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« After Copenhagen,

Revisiting both the scientific and political framings of the climate change regime»

Amy Dahan

(CNRS, Centre Alexandre Koyré, Paris-France)

Introduction

For twenty years now, the so-called “climate regime” went on, following a precise scientific framing, in a political process. The IPCC has been a key actor in this process. Now, a few months after the Copenhagen conference, the failure is confirmed, and the regression seems to deepen. The present crisis of the “climate regime” testifies to the end of a cycle initiated more than twenty years ago. The crisis affects at once the political process, the scientific framing and the relationship between the two. It is therefore important to take seriously attacks against the IPCC, because the visibility of critical voices and the skeptical offensives are signs of this crisis.¹

The first part of this paper will revisit briefly this framing of climate change, its tacit assumptions (the interactions between science and politics, the role of expertise, the co-production process) and recap the different phases between Rio (1992) and Copenhagen (2009) (the room for maneuver left to developing countries, the turning point of 2002-2003, and the rise of the stakes of adaptation...)

The second part focuses on the analysis of Copenhagen’s failure. Countries of the Basic Group (Brazil, South Africa, India, China) and the US rejected the top-down approach, which has prevailed since the Kyoto protocol, and which is associated with the quest for an ambitious treaty, which would be ratified by all countries and fix reduction targets for each one. As the Copenhagen Agreement stated, a bottom-up approach prevailed, where climate policies will be separately determined by each country according to its possibilities and its will. So, the crisis is deep and not contingent; it testifies to the new geopolitical order and violently contests the framing of climate change.

The third part of the paper will be devoted to the period opened by the failure of 2010. The crisis launched a critical offensive, even a contrarian movement, focused on the framing of the climate change problem, even on its very existence and on the role of the IPCC. However, a whole set of reflexive analyses provided by social scientists (sociologists, geographers, sciences studies scholars etc.) seems particularly interesting to review because it shifts the focus from the links between science and politics, toward the relationships between sciences and societies and allows us to conceive climate change as a multi-scalar challenge (local, national, cosmopolitan...).

¹ This text is strongly inspired by a research report redacted under Amy Dahan’s direction following a mission to COP 15 in Copenhagen. A. Dahan, Aykut, S., Buffet, C., Viard-Cretat, A., *Les leçons politiques de Copenhague : Faut-il repenser le régime climatique ?* Koyré Climate Series, n°2, February 2010. The research mission was supported by the Institut Ecologie et Environnement (INEE) of the CNRS, and we would like to express our gratitude.

Our position (in our research team), as observers of the climate regime² for a number of years now, is above all reflexive. Our objectives are to analyze political dynamics, the role played by science and scientific and technical expertise; to study how questions of governance, democracy and equity are posed (NGOs, civil society); and, finally, to study how solutions for the future and climate politics are elaborated and constructed between interests, both pragmatic and utopian. It is the race, between climate degradation, on the one hand, and the implementation of effective policy measures for the fight against global warming, on the other, that is, for us, the determining tension according to which the lessons and outcome of the Copenhagen Conference, as well as the future of international negotiations, may be judged.

1. A look at the history of the climate regime: from Toronto to Copenhagen

The construction of the climate problem on the international political stage is a process begun in Toronto in 1988/1989, following the success of the Montreal Protocol (1987), established for the sake of fighting ozone depletion. The success of the Montreal Protocol gave rise to a model for constructing international negotiations on climate change. Supported by the IPCC's establishment in 1988, the Rio Earth Summit in 1992, and the implementation of the United Nations Framework Convention on Climate Change in 1994, then by annual climate arenas (the COPs) and the IPCC reports (1990, 1995, 2001, 2007), the climate regime brought together a growing number of actors and partners, gave rise to new research practices, and witnessed the confrontation of diverse political stakes and economic interests.

Several notions arising from distinct disciplinary and epistemic universes intersect within the terminology of this concept of "regime": notions coming from the domain of international relations, from 'science studies', which privileges the study of the role of science and expertise, and finally, from the discursive regime (Foucault's work).

