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REINVENTING RIO

For an inclusive sustainable development strategy

1. Introduction

Our civilisation is confronted with the challenge of rising higher and higher on its developmental ladder. We are challenged with the double task of giving everyone the opportunity to enjoy accomplishments of progress, while at the same time preserving our planet; respecting its environment and engaging in a sustainable use of natural resources.

In other words, we are to use fewer resources while extending access to ever more goods and services with an ever increasing quality to more and more people; in brief: to find ways for using less resources to mean more value of goods and services available.

For thousands of years, humanity has been conscious of the essential nature of this challenge. Empedocles told us about the "four root elements" – water, land, air and fire – that compose the world, these four elements being governed by the principles of love and strife. Science led us to understand how all of these four elements could be seen as just one, but we are still struggling to understand how love and strife govern it.

As we are witnessing the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) in Paris, we think it is necessary to take this opportunity to assess the strategy intended to guide us through this process and come up with adjustments that are necessary.

Keywords: COP21, Climate Change, Spacial Planning, GHG Emissions, Global Warming

2. The erosion of the Earth summit vision

The Earth Rio Summit of 1992 was the culmination of a strong environmental movement. It approved a far-reaching sustainability framework made of a comprehensive set of principles, declarations and conventions, such as the Rio Declaration on Environment and Development, the Agenda 21, Forest Principles, Convention on Biological Diversity, Framework Convention on Climate Change (UNFCCC) and United Nations Convention to Combat Desertification.

Whereas Rio marked an international crescendo towards a comprehensive sustainable development movement, the UNFCCC process has side-lined all remaining crucial environmental issues from public opinion main debates. Water, oceans, forests, poverty, smog, biodiversity, to name just the main topics became either second-order concerns or even worse, they are viewed as reflections of a hypertrophic climate change vision.

On 9 May 1992, the UNFCCC was adopted, and entered into force on 21 March 1994. Starting from 1995, formal meetings of the UNFCCC Parties (Conferences of the Parties - COP) have taken place in order to assess progress in dealing with climate change. They became the world's main annual gathering on environmental issues.

The third COP – gathered in Kyoto on December 1997 – gave new impetus and clout to the climate change perspective based on a set of explicit or implicit assumptions:

- (1) Global warming is the most important development flaw of humanity and it must be combatted with the highest priority overshadowing any other considerations;¹
- (2) Carbon dioxide is the most crucial greenhouse gas, so much so that other greenhouse emissions can be seen as its simple derivatives;²
- (3) Global warming is the direct and arithmetic product of greenhouse gases derived from human activity and therefore it is possible to precisely equate the future warming increase in global temperature in °C degrees with past tons of carbon emissions;³

The solution agreed in Kyoto consists of heavy administrative constructions regulating emission permits combined with opportunities to trade these permits. It ostensibly ignores the two most obvious factors influencing emissions: technology and price.

Regarding atmospheric emissions with potentially climatic devastating effects, existing scientific evidence⁴ is sufficiently robust to make the case for aiming at curbing human originated greenhouse emissions close to the level of emissions in pre-industrial societies⁵.

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¹ The Kyoto Protocol implemented the objective of the UNFCCC to fight global warming by reducing greenhouse gas concentrations in the atmosphere to "a level that would prevent dangerous anthropogenic interference with the climate system" (Article 2, UNFCC, 1992).

² Article 3.1, Kyoto Protocol, 1997, "The Parties included in Annex I shall, individually or jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts".

³ Article 5.3, Kyoto Protocol, 1997, "The global warming potentials used to calculate the carbon dioxide equivalence of anthropogenic emissions by sources and removals by sinks of greenhouse gases listed in Annex A shall be those accepted by the Intergovernmental Panel on Climate Change and agreed upon by the Conference of the Parties at its third session".

⁴ Van Vuuren, D.P.; et al., "Meeting the 2° degree target. From climate objective to emission reduction measures", Netherlands Environmental Assessment Agency (Planbureau voor de Leefomgeving - PBL), Bilthoven, December 2009, http://www.pbl.nl/sites/default/files/cms/publicaties/500114012.pdf; Knopf, B., Edenhofer, O., et al., "Managing the low-carbon transition – from model results to policies", The Energy Journal, Volume 31 (Special Issue 1), The Economics of Low Stabilization, 2010.

