relation to the commitments and implementation mechanisms. According to the IPCC in order to maintain the concentration of greenhouse gases below 450 ppm by the year 2100, global emissions must be reduced by at least 80% by 2050. Many countries, including the most vulnerable, are still clamoring for 350ppm and by limiting the increase in global average temperature to 2° C or 1.5° C. Countries with higher incomes have the obligation to provide financial and technological support, above all, for low-income countries, to make this possible. "*

**Quantifiable = aggregate emissions by country, per year etc..*

*** Baseline = "when it starts to count" (rather than a baseline for calculating historical emissions)*

4.6 Establish international norms and standards of energy efficiency.

Energy efficiency is a quicker way to reduce emissions than a corresponding change in the adoption of renewable energy - an opportunity that should not be missed. We propose the development of standards for appliances, industrial

machinery and other equipment that contribute to more efficient use of energy. Through the establishment of global standards, we increase the probability that most manufacturers implement them. At the same time, we must ensure that these standards are also suitable for local conditions.

Energy efficiency can be increased substantially in various industries, which include: lighting, with the exchange of conventional lighting for incandescent fluorescent or LEDs, heating and refrigeration environments, with improved insulation; preparation and food preservation, with more efficient refrigerators, furnaces and stoves; combustion engines for cars, buses and trucks with higher mileage for spent fuel, etc..

The establishment of minimum standards of efficiency can be seen in many cases as a short-term cost for industries, which would have to technologically upgrade their products to make them more efficient. However, gains in medium and long term obtained are so large that governments have an interest in helping with this transition.

To make it easier, in parallel with the establishment of these minimum standards, it is desirable to indicate which technologies capable of achieving them, and act to make these technologies accessible to all countries at a price they can afford, what could be done in a manner analogous to that proposed in recommendation mechanisms for technology transfer and capacity building, described below.

4.7 Establish unified metrics for mitigation commitments.

While we recognize that there are good reasons for the variety of baselines and metrics used by the various countries to make commitments of limitations on carbon emissions, this variety has led to confusion, made it difficult for the media to construct a clear public understanding to be able to evaluate and compare the commitments and/or efforts of different national governments.

This has placed on opposite sides, the countries of the Annex 1 of the Kyoto Protocol, using 1990 as a baseline, and countries outside of it. The first group is required to report their emissions targets in a standardized manner while the others, exempt of doing so, have established their goals in a very varied manner, --2005, 2000, carbon intensity related to GDP, etc.-- and have expressed interest to maintain this freedom to inform the way they believe its better. Although experts experienced in analyzing the goals, can compare these metrics and clearly identify the interests not explicitly shown in the choice of criteria made by each country, this lack of transparency and multiplicity of ways to present national GEE mitigation targets is certainly an obstacle to transparency and to the mobilization of societies of the various countries on the issue.

In our understanding the most important political condition for a 2 degree and 450 ppm paradigm is for citizens to globally pressure their governments for commitments and action capable to cope with the magnitude of the challenge. We believe that common metrics is politically necessary to harmonize the various forms of display and emissions commitments (either an existing or a new ones).

One possible help in that direction would be the universal adoption and dissemination of the work being completed, titled: *GHG Protocol Mitigation Accounting*, made by WRI in conjunction with the WBCSD, and sponsored by the governments of Germany and the Netherlands. This paper includes suggestions for standards and guidelines for accounting of actions and mitigation policies and the corresponding commitments made by governments at various levels, or by civil society organizations, financial institutions, businesses in general, multilateral agencies or other actors.

4.8 Tax emissions from aviation and maritime transport.

Though controversial, as they often are challenged by small island states that rely heavily on sea and air transport as a matter of geographic location, we believe that, in general, it is necessary to have a taxation that helps to account for the costs of carbon emissions in aviation and maritime transport.