For twenty years, the climate regime was principally formed around three elements, which I will briefly summarize:

- a) *A political process and a climate expertise that are separate but closely linked.*

The IPCC was created in 1988 by two organisms linked to the United Nations: the World Meteorological Organization and UNEP. From that date onward, scientists and politicians proceeded jointly. From the onset, the science of climate change formed the cornerstone upon which discussions and negotiations were constructed. The IPCC is constantly referred to in the climate arenas. Each one of the IPCC's reports was behind important moments of political decision. The 1990 report prepared Rio and the creation of the Convention; the 1995 report is directly linked to the elaboration of the Kyoto Protocol; the 2001 report fostered the Adaptation turn; only the 2007 report, associated with the Nobel Peace Prize, has not accomplished as much. Admittedly the risks revealed by the methodology of global numerical modeling and of extremely sophisticated expertise, did give rise to many suspicions on the part of developing countries throughout the 1990s (not to mention the oil-producing countries). The IPCC was accused of extreme dramatization of the climate threat, and of wanting to impose, in an authoritarian manner, a perspective that was judged as too physicist and globalizing. Nevertheless, the efforts at education and reflexivity deployed by the IPCC, the attention paid to the concerns of the South (land use, forests, extreme events), the alliance formed with NGOs that accompanied the rise of

² See the previous research report following the COP in Poznan, A.Dahan, S.Ayikut, H.Guillemot & A.Korczak (2009), *Les arènes climatiques : forums du futurs ou foires aux palabres ? La Conférence de Poznan*. See also, A.Dahan (2009), "Entre Poznan et Copenhague : le régime climatique, au milieu du gué," *Natures, Sciences, Sociétés*, 17, 271-282.

the theme of adaptation, appeared to overcome these tensions. With the political failure of Copenhagen, it is these critiques that are coming back with force.

From the beginning, the IPCC has been involved in the political process; being an intergovernmental body, it is subject to political influence. Moreover, the summaries of its reports, written for decision-makers, have to be agreed on and adopted word-for-word by scientific redactors and political government representatives.³ However, in its discourse, the IPCC always hastened to affirm a linear and purified vision of its relation to the political process. This stance is expressed in the IPCC's famous credo: "policy-relevant, but not policy-prescriptive". This discrepancy between a "science-speaks-truth-to-power" rhetoric and a far more complex and hybrid practice, makes the IPCC vulnerable and today has placed it on the defensive.

In Science Studies literature, the notion of co-production refers foremost to the idea of a joint evolution of the scientific and political order and of the mechanisms that accompany or authorize it. The notion of the boundary is thus an important element:⁴ indeed, to say what is "scientific" defines, from the outset, the domain of the "political", and vice versa. On a first level, the climate regime is coproduced in the sense that the scientific framing of the question through general circulation models, and its political treatment in the UN arenas, through treaties intended to be signed by almost the entire international community, mutually reinforce each other. The political definition of the atmosphere as a "global common good" (or of CO₂, and the scientific definition of the global as a pertinent scale of analysis, combined with "downscaling" as an adequate method for returning to smaller units of analysis, echo each other. Nevertheless, this joint evolution cannot be reduced to a parallel, simultaneous evolution. More or less complex interactions intervene. Indeed, we have showed how the IPCC- SBSTA couple crystallized this coproduction, where the two a priori antagonistic tracks of political conflict and scientific consensus have mixed in a complex game of competition and cooperation.⁵ It is possible to take this farther. In this same literature, several works have shown, with concrete example, how "hybrid" or boundary objects are coproduced in a back-and-forth between science and politics.⁶ This is particularly the case with the 2-degree threshold⁷.

In the climate arena, several numbers and units of measure circulate, and are reified by actors. The number that traditionally dominated negotiations is 2 degrees Celsius, often coupled with 450ppm CO₂-eq. This number is tied into the framing of the climate question, which defines it as a problem of collective action, and thereby also defines the atmosphere as a "global common good."⁸ The number of 2 degrees thus corresponds to a threshold that is not to be surpassed, by analogy to pollution or use-thresholds in the more traditional cases of managing a common good.

b) A "sharing the cake" strategy, with CO₂ emission reduction numbers and stabilization objectives

The strategy of "sharing the cake" was inscribed in the Kyoto Protocol with a horizon of 2010 and with a view to developing countries. It aims to distribute reduction emissions at the global level and within a given time frame. The strategy has remained operative both in the quest to prolong the Kyoto

³ Cf. *Expertise et gouvernance du changement climatique*, R. Encinas de Munagorri (L.G.D.J.), Paris, 2009 ; A. Dahan, Climate Expertise : between scientific credibility and geopolitical imperatives, *Interdisciplinary Science Reviews*, 2008, vol 33, n°1, p 71-81.

⁴ Jasanoff, S. (1987). "Contested Boundaries in policy-relevant science." *Social Studies of Science* 17(2/May): 195-230, Shackley, S. and B. Wynne (1996). "Representing Uncertainty in Global Climate Change Science and Policy: Boundary-Ordering Devices and Authority." *Science, Technology and Human Values* 21(3/Summer): 275-302.