Whereas discussions of the target, the pace, the cost and the role of the diverse actors on the necessary transition strategy would in any circumstance remain complex, a debate set on this simple basis would skip all the wasteful distraction provoked by the precise climatic equations derived from these three postulates that have been leading international climate negotiations ever since.

Regarding the measuring of the Earth atmosphere temperature, public opinion has been bewildered by contradictory appraisals of the phenomena made during the present century. After a lot of speculation on the so-called pause in global warming in the beginning of the century, now the trend seems to be reversed. According to recently research published research, world temperature estimations published by the IPCC may dramatically underestimate global warming.

Whoever deeps into the technical discussion will see how intrinsically complex the issue is and how much technical controversies raise doubts on the precise measurements, notwithstanding the existence of a largely consensual view of a global warming trend.

If measuring world temperatures appears to be a tremendously difficult, complex and debatable task, the measurement of historic emissions that would translate into these temperatures has been an even more daunting undertaking. While the several types of GHG have very different atmosphere life cycles and greenhouse impacts, precise appraisals of the specific GHG emissions from several human activities are difficult to assess.⁸

According to the US assessments⁹ the whole land use contribution to GHG emissions (estimated at 17%) might be more than two times offset by land ecosystems carbon capture. Large uncertainties therefore exist in this domain. To understand how crude the GHG emission assessments are, we just have to take into consideration that the scandal on car emissions had no impact on these assessments.

Conversely, the adaptation costs of diverse economic systems to GHG emission limitations are very diverse. It defies elementary logic to treat these diverse GHG emissions as a single issue as Kyoto did. For instance, whereas little effort was necessary to erase most of the GHG emissions of the former GDR – as its economic system was doomed for political reasons – the adaptation of car motors proved to be much more complex. To treat issues as diverse as these with the same "tradable carbon emissions" system is totally unreasonable.

Moreover, these equations have been established at the producer's level, ignoring the dramatic impact of the recent globalisation movement in the delocalisation of activities with heavy GHG emissions. This impact was further underestimated as the long-distance transport

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⁵ In 2010, Parties to the UNFCCC agreed that future global warming should be limited to below 2.0 °C (3.6 °F) relative to the pre-industrial level. UNFCCC, COP 2011, Report of the Conference of the Parties on its sixteenth session. Addendum. Part two: Action taken by the Conference of the Parties at its sixteenth session, Geneva, Switzerland: United Nations, p.3, paragraph 4. Document available in UN languages and text format.

⁶ See for instance http://www.noaanews.noaa.gov/stories2015/noaa-analysis-journal-science-no-slowdown-in-global-warming-in-recent-years.html and many critical appraisals such as http://judithcurry.com/2015/06/04/has-noaa-busted-the-pause-in-global-warming/

Thomas R. Karll, Anthony Arguez, et al., "Possible artifacts of data biases in the recent global surface warming hiatus", Science, 26 June 2015, Vol. 348 no. 6242 pp. 1469-1472, http://www.sciencemag.org/content/348/6242/1469.abstract

⁸ Some scientific estimates of GHG in food production have been far higher than the official UNFCCCC ones; see for instance http://www.fao.org/nr/land/sustainable-land-management/soil-carbon-sequestration/en/ or http://epi.yale.edu/the-metric/carbon-price-agriculture.

The amount of CO₂ that is removed is subject to large uncertainty, although recent estimates indicate that on a global scale, ecosystems on land remove about twice as much CO₂ as is lost by deforestation. http://www3.epa.gov/climatechange/ghgemissions/global.html#two

(air and sea) is in practice exempt from any emissions control and most of this delocalisation effect was hidden by Kyoto clauses excluding less developed countries from emissions limitation mechanisms.

This construction was supposed to produce reliable national Carbon emission estimates at the global level which could be caped and afterwards traded in a titles market. This is the symbiosis of the worst kind of central-planning bureaucratic logic with the worst type of "Casino ideology" systems.