The very nature of shipping and international air, constantly crossing the boundaries of countries, requires a separate treatment because they can not be controlled on local actions in each country. In particular, it is interesting to note that aviation affects climate change not only through emissions of greenhouse gases originated engines but also by the direct action of cloud formation, which has a significant greenhouse effect. The EU has set this year a tax on aviation emissions, which was hotly contested by several countries outside the U.S. and has been abandoned in November 2012. A quite obvious political condition to make this kind of taxation palatable is to direct it to a globally agreed upon fund, under the auspices of the UNFCCC like the Green Climate Fund.

As for maritime emissions a considerable reduction in emissions could be achieved by the mere decrease in the forward speed of the vessels. In this case, however, lower productivity represents a decline of revenue that is not replaced by lower fuel consumption per mile traveled. A tax designed carefully, focusing on emissions per mile from a certain level, would be able to stimulate lower speeds and outweigh the gains from faster deliveries.

5. Ideas and recommendations on mitigation and low carbon finance to be detailed and further developed

This second set of recommendations includes some that would also eventually fit both within and outside the scope of the UNFCCC/COP process and also other instances like the *Sustainable Development Goals* under the post-Rio + 20 process, but are still insufficiently matured. These recommendations should be brought to further debate and research, to reach more precise formulations. They include most of the recommendations on green economy addressed to the Rio + 20 Conference. The Rio Climate Challenge will promote international seminars to further discuss all of those issues.

5.1 - Include Climate Change on the G20, UN Security Council and WTO agendas

The Rio Climate Challenge developed a political vision of the climate process as being a multilayer set of negotiations and agreements governmental and non-governmental, public, private, multilateral, bilateral, global/local with a very broad array of instances, the UNFCCC being the most comprehensive, the broadest common denominator. This does not exclude the effort of achieving more ambitious mitigation results in forums of major economies and major emitters of GEE nor eventual bi-lateral arrangements contributing to this goal.

The G20 has already discussed the issue of climate change in one of its meetings and we believe that this should be resized on the agenda of this key body of global decisions. As it involves the major economies of the world, the G 20 can be very influential in tackling climate change. However, as the G20 is a group created in an *ad hoc* way, it is not seen by most of the countries that form the UNFCCC as a suitable instance to decide on their behalf. But actions agreed upon in the G 20 can have important mitigation effects and can be latter integrated into the UN FCCC process. As in other issues the Rio Climate Challenge approach to the issue is to consider COP process as central but not exclusive and other instances as complementary valid, not opposed.

Following the same reasoning there should be a climate agenda specific to the UN Security Council and the WTO for quite obvious reasons. Climate Change is a major international security menace. Uncontrolled massive migrations, water and food shortages, dispute over ever shrinking resources point towards an acute potential risk of future “climate wars” that the UN Security Council should try to prevent rather than cope with in the aftermath. Also, climate change variables affect international commerce in various ways and have to be integrated into the dynamics of the WTO negotiations.

In future meetings The Rio Climate Challenge should work on proposals of specific climate fitting the G 20, the UN Security Council and the WTO agendas.

5.2 Promote massive green public investment by national governments and multilateral agencies: the "Green New Deal".

There was a near to consensus sentiment in the Rio Climate Challenge on the perspective of coping with current economic recession crisis with a massive public investment and stimulus from governments, central banks and multilateral institutions in clean energy, environmental recovery and job creation as an important component of overall recovery policies. This proposal requires action in other international bodies than the UNFCCC like the IMF, the G20 and, of course the EU, which is the epicenter of the current crisis. This is a recommendation that makes sense at a time when the world is experiencing an economic crisis whose end visible. It was addressed as one of our 5 recommendations for the Rio + 20 Conference.

Massive public investments in R & D for clean energy are one of the main strategic assets do help achieve the 2 degree, 450 ppm paradigm. In the Rio Climate Change preparatory meeting, in Recife, April 2012, some of the American participants strongly supported the idea that this was the only possible effective way, and, if well implemented, sufficient to solve the problem. In their view the negotiation process by governments through the UNFCCC was gridlocked and doomed. The predominant view in The Rio Climate Challenge

though considered both elements, the political/regulatory and the technological as not opposed to each other but, in fact, complementary.