⁵ Dahan 2008 already mentioned.

⁶ Jasanoff, S., G. Markle, et al.,Eds. (1995). *Handbook of Science and Technology Studies*. London, Sage.

⁷ S.Aykut & A.Dahan, "Copenhagen : La crise durable du régime climatique ou la fin d'un cycle", *Nature, Sciences, Sociétés*, forthcoming.

⁸ Nordhaus, W. D. (1994). *Managing the Global Commons. The Economics of Climate Change*. Cambridge, MA, MIT Press.

Protocol in the post-2012 period, and in the search for a new treaty that would include the United States and the large emerging economic powers. In other words, the explicit framework of the negotiation process evolved more and more clearly towards the quest for an international treaty that fixes objectives for *all* countries, as well as a stage-by-stage implementation calendar, with emissions ceilings evolving with time. This was intended to happen based on a general formula, which is considered to reflect at once historical responsibilities, present capacities, and equity conditions. Now, this framework appears to the United States today, and to its democratic administration, to be an illusory ambition.⁹ It is also rejected, due to diverse reasons such as sovereignty and an absolute right to development, by the large emerging economies.

In the 1990s, the ambition of reduction numbers and objectives was the principal object of Kyoto Protocol negotiations between industrialized countries. These numbers pertain to politics. With the accentuated evolution towards a top-down and coproduced climate regime, these numbers and objectives tend to become elements of the framing itself, and are linked to scientific expertise.

c) A clear distinction between industrialized and developing countries

This distinction is made between countries, but also between the subjects that concern them: reduction and attenuation, on the one hand, versus adaptation and financing, on the other. This distinction was recognized starting with the crucial phase of the process' formalization -- the elaboration of the Kyoto Protocol (1994-97) -- which excluded the so called non-Annex 1¹⁰ countries from any reduction commitment and thereby recognized a differentiated responsibility of industrial countries in the question of global warming. The distinction was never questioned prior to Bali, even though it was the reason for the US' refusal to ratify the Protocol.

From 2002 to 2007, developing countries, united under group G77 + China, managed, through an exceptional activism, to establish adaptation as an important theme in climate negotiations. The climate problem seemed to encompass all of the problems of development and even of sustainable development, a concept whose potential for renewal was greatly dimmed by the background noise of the communication of all sorts of public and private institutions. This meant that all other environmental questions (biodiversity, water and soil management, nutrition and fishing), or question of North-South equity, which comprise the ensemble of questions around sustainable development, were progressively reconfigured by the climate change regime, subjected to the rhythm of its progression and the geo-political dynamic that was developing within it. At COP 13 in Bali, this evolution reached its apogee with the adoption of a mandate around four constitutive elements which had to be jointly negotiated in the Copenhagen COP two years later. These elements are:

- Actions to reduce emissions,
- Solutions for adapting to the impacts of climate change,
- Technological transfer,
- Financial mechanisms.

2. The failure of Copenhagen

For many NGOs¹¹, for concerned parties of the climate regime, for a portion of the global civil society, the future of planetary problems (climate, environment, development, North-South equity), were veritably on the agenda for Copenhagen. The global fabrication of the crucial character of this deadline, fed by the prospect of a meeting of 120 heads of state, is, moreover, astonishing in itself. This exaggerated hope – doubtless a fiction – misfired.

⁹ See the International Climate Agreements piloted by Joseph Aldy and Robert N. Stavins, distributed in 2008 at Poznan.

¹⁰ Non-Annex I countries are essentially developing countries

¹¹ Cf Radanne, P., E. Diaz, et al. (2010). "Les enseignements de la Conférence de Copenhague sur le climat." Association 4D.

The ascent, over the course of the first decade of the 21st century, of large emergent economies, above all China, who in 2007 became the biggest CO₂ emitter in the world, made the separation between industrialized countries and the undifferentiated block of developing countries all-together unacceptable, in particular for the US. Furthermore, the economic and financial crisis accentuated the economic competition between the emerging powers and western countries. Moreover, the bloc of emerging powers is far removed from any environmental discourse, put forth by NGOs in particular, on the planetary ecological crisis. In Copenhagen, the climate problem bluntly appeared, for the first time, not so much as an environmental problem but as a problem of the de-carbonization of productive capitalist economies, bringing into play in that transformation enormous competing interests and energy stakes. An age of *realpolitik* seemed to impose itself. With it, the questions of adaptation, along with its not-so-clear links to questions of development, were relegated to secondary importance.