3. How can we evaluate the decades-long policy development?

Twenty-three years and twenty conventions after Rio, we should expect an evaluation of earlier strategies, what were their costs and achievements, what was successful and what wasn't, but such evaluations are rare¹⁰ or non-existent in official documents that for the most part keep repeating or emphasising the same jargon used in previous editions.

The existing data on the issue – available elsewhere than in the responsible United Nations agency – paints a very dark picture.

A recent IMF working paper¹¹ estimates that the global subventions given to energy in 2015 are 5.3 trillion \$, i.e. 6,5% of global GDP. Emerging and developing Asia – a region comprising most of South Asia – appears as the one where these subventions are highest. Most of these subventions, estimated at over 80% by the IMF study, relate to the external costs of energy use, not covered by taxes:

"An important point, therefore, is that most (over three-fourths) of the under-pricing of energy is due to domestic distortions—pre-tax subsidies and domestic externalities—rather than to global distortions (climate change). The crucial implication of this is that energy pricing reform is largely in countries' own domestic interest and therefore is beneficial even in the absence of globally coordinated action." ¹²

According to the Economist¹³, subsidies to renewable energies amount to circa 100 billion dollars per year. A recent study¹⁴ commissioned by the DG Energy estimates that the EU-28 subventions to renewable energy in 2012 at 41 billion €. From this amount, feed-in tariffs represented 27 billion €.

A recently published manifesto, the Global Apollo Programme to Combat Climate Change, estimates that:

¹⁰ One of these studies available, which does not offer very comforting results is: United Nations Department of Economic and Social Affairs Division for Sustainable Development, *Sustainable Development in the 21st century (SD21), Review of implementation of Agenda 21 and the Rio Principles*, January 2012. http://www.uncsd2012.org/content/documents/194Synthesis%20Agenda%2021%20and%20Rio%20principles.pdf

¹¹ David Coady, Ian Parry et al., IMF Working Paper Fiscal Affairs Department, "How Large Are Global Energy Subsidies?", May 2015, http://www.imf.org/external/pubs/ft/wp/2015/wp15105.pdf.

¹² Ivi, p. 20

E.L., "How renewable energy can become competitive", The Economist explains, 3 June 2015, http://www.economist.com/blogs/economist-explains/2015/06/economist-explains-1

¹⁴ Sacha Alberici, Sil Boeve, et al., "Subsidies and costs of EU energy. Final Report", 11 November 2014, European Commission,

https://ec.europa.eu/energy/sites/ener/files/documents/ECOFYS%202014%20Subsidies%20and%20costs%20of%20EU%20energy 11 Nov.pdf.

¹⁵ Ivi, p. 21. Feed-in tariffs – as well as feed-in premium – are administratively complex and very costly devices that are a by-product of the administrative logic for targeting carbon emissions used by the UNFCCC.

"Worldwide, publicly-funded RD&D [Research Development & Demonstration] on renewable energy is under 2% of the total of publicly funded research and development – only around \$6 billion in total".

Summing up, we have a picture where governments give a staggering implicit annual subvention of 5,3 trillion \$ to energy, but spend only 6 billion \$ on researching the technology for renewable energies; broadly, a thousand times less money.

Only during the last four years of UNFCCC operation – that is, from 2011 to 2015 – the public global subvention to carbon emitting energy increased from 5.8 % of global GDP (\$4.2 trillion) to 6.5 % (\$5.3 trillion) in 2015. ¹⁷

Other obvious signs of the failure of the Kyoto system are the derisory price of the carbon permits in the secondary markets as well as the avalanche of failures or avowed frauds the system has given rise to.¹⁸

A recent midterm evaluation of the European directive on renewables¹⁹ does not define benchmarks and does not stand as a policy evaluation exercise as we understand it and should be regarded more like a public relations exercise than a substantiated assessment.

While it is scientifically clear there is an urgency to cut dramatically GHG emissions as soon as possible to avoid unpredictable catastrophic phenomena, available data and available scientific knowledge on both what is precisely happening with emissions and what will precisely result do not allow to elaborate exact predictions.