5.3 Reform GDP.

Our main recommendation is to reform the GDP indicator to incorporate new metrics that reflect qualitative variables related to sustainable development and low carbon economy. A reformed GDP will influence decision making on the economy of countries and help to building a low carbon economy. This issue was raised in the Rio +20 green economy recommendations listed above.

The most comprehensive recent study is the report of the 'Commission on the Measurement Of Economic Performance and Social Progress' chaired by Joseph Stiglitz. To become concrete and feasible proposals its conclusions have yet to be considerably simplified and adopted by the G 20, the Bretton Woods institutions and the UN. Its effect on climate change would be indirect yet effective as national economies' performances will be evaluated by accounting sustainability criteria when measuring growth.

5.4 Assign economic value to ecosystem services.

Currently, the economic value of services provided by our ecosystems is not reflected in prices. By estimating, recognizing and incorporating these values, we can change the way decisions are made and favor a low carbon world, valuing and protecting ecosystems appropriately. For such a proposal to prosper there must be some kind of government intervention, because the markets for ecosystem services do not tend to form spontaneously. Governments can intervene directly, through taxes, subsidies, zoning, etc... or they can create a market through regulatory actions, setting limits and allowing exchanges (such as *cap-and-trade*).

5.5 Imagine a new low carbon financial order

A new financial system with mechanisms for comparable pricing and agile conversion among different kinds of mitigation and adaptation actions as well as a common currency linked to carbon reduction was a fascinating topic of discussion at the Rio Climate Challenge. It demands quite a lot of subsequent efforts do achieve a workable policy proposals. Nevertheless it was recognized as an outstanding feature for a 2 degree, 450 ppm paradigm. In the "Bretton Woods" original, gold was used as standard. Could carbon reduction become some sort of financial standard? Would there be some other alternative --yet viable-- design for a modern global financial system attached to carbon reduction?

The subsequent challenge here is how to attract trillions of dollars of global financial capital to a low carbon economy productive economy. This can address the fundamental problem of the upfront investment necessary to deal with the upgrading of infrastructure for low carbon economies. This issue relates the climate issue as well as to a lasting solution to the current financial crisis. There is a concrete proposal to establish a pattern of carbon emissions as a basis for setting prices for the currencies, made by Professor Frans Verhagen, but the

complexity and originality of the proposal does not yet allow discussion on decision-making forums without more studies and detailed technical discussions.

5.6 - Establish new mechanisms for technology transfer and capacity building: the low carbon ‘generics’

There is an urgent need for the development and design of low carbon technology and the ability to build low-carbon infrastructure. We suggest an international mechanism to accelerate this transfer between countries. This is a recurring theme in the climate talks, and the Clean Technology Fund has already been created with the support from UN to finance technology transfer from developed to developing countries. To foster technology transfer COP 17, in Durban set the terms of reference for the CTCN center and network of climate technology, which is still in the process of defining its structure. Working on this can simplify, accelerate and cheapen paths for the dissemination of low carbon technologies.

It is important to have a Fund capable of acquiring patents so as to create a "generic clean technologies list" for free transfer to the poorest countries. This could improve quite a lot current technology transfer actions. Considering that the cost of some low carbon technologies has been considerably reduced in recent years, it is possible that a direct action to obtain international domain on some variant of these technologies to be more viable and productive than funding individual projects in technology transfers negotiated case by case. This is a suggestion deserves greater detailing due to its innovative character and its potential to multiply effects.

5.7 - Tackle the issues of CBDR, equality, “carbon leakage” and of accounting emission by production or by consumption”. Refine the policies of cap-and-trade.

Relevant aspects of future climate debates yet unsettled are new approaches to the concept of “common but differentiated responsibilities” in the perspective of a post Kyoto new set of climate agreements, the issue of production/consumption in determining de responsibility for GEE emissions which adds to the traditional well established but non resolved debate of aggregate/historic/per capita emissions. The Rio Climate Challenge debated passionately these themes as well as the one concerning “carbon leakage”: the transfer of carbon intense industries out of Annex 1 nations.