The two-degree goal retained at Copenhagen, did indeed arise from a veritable scientifico-political coproduction, with several central actors, including the IPCC, the European Union, different expert committees like the WBGU in Germany, and more recently the G8 of l'Aquila. Moreover, focusing on a single number raised certain problems, because the number constitutes a "black box", which hides power struggles and scientific controversies from its construction.¹² Therefore, it is not evident to which temporal horizon the number refers, and this leaves the door open to a multitude of reduction scenarios, including the "overshooting" scenario (in which emissions surpass the fixed threshold). Even more importantly, in its 1995 report, the IPCC affirmed that stabilization at 550ppm would correspond to a probable warming of two degrees. Today, this threshold is considered to be at 450ppm¹³, possibly less, which is an all-together different level of ambition!

Thresholds, scenarios and budgets – the ascent of the top-down approach to climate change and the problem of governance

The two-degree threshold is inscribed in a more general framework of climate governance and its scientific handling. Without going into detail on these points, I want to underline the increasingly prominent evolution towards top-down approaches in the framing of climate change. This evolution passes first by a highly globalized consideration of CO₂ *concentrations* in the atmosphere, more so than a consideration of emissions, and culminates in what is called the carbon "budget" approach. The approach adopted in the IPCC's fifth report confirms the choice to privilege concentrations. Working on CO₂ concentrations allows for a change in methodology and for a consideration of "stocks" instead of "flux." The advantage consists of being able to determine an accumulated quantity of gas that is admissible in the atmosphere, of calculating the quantity that was emitted since the beginning of industrialization, and of concluding on the "budget" that remains. Subsequently, one descends from the global budget to a budget attributable to each country.

So, a growing and worrying hiatus was thus manifested in Copenhagen between, on the one hand, an alarmist scientific expertise, constructed around key numbers, thresholds and carbon budgets, which presupposes an effective global governance and corresponds to a top-down approach to the climate problem on a planetary scale; and on the other hand, a bottom-up approach which prevailed in the Accord, imposed by the US and China, who advocate for national policies and against restrictive objectives. Scientific expertise is thereby all the more weakened.

The myth of a new treaty (KYOTO 2) shattered

The Copenhagen accord can be deceiving, but an analysis shows that the failure was not contingent. It corresponds precisely to the fundamental wishes of the powers that today dominate the global geopolitical scene, and it represent the limits beyond which they do not seem willing to go. We could have a premonition about this at the time of the crisis that marked the end of the Bali conference: the

¹² On numbers transformed into black boxes, see Bruno Latour, *Pandora's Hope : essays on the reality of science studies*

¹³ A stabilization at 450ppm CO₂-eq corresponds to "better estimation" of the warming of 2,1°C, and a probability of 54% for exceeding 2°C (IPCC 2007, Working Group I report, ch.10, fig.10.8. p.826).

emergent countries' refusal of any restrictive objective for 2050 because it was up to developing countries to show the way and to take up ambitious reductions at home for 2020; the US's refusal of any goal for 2020 or 2050 that would constrain them, without placing equal demands on the big emergent economies. And Europe, which was full of the best intentions, was incapable of influencing a change in this opposition. It is necessary to take into account these structural limits in order to define effective directions for action, and in order not to recreate illusory objectives for Cancun.

A paradox reveals itself at the very heart of the mediation of the Copenhagen conference. On the one hand, there is the staging of a planetary voluntarism, which idealizes heads of state as the world's saviors, capable if they so wish, of orchestrating necessary energetic, economic, even political changes. This vision is, on the other hand, poorly adapted to the fact that states are limited in their decisions, by their exterior (international competition, other international regimes like the WCO), as well as in their interior (tensions inside the federal states of the US and Germany, the importance of lobbies, the role of public opinion, the limited room to maneuver in democratic regimes).

Instead of waiting – in vain – for a new Kyoto 2-type treaty, is it not more effective to acknowledge geopolitical realities, the room to maneuver that states actually have, and the concrete advances made at other scales of governance, without overestimating the capacity of UN summits to regulate the ensemble of the problem? At Copenhagen, we observed regions, Länder, states (including American and Canadian states), megacities, who are making important efforts to reduce their emissions; village alliances, which also develop numerous initiatives. Indeed, emissions reduction goes hand-in-hand with other urban concerns: developing public transit, fighting smog and pollution, reducing household electric bills, etc. There is a noticeable and significant presence of scales of governance smaller than that of the states that are already acting. We may wish for greater and better action, but this evolution is nevertheless palpable.