The developed world tries to point out its own success, implying that we should just repeat its strategy elsewhere, in order to achieve global success, but all existing evidence tends to suggest quite the contrary. In fact, several analysts are multiplying claims that the world might be marching towards a potentially climatically catastrophic emissions level.

Whereas this text cannot prejudge on the results of COP21, existing indications do not lead us to optimistic expectations. ²⁰

We think therefore it is the right time to think about a revamped basis for a new and coherent strategy to tackle the present issues, and draft a chart for the international community to reinvent Rio.

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¹⁶ David King, John Browne et al., "A Global Apollo Programme To Combat Climate Change", London School of Economics. These figures relate to the OECD only, but the authors consider that what is spent in the rest of the World in negligible. We should point out, nevertheless, that we are here using the concept of dissemination, broader than demonstration. http://cep.lse.ac.uk/pubs/download/special/Global Apollo Programme Report.pdf
¹⁷ IMF, Ivi, p. 19

¹⁸ In this regard, one can see a famous carousel system of fraud with ETS http://www.ibtimes.com/deutsche-bank-employees-charged-carbon-emissions-trading-scandal-2051788 and several organisations, which have been instrumental in explaining the failure of the system, as for instance, http://www.carbontradewatch.org/. However, reading the vast UNFCCC literature or inspired literature, one gets the impression the establishment believes the remedy to be to repeat louder the same stereotyped messages – using sometimes doubtful publicity messages – instead of assessing the efficiency of the policy devices used.

¹⁹ Mid-term evaluation of the Renewable Energy Directive, A Study in the Context of the REFIT programme, Delft, April, 2015, Study prepared for the European Commission DG ENER, https://ec.europa.eu/energy/sites/ener/files/documents/CE_Delft_3D59_Mid_term_evaluation_of_The_RED_D EF_PDF

 $^{^{20}}$ In this regard, see the press evaluation $\underline{\text{http://www.euractiv.com/sections/climate-environment/false-startbonn-climate-conference-318698}$ and the last version of the Bonn document: $\underline{\text{http://unfccc.int/files/bodies/application/pdf/ws1and2@2330.pdf}}$

4. An inclusive sustainable development strategy

Our basis should be the historical achievements of Rio 1992. It goes without saying that a strategy to be approved 25 to 30 years after the original one will need a reshuffle, and take into consideration new scientific and human developments, nevertheless without seriously challenging the global equilibrium attained at that time.

Ethical dimensions on environment conservation, such as basic human rights that are directly related to the Rio agenda, as well as the "animal welfare" dimension, already introduced in the European legislative architecture regarding sustainable development, should not be forgotten.

It is necessary to integrate all these objectives in a consistent table of goals, where each action's scores are judged according to a multiple set of objectives.

Economics basic logic²¹ broadly suggests three effective alternative postulates to the ones described above (see point 2, page 2) to combat the negative impact of GHG emissions:

- (1) To use price incentives, that means, to tax production or consumption of goods and services production emitting GHG and to subsidise those alternative production or consumption methods that cut GHG emissions;
- (2) To act as close as possible to the source of the problem, having full regard to its externalities;
- (3) To invest in pure and applied research as well as on dissemination of alternative production or consumption systems with low GHG emissions.

Regarding price incentives, as the previously quoted IMF study proves, in spite of all the claims to the contrary, public authorities continue to give incentives to GHG emissions. These should be caped and eliminated as soon as possible in every economic system. A coordination – as common as possible – to tax GHG emissions should be set. Alternatively, or concurrently, a mirror system of subventions or tax reductions on GHG emissions should be imposed.

The United Nation legislation should foresee a clause to this effect, and regard it as the outmost priority. The existing "cap and trade" alternative proved to be no sound alternative to the price mechanism. The old "cap and trade" mechanisms can be kept in so far as they will not hinder needed rational price incentives.

Regarding the second postulate, it means that instead of dealing with abstract general goals, legislation should address specific issues.

Take the case of the Montreal protocol of 1987 phasing out Chlorofluorocarbons (CFCs), which the Economist considered to be the most successful international agreement so far in

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²¹ We avoid getting into an epistemological discussion on what economics may mean here, but this goes broadly in line to the notions of subsidiarity, market economics and Schumpeter.

