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THE MAKING OF CLIMATE CHANGE POLICY: EXPERTISE, INTERPLAY OF SCALES AND TERRITORIALIZATION IN THE CASE OF FRANCE *

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Abstract
This working paper presents an ongoing research project that aims at better understanding the new forms of climate change governance in industrialized countries. In this regard, it addresses an emerging issue regarding the public policy of environmental protection: the making of climate plans. An interesting example of this is to be found in France, where the issue was recently debated through the Grenelle de l'environnement*, an extensive consultation on sustainable development. Two intertwined questions arise from this experiment: How can actors translate global imperatives into national specificities and constraints, and what are the implications of the concomitant hybridization processes for local territories and their populations? To answer these questions, this article provides an overview of the main empirical fields to be explored, and proposes to combine the contributions of the political sociology of public action with those of science studies, particularly those emanating from the sociology of translation.*

Résumé
Cet article présente un projet de recherche en cours qui vise à mieux comprendre les nouvelles formes de gouvernance qui se déploient aujourd'hui en matière de changement climatique dans les pays industrialisés. Dans cette perspective, il traite d'une question émergente en matière de politiques publiques de l'environnement : celle de la mise en place de plans climat. La France en fournit un cas exemplaire, suite aux récents débats organisés dans le cadre du Grenelle de l'environnement. De cette expérience résulte un double questionnement : comment s'opère la traduction au niveau national d'impératifs globaux sur le changement climatique, et quelles sont les implications des processus d'hybridation qui en découlent pour les territoires et leurs populations ? Pour y répondre, l'article expose une vue d'ensemble des principaux champs de recherche empirique à explorer, et propose de croiser les apports la sociologie politique de l'action publique avec ceux de la sociologie des sciences, en particulier la sociologie de la traduction.

Keywords | Mots clés
Climate plan; expertise; France; interplay of scale; territorialization; translation
Expertise ; France ; jeu d'échelle ; plan