Our critique thus has to do with the staging of a global voluntarism, which regularly becomes something much bigger than what is warranted by the facts, and the demobilizing effect of this regime of messianic hope. It is important to begin once again to first concentrate efforts on domestic solutions, and then European policy. Those NGOs highly mobilized around the climate question, should they not rethink – if even partially – their role, in order to recover a critical attitude towards these questions within the national framework? If it is necessary to push the powers that be at all scales to go further, it is also necessary to prepare public opinion for transitions yet to come. The massive presence of civil society at summits is important, but it is not sufficient. The “global civil society” does not exercise direct pressure on a global power. In their final press conference, we saw important heads of state – Barack Obama, Nicolas Sarkozy --- address above all the public opinion of their own nations.

What today blocks the adoption of more ambitious climate policies, is not so much the leadership (the heads of state), as it is the absence of favorable social forces in various countries, or the existence of public opinion in the position to constrain this leadership. The multiple debates on ecological fiscality in numerous countries, the timidity of its implementation, notably in Germany, point to the road we have yet to travel.

3. The critical, even skeptical, offensive of 2010

Two dimensions of the climate regime seem to be under particularly strong attack today: the relation between science and politics and the UN governance framework for negotiations:

— The science-politics relation in the climate regime is determined by a singular expert organization – the IPCC, a major actor in the regime -- and by a novel relationship between politics and expertise. Numerous lines of disagreement seem superimposed around questions of the validity of the consensus, the legitimacy of the experts, and the neutrality of their opinions. The climate problem thereby constitutes a challenge for the analysis of science-society relations.

— The system of climate governance, constructed since the 1990s around a strategy of distributing reduction objectives, has focalized all efforts on the global level. In its center, the UN system, slow and heavy, is prone to various deadlocks: those imposed by states opposed to ambitious reduction policies, those tied to the least-developed countries' desires to bring all of their problems in to the negotiations. The climate governance system seems less and less adequate to the new geopolitical order at the dawn of the 21st century.

We will focus here on the offensive against the science-politics framing. It has developed on the terrain of Copenhagen's failure, even if certain elements already existed (for example, the so-called Climate Gate scandal). We don't want to remain silent on conflicts of interest, and on the targeted, interested, and systematic deconstruction of climate science by diverse interests and lobbies in the public arena.¹⁴ However, in this paper, I would like to underline several analyses coming from the social sciences (from sociologists, geographers, anthropologists), which strongly criticize the framing of the climate problem without directly contesting the anthropogenic greenhouse effect and being openly skeptical. We will treat two groups, which have in common one figure, the geographer Mike Hulme¹⁵.

The Hartwell Paper

This contribution to the post-Copenhagen debate merits attention. Published by two institutes of the prestigious London School of Economics and Oxford University and financed by the Japan Iron and Steel Federation, the Hartwell Report (Prins et al, 2010) brings together authors well-versed in the climate debate, who have regularly taken a critical position vis-à-vis the political process as well as the IPCC.¹⁶ The report takes as its point of departure a two-fold assessment of the failure. Its first target is the "Kyoto approach", which came to a halt in Copenhagen. For the authors, this path was condemned from the start, because the framing in terms of the "pollution problem", with fixed number objectives for reduction and a constrictive treaty, is not the solution, but an obstacle to solving the problem. Second, for them and we don't share at all this analysis, Climate Gate, that scandal of pirated emails from the University of East Anglia last November 2009, seems to the authors to have significantly eroded trust in climate science in general, and in the IPCC in particular on a permanent basis.

In contrast to the pollution paradigm, climate change is qualified as a "wicked problem," designated as belonging to a category of problems, which, due to their complexity and extent, cannot be entirely described in scientific terms. According to the authors, in the research that governs the domain of climate change, the answers depend on the questions asked, and each new piece of knowledge raises new questions. Thus, according to their argument, since more knowledge does not lead to greater certitude, the IPCC's failure is systematic. Its very construction, they say, is bound to fail, because it is founded on the model of public education (the "deficit model"), and thus on the belief that science can guide politics. Since the scientists do not succeed in having everyone agree, the political process does not advance.

¹⁴ See N.Oreskes and Erick Conway, *Merchants of Doubts*, Bloomsbury Publishing, 2010.

¹⁵ Founding director of the Tyndall Center for Climate Change Research, principal IPCC author for the third report, and now professor at the University of East Anglia. In 2009 he published a book in which he acknowledges the gravity of the climate problem while taking a pessimistic stance towards our capacity to "resolve" it. (Hulme, M. (2009). *Why we disagree about climate change*. Cambridge, UK, Cambridge University Press.).