We also considered issues related to cap-and-trade policies resulting from the Kyoto Protocol, currently in jeopardy due to the devaluation of the European carbon market. All of these topics are somewhat related and will have to be addressed in the process towards 2015.

Most participants of the Rio Climate Challenge considered cap-and-trade as a potentially positive trend for the reduction of national emissions and global,

when more ambitious mitigation goals are established, if implemented it in a way that guarantees a true reduction in emissions, avoiding carbon leakage that simply shift emissions from one part of the world to another and/or the risks of a double count of emissions reduction. This discussion is in line with initiatives that have been discussed within the UNFCCC and also other bodies operating worldwide, as the IETA (International Emissions Trading Association).

The Rio Climate Challenge will continue to address these issues in its future meetings in order to achieve elaborate recommendations. In a preliminary evaluation it is quite clear for us that GEE reductions by transfer to non-Annex 1 countries can not be included in achieving commitments, for obvious reasons and that the question of production/consumption locus will have to be addressed in the new 2015 framework.

Also, in the revisiting of “common but differentiated” responsibilities the one of reducing aggregate in ways necessary to a 2 degree 450 ppm paradigm should involve all major economies. The financing of this process, however, should take into account historic and per capita emissions as well as consumption intensity criteria.

The cap-and-trade policies on an international scale should be considered in this context. On the national and sub-national levels they should also consider criteria related to the above mentioned concerns.

5.8 - Clarify the shale gas issue

The Rio Climate Challenge debated quickly without a clear cut conclusion the shale gas issue in countries that use coal intensively for electricity. The exploitation of shale gas is one of the main reasons of recent reductions of CO₂ emissions in the U.S as its price levels became competitive with coal while emitting less GEE. China, the world's largest emitter with most of its energy from coal also has large reserves of shale gas, though less accessible. This alternative could be adopted there and also in other countries with a major impact on reducing global emissions due to the use of coal? In an optimistic scenario, shale gas is strategically viewed as a transition energy source between other fossil fuels of higher carbon intensity and clean sources of energy.

However, very substantial issues remain unsolved. First and foremost the issue of up to now un-quantified methane leaks that could seriously jeopardize its carbon reduction benefits. Also the future capability of keeping its price competitive against coal. Related to this is the need to restrict coal exports to other countries stimulated by lower prices induced by its competition with shale gas. If the avoided coal CO₂ emissions in one country are simply “leaked” to others we are again fooling ourselves. Last but not least, the local environmental impacts of shale gas extraction and transport should be thoroughly considered.

Thus, the use of shale gas should happen taking into account these essential elements: i) the prevention of methane emissions in the process of extraction and transportation, ii) policies capable of dealing with negative price fluctuations and cheap coal exports iii) the effective prevention and mitigation of local impacts.

This question should be raised as a major issue to be discussed in the next event in Rio Climate Challenge, seeking to reach a level of understanding of its benefits in reducing carbon emissions in the transition from fossil fuels to clean energy and mechanisms of control of its negative aspects under the perspective of its eventual spread to other regions in the future.

5.9 - Empower local government for low carbon and resilient urban development.

With cities contributing approximately 70% of emissions of greenhouse gases, they are the main focus for reducing emissions. We can equip and develop our cities to be less carbon-intensive with appropriate international collaboration. Reducing the emissions of cities, especially the large ones, involves a set of measures that are quite varied – stimulate low carbon the public transport, change mobility patterns, limit urban sprawl, eliminate methane emissions by solid waste dumps and landfills, stimulate high density and mix use neighborhoods, improve energy efficiency in the provision of public services, etc...-

City organizations have for a long time discussed and implemented campaigns and policies dealing with climate protection. Local governments have, in general, been more assertive than national ones. Global mitigation commitments on the city level should be very much stimulated with local government organizations having a larger role in the UN forums and other multilateral bodies.