²² Whereas direct monetary subventions to GHG emissions are legion in less developed countries, they exist right in the heart of our developed World as well. When I bought a small farm in my native country, I was surprised to realise I got no public incentive to install solar panels or the electrical generation wind mill but I did benefit of a roughly 50% subvention on diesel for the generator, according to national rules in full conformity with European law. More recently, when claiming transport expenses in another EU member country, I was surprised to realise the public payment varies with the power of the motor of your private car (a proxy for GHG emissions), what amounts to a pure "polluter-receives" principle.

relation to emissions.²³ As the agreement was meant to protect the ozone atmospheric protection, not to diminish GHG, CFCs were mostly replaced by perfluorocarbons (FCs) and hydrofluorocarbons (HFCs), which do not attack ozone but still have a tremendously powerful GHG emission impact.

Although reasonable alternatives exist – such as natural refrigerants²⁴ – no international measure was yet approved to impose them, while most developed countries have promoted only very limited mitigating measures. Taking into consideration that the impact of such substances is measurable as thousand multiple of the CO₂ impact, any sensible tax on GHG would have done away with it. Alternatively, a concrete specific approach would have solved the problem as well.

If CFC is perhaps the clearest example of the need of a sensible environmental policy, that takes into due consideration all relevant objectives (in this case, ozone layer protection and climate change), there are many examples of how using simple price instruments would produce better results.

One can argue against this "down to earth" approach on the basis of the negative consequences it had whenever it was allowed by Kyoto. A case in point is air travel. However, the problem here is not the sectoral strategy; the problem is that the national and international bodies overseeing the sector function as a sort of "trade unions" representing business interests rather than regulating authorities. Business has a place next to environmentalists, consumers, scientists, workers, elected authorities and other stakeholders, but it should not be the single stakeholder taken in consideration.

Furthermore, this proposed approach implies that all relevant environmental legislation should have a single governing structure that should monitor the application of the law and evaluate the regulations on the base of a points system. If a reasonable global emissions appraisal impact on relevant aims had been adapted, the European support to diesel would have never been possible. As the negative impacts on NOX and micro-particles of a diesel car far outweigh its advantage in CO₂ emissions, the European sponsored diesel mania should have never happened. The same principle should also apply to other key issues like dams, use of agricultural products as fuel or nuclear energy.²⁵

Land-use and spatial planning seem to be the most promising areas in the GHG emissions debate, but they are almost completely missing from the discussion. Sustainable farming and livestock management techniques (as well as healthy reforms to our food system²⁶ that can go along with them) have an immense potential for Carbon capture and sequestration and curbing emissions.

As much as a third of energy consumption is domestic and a large part of the transport has to do with spatial planning or lack of it. Intelligent urbanisation policies – including intelligent architecture and design – have therefore a vast potential for decreasing GHG emissions while

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²³ Economist, "The deepest cuts. Curbing climate change", 18 September 2014, http://www.economist.com/news/briefing/21618680-our-guide-actions-have-done-most-slow-global-warming-deepest-cuts

Paula Tejón Carbajal, "Natural refrigerants: The solutions", Greenpeace International, http://www.greenpeace.org/international/Global/international/planet-2/report/2009/5/natural-refigerants.pdf

The European Commission has been the most radical public authority on separating climate change from the global environmental agenda. It even created a specific Directorate General for Climate Action, which is independent from the Environment Directorate-General.

Elke Stehfest, Lex Bouwman et al, "Climate benefits of changing diet", Springer, 2009, https://foodethics.univie.ac.at/fileadmin/user-upload/p-foodethik/Stehfest E. Netherlands Enviro Ass. Agency 2009. Climate and diet.pdf

dealing with others objectives as well. However, all of this is forgotten in the so-called climate debate.

Initiatives in non-environmental issues need as well to be closely assessed from an environmental point of view. It makes no sense for modern trade agreements to ignore the large negative impacts of long distance trade, either regarding GHG emissions or biodiversity. Even more so, it defies comprehension how the only references to trade on the texts proposed to COP21 are meant to insure that no GHG emissions measure will hinder trade.