¹⁶ Prins and Rayner have attacked what they call the "Kyoto road", that is, the hope for a constrictive treaty, with quantitative objectives for the bog emitters (Prins, G. and S. Rayner (2007). "Time to Ditch Kyoto." *Nature* **449**: 973-975. Pielke and Sarewitz are known for their critique of the IPCC's stance (Sarewitz, D. and R. Pielke Jr. (2000). "Breaking the global-warming gridlock." *The Atlantic Monthly*: 55-64, Pielke Jr., R. (2007). *The Honest Broker. Making Sense of Science in Policy and Politics*. Cambridge, UK, Cambridge University Press.). Grundmann has done important work on the science-politics relation in the climate change regime and in the case of ozone depletion (Grundmann, R. (2007). "Climate Change and Knowledge Politics." *Environmental Politics* **16**(3/June): 414-32.).

The authors thus propose to radically change paths, by abandoning any hope of a global and restrictive treaty based on reduction objectives, and any form of carbon markets. The problem, they say, should be dealt with by “indirect” measures. This formula consists of making climate policy for other reasons, as a collateral product of the solution to pollution problems in developing countries, of energy independence problems, and of approaches based on green growth and energy efficiency, and finally – and this constitutes the last turn of this astonishing paper – of access to cheap energy for all.

The Hartwell paper questions science-politics relations in terms close to those developed by science and technology studies over the past thirty years¹⁷, beginning with the critique of the “deficit model” and the “linear model”, of which IPCC partisans were prisoners, as well as the impossibility of closure in techno-scientific controversies. However, the “wicked problem” category used by the authors is not convincing, because their statement that it is impossible to completely establish causal chains is not peculiar to climate science. The impossibility of leaving it to science and technology to definitively close debates is, according to Beck, a general characteristic of our time; it is even constant through time, according to Bruno Latour.¹⁸ Worse, the report seems itself to be a prisoner of the linear model when it postulates that since there will be no scientific consensus, any direct political solution is compromised.¹⁹ Science and Technology Studies teach us that mechanisms for debate closure are always complex, never purely “scientific”, and that it is always beneficial to look at them in detail. The example of the two-degrees target, neither purely scientific, nor purely political, contradicts one of the fundamental arguments of the Hartwell Paper, according to which “a distinctive characteristic of the climate change debate has been of scientists claiming with the authority of their position that their results dictated particular policies”(p. 18) This unfounded statement is put forth without any concrete examples. The cursory condemnation of the IPCC does not leave any place for accurately evaluating its role in the climate arena, the manner in which it pushed the process forward, and contributed, through its forms of governance and action, to creating trust between states. Today, the IPCC reports serve as a foundation to a highly heterogeneous community of actors, and no state denies the reality of climate change in negotiations any longer. What is more, the Hartwell Paper remains silent on conflicts of interest, and on the targeted, interested and systematic de-construction of climate science by diverse interests and lobbies in the public arena. Finally, while it turns away from any global solution, the local policies recommended by the Hartwell paper seem particularly timorous and bereft of ambition.

The role of Social Sciences in the climate problem

Let us turn to the special issue of the Review *Theory, Culture, Society* (June 2010) devoted to the Climate Change problem. It brings together very diverse authors coming from different disciplines, and who are not known as skeptics. However, all challenge the scientific and political framing of the problem over the past 20 years, which led to very few results in terms of emission reduction. Following their assessment of climate risk (since the spectrum of positions is rather broad in this respect), they propose different measures and orientations. But, what unites them is the novel and ambitious place they want to give to the social sciences in the climate problem, and which they think poorly acknowledged by the IPCC. I will look at three of these authors: Mike Hulme, Sheila Jasanoff, and Ulrich Beck, whose reputation and work extends far beyond this issue of the magazine.

Climate change, they claim, contributed to dissolving three dichotomies of Modernity: Nature/Culture, local/global, present/future. But few lessons were learned from this, and there is a consistent attempt to re-create the boundaries between Nature and Culture, or to think in a deterministic way, relationships between the local and the global. For example, climate change is a hybrid phenomenon between Nature and Culture *par excellence*; however, extreme events (Katrina in 2005, Pakistan floods in 2010

¹⁷ (Jasanoff et al. 1995)

¹⁸ U. Beck, *Risk Society: Towards a New Modernity*. Sage Publications, 1992 (ed originale allemande 1986) ; B. Latour, *We Have Never Been Modern*, Cambridge: Harvard University Press, 1993.