5.10 - Design and establish a 450 ppm totem in streets and public squares of cities around the world

The Rio Climate Challenge proposes an international design competition for and the installation of a global street "totem" in cities all over the world, indicating the level of concentration of greenhouse gases in the atmosphere as it progresses towards the 450ppm limit. It will be an instrument of public awareness and pressure on governments, private sector and public opinion. This is an initiative to be implemented by the Rio Climate Challenge together with international cities' organizations like the ICLEI or the C40.

5.11- Promote coordinated international campaigns to achieve behavior changes.

There are two focuses for behavior change: the consumption and public pressure on governments. Consumption patterns are the root of much of our carbon-intensive world. Government officials face strong difficulties to change public policy when the population is not requiring less carbon intensive life styles and actually is very much attached to the opposite. We propose international coordination in order to work on gradually changing consumers mass behavior and, thus, population demand on governments and enterprises stimulating attitudes that make societies less carbon intensity dependent.

This topic brings forward an interesting and ambitious proposal, but its actual implementation wasn't discussed in depth. Changing the behavior of much of humanity is not a task with pre-established settings or script, although it has been sometimes achieved in historical cycles. For this theme to prosper we must first identify a global entity capable of coordinating these campaigns worldwide. The "road maps" for specific campaigns themselves would be decided later.

UNESCO seems to be an appropriate forum for the development and promote this initiative. A blueprint adapted to national/regional/local circumstances with some general guidelines could then be taken to the UNFCCC to be presented in a future COP.

6. Two adaptation recommendations

Adaptation to climate change is an opportunity to create a climate-resilient society and new paths to sustainable development. If we can reformulate the current approach, the adaptation may be an opportunity to improve community and infrastructure resilience worldwide. These improvements directly benefit local communities, but also improve the overall economic and social system, improving, ultimately, the global welfare.

The participants of the Rio Climate Challenge identified several fundamental obstacles preventing faster action and meaningful to a climate-resilient world. One of the main barriers to action is the lack of available funds. Therefore, many efforts have been made up on the identification of additional funds from a variety of sources to be deployed. Participants believe that the RCC traditional framing of the question - "Who pays the costs, who should receive the resources" - limits the number of stakeholders, slowing the implementation of adaptation measures are necessary.

Our recommendations on adaptation are summarized below. They were all built from ideas and current efforts, which we support, and introduced at the same time, new approaches that should be explored in future conversations of RCC and in other forums.

6.1 Establish criteria for resilience in community and infrastructure investment financing

It is important to redirect current infrastructure development funding streams lacking any kind of climate-resilience criteria. Adaptation to Climate Change should be incorporated as a central element regarding these financial flows from multilateral development institutions as the World Bank or the IDB. They should check vulnerability reduction and resilience to Climate Change in each and every infrastructure development project. This could achieve even greater scope and effectiveness if transformed into an IMF directive when examining the governments' of various countries investments. Private institutions such as banks, less submitted to regulation should be lobbied in the same direction concerning their funding of private sector projects.

This recommendation, with respect to multilateral agencies, may gain

momentum if it is brought to discussion forums empowered to affect organizations like the IMF or IBRD. Besides these bodies themselves, the G20 is another forum that may have such capability. The COP process could produce a general public policy commitment for all kinds of infrastructure investments by governments.

6.2 Plan ahead for food and water shortages

The task of forecasting climate change impacts on agriculture and food production and adapting to them by building food supply reserves and a more resilient food supply agriculture is central and must be addressed by the UN system and *ad hoc* organizations like the G 20. Global strategies for water shortages and should also be conceived in this context. These are the two most urgent challenges concerning adaptation to inevitable consequences of Climate Change.

All views expressed were by individuals in their private capacities, and the group conclusions in the output do not necessarily represent the opinions of any single individual.

The list of individuals who have signed their names to the conclusions will be included in the report when it is published.