As regards the third postulate, we know that ultimately the achievement of the Rio objectives will need several scientific breakthroughs, modern living system reforms, applied research and a large effort on dissemination on issues like urbanisation, energy, food, land management or transport.

Most of these challenges will undoubtedly be tackled by grass-roots initiatives. Nevertheless, at the international or the national level, three fundamental elements should be addressed:

- (1) Promote international fora on the aforementioned proper reforms and scientific discussions;
- (2) Insure that international funds are committed to research and dissemination;
- (3) Build an intellectual property rights system relating to Rio, which can be freely accessed and can enhance technological development in less developed countries or regions.

5. A road map for a new Rio

In this context, it is useful to put forward some suggestions.

5.1 On COP 21

On one hand, several suggestions presented in the document signed in the framework of the Bonn Climate Change Conference in October 2015 bring positive and useful references to sustainable development as a whole, or to other specific domains of the Rio agenda. There are also positive mentions to financial mechanisms and some hints to research. An effort should be made to strengthening these references on these items in the agreed final text.

On the other, vital issues of the debate are completely or almost completely out of the agenda. There is not a single mention to livestock (either from a pure GHG point of view or in terms of animal welfare) and very few to land-use clauses (mostly narrowing the approach to the issue of forestry).

There is no mention of spatial planning or specifically to the crucial issue of urbanisation, including intelligent architectural designs. No reference either is made to the most urgent and sensitive issues of air or sea transport, transparent systems to oversee car GHG emissions, fluorocarbons or global trade. Quite on the contrary, as we saw, trade is mentioned twice as something that cannot be restricted in the name of combatting emissions.

COP 21 is therefore quite behind on the challenges we still need to address.

5.2 On Governance

The international community should not adapt its agenda to the priorities of the international bureaucracy, but on the contrary the latter should follow the priorities established by the former. The fact that the original governance rules of the several Rio initiatives establish

diverse methods and calendars for its international initiatives does not mean that these cannot be brought together, using the form of "extraordinary meetings", if necessary.

Whereas proposals for the creation of new environment and development world organisations have been made and they might be useful to develop, we should not wait for their creation to start acting. Regarding existing trade, economic and development entities, we should ensure they can't ignore any of the dimensions of an updated Rio agenda. We should leave open the question of changing the formal international organisation architecture.

In any circumstance, it is important to immediately introduce in the agenda for COP 22 the three crucial themes: (1) Forbidding public subventions to GHG emissions and introducing a debate on pricing of GHG emissions; (2) Introducing thematic concrete sectorial debates where GHG emissions as well as other enhanced Rio objectives can be taken in consideration and (3) Creating a research and dissemination agenda on intelligent economic systems providing sustainable solutions either in GHG emissions or in other points of the agenda.

In the present UN-configuration, where vested particular businesses command entire sectorial governing bodies, should be challenged by civil society and democratic representatives in order to force their opening to all relevant stakeholders and to ensure full transparency in its functioning.

A points system encompassing the enhanced Rio agenda should be considered, with quantification of the several objectives and targets that have to be established at the national, regional and international levels.

5.3. On immediate initiatives

Land-use, spatial planning and urbanisation are the areas that look most promising in terms of short-term results for all enhanced Rio agenda issues, including GHG emissions.

Sustainable land use techniques might not only prevent the loss of carbon from the soil but ensuring as well it works as a large-scale sink for carbon in the atmosphere. Intensive use of land can be drastically curtailed if intensive livestock production is also reduced. Strong arguments from animal welfare as well as human health concerns exist to support this claim. The impact of urbanisation on land-use shall also be seen as a concurrent problem to be addressed. Urban sprawls increase transport needs and diminish available space for sustainable agricultural land use and for wildlife.

Urbanisation does not only call for intelligent spatial planning but also for an intelligent architectural design that can maximise the use of its energy potentials – imbedded solar and wind systems, water capture and waste use – as well as minimise its energy losses.

International initiatives in these domains ought to be considered in the short run.