¹⁹ This assertion is all the more surprising since Reiner Grundmann, had himself shown how the ozone problem was effectively fought without pre-existing scientific certainty. (Grundmann, R. (2006). "Ozone and Climate. Scientific Consensus and Leadership." *Science, Technology & Human Values* 31(1/Jan): 73-101).

or others) command attention only in so far as they are of anthropogenic origin, or in the proportion that they are...

What is common to all of these perspectives?

- The climate question is not a problem of pollutions, CO₂ is not analogous to CFCs in the ozone hole. It is a problem that pervades all human activity (a “wicked problem,” as the signatories of the Hartwell Problem called it).
- The Kyoto strategy was doomed to failure, and therefore had feeble results
- They generally argue against catastrophist visions, emergency discourses, statements according to which only 100 months remain to save the planet, from which stems a strong critique of the manner in which the Copenhagen meeting was constructed as a crucial and pivotal moment, by scientists, NGOs and the media.

Those most critical of IPCC science and scientists say that the framing is too scientific, that it de-responsabilizes people, that the IPCC remains attached to a traditional hierarchy of sciences with the natural sciences at its summit where only economics, sufficiently formalized and dignified, can participate in the expert enterprise and in defining climate politics. So, it is clear that these critiques are strongly marked by tensions between diverse epistemic communities.

Such critiques are particularly characteristic of geographers, notably Mike Hulme, author of an interesting and stimulating book *Why We Disagree about Climate Change*, who is also a signatory to the Hartwell Paper. According to Hulme, the IPCC manifests a climate determinism and reductionism, by considering that the climate is the essential factor for societies and that it determines their possibilities for development or survival. It is from this critique that stems an opposition to the vision of Group II of IPCC about adaptation strategies. While acknowledging the validity of the IPCC’s climate predictions for 2050, Hulme thinks that the social and political picture of a future in which these predictions would mix is very risky. This is due to the fact, he argues, that there is an irreducible level of uncertainty and the future is always open.

In general, geographers (and Hulme is a perfect illustration) severely judge articulations from the local to the global, as they operate in reports and in the IPCC’s conceptions. The prevailing globalization of climate, which has reached its peak (the concept of average temperature, average ocean levels, etc), is, in their opinion, de-culturized, and tends to efface our anthropological experience of climate and weather, which remains subjective and local.

Jasanoff and Beck, belonging to other epistemic communities (anthropology, sociology), notably engage in an examination of what climate change provokes or, rather, ought to provoke, as reflections in the social sciences, as research needs in those disciplines. Jasanoff insists on the need to construct bridges between large-scale, abstract scientific representations of environmental knowledge and the smaller scales of social signification. Using her concept of “civic epistemology”, Jasanoff emphasizes that sustainable representations of the environment don’t arise solely out of scientific activity, but are undergirded by cultural and normative comprehensions of the world. There is no neutral interpretative field, and the same numbers and facts acquire different meanings in different nations (think of GMOs, nuclear energy, etc). In her opinion, it is impossible that a global consensus could emerge solely out of expert consensus. Thus, while the IPCC was constructed to produce knowledge for the sake of a global politics, it cannot respond to particular national traditions of political legitimacy. That would be asking too much of it.

In his article *Climate for Change, or How to create a green modernity?* Beck meets Jasanoff on several points: for example, his first argument is that discourse on climate politics is an expert, elitist discourse, in which the people, societies, workers and citizens do not see themselves, and in which their interests are neglected. For him, it is a question of new growth or of green modernity that is on the agenda, or rather, an economic transition towards other modes of production and consumption (a new phase of capitalism or a new stage of civilization). Hence, the central question for a sociologist like Beck is to know from where could arise support for profound ecological changes that presuppose radical changes in behavior, consumption, life-style, growth, in these particularly uncertain times?

According to Beck, it is necessary to radically rethink the category of the environment, which is too narrow when it excludes human action and the social, and too broad, and even, as he says, suicidal, when it encompasses them, since then it no longer thinks politics at the level of meta-change and loses sight of modern society itself. By trivializing the terms of “climate politics”, we devitalize them, he claims, because we ignore that climate politics are precisely not about climate, but that they rather have to do with the transformation of all of the fundamental categories and institutions of nation-state modernity.

For Beck, social inequalities and climate change are two faces of the same problem: what he calls risk societies are, by virtue of the historical dynamics of their national systems and of international legislative systems, prisoners of a repertoire of behaviors that are completely surpassed by the gravity of the global ecological crisis. Like Jasanoff, he has a tendency to reverse accepted statements: for him, a global public discourse will not emerge from a consensus on political decisions - (based itself on scientific consensus)- but, rather, from *dissentions* (and *controversies*) about the consequences of decisions. Thus, the uncertainties (or insecurities) created could open the path to a transnational reflexivity, a global cooperation, and coordinated responses. Indeed, a cosmopolitan vision of ecology to him seems essential, in particular for developing countries. Beck insists on the danger of a politics (and a thought) of limits, which would be anti-immigration, anti-globalization, anti-modern, anti-growth, etc., because it would reinforce the conditions of an international caste system in which the poor of developing countries would be consigned to poverty (notably energy poverty) for perpetuity.

Thus, in this panel of authors, in spite of several divergences, climate change seems to offer new opportunities for reflecting on and conferring a determinant role to the interpretative social sciences.

Conclusion :

In the post-Copenhagen debate, the panoply of propositions reflects not only the different framings of the problem, but above all the diverse assessments of climate risk. The hope that everyone will agree around a scientific basis seems like an illusion. By way of a conclusion, I will emphasize four points that might serve to indicate orientations for action:

1. Climate change is not only a global problem. It is a multi-scalar problem, which can and must be treated on all pertinent scales. The staging of a global voluntarism tends to mask the set-backs *and* advances made on all other levels of governance; it delays actions that are compatible with local agendas and beneficial secondary effects. We thus ask for a principle of subsidiarity in the climate arena, to support and broaden local and national initiatives, and to lighten the international negotiations agenda.

2. Abandoning a planetary voluntarism in the climate arenas does not entail effacing those arenas. Climate arenas remain exceptional meeting points, where political State representatives, multiple actors from think tanks, academia, business, and civil society, can launch and disseminate ideas and technologies, compare solutions, and debate questions, that do not (or no longer) have other forums (since Johannesburg) that capture their scope.

These questions are : (green) development, equity, responsibility, global solidarity. The CoP are meetings in which inventory can be taken of the road covered and that which remains to be covered. In the record left by these 15 years of COPs, the *off* was ultimately more fruitful than the *in*. Abolishing these arenas would therefore be a regression and a waste. The exceptional mobilization of civil society in Copenhagen shows the importance of these sites, and the UN erred in fearing civil society and excluding it from the last days of negotiation – the presence of civil society is an important argument for keeping the UN framework.

3. The absence, at Copenhagen, of any mention of the Kyoto Protocol, is not accidental. It is a manifestation of the new dominant geopolitical order. Europe neither defended the Kyoto Protocol, which had given it an incontestable political capital in these arenas, notably vis-à-vis developing countries, nor proposed an alternative solution. Its lack of unity and the weakness of its modes of governance condemned it to a position of marginality and poor visibility. The fact that NGOs and developing countries formed an alliance to loudly claim themselves as representatives and followers of the Kyoto Protocol is paradoxical when one recalls the criticisms they once made of the Protocol and its ineffective results. In order to regain

its leadership, Europe must implement, within its borders, policy measures for reduction, (technological) solutions, regulations that work, that lead to effective emission reductions.

4. We are experiencing a convergence of several crises: the environmental crisis, the energy crisis, the climate crisis, and the financial and economic, and doubtless social crisis. The authors of the Hartwell Paper (whose criticism of the IPCC I do not share), or the nobelist economist Elinor Ostrom²⁰ are not wrong in suggesting that a certain climate politics can be adopted “for other reasons.” Even if this assessment calls for greater coordination between different political fields and separate international arenas like the OMC and the Climate Convention, or even between public health policy and CO2 emission reduction politics. This point of view tends to become more general in this moment – Obama just gave a press conference on energy issues in which he recommends these types of positions and actions.

Placing the climate question in the mainstream of unsolved problems might seem to trivialize the problem, to rid it of its absolute urgency. But it is necessary to note that we are far from being able to convince public opinions or governments that it is a matter of absolute peril (see studies of American public opinion, or the concerns of emerging economies). Hence, the debate on measures and policy must, as a result, acquire greater autonomy in relation to scientific assessment, and it must be led in a public and open manner.

The central question is to know from where might come support for ecological changes as profound as those demanded by the climate question, which presupposed such radical changes in behavior, consumption, life-style and growth? Indeed, climate politics are not precisely about climate, but concern the transformation of all of the fundamental categories and institutions of nation-state modernity.

²⁰ Ostrom, E. (2009). "A polycentric approach for coping with climate change." World Bank Policy Research Working Paper 5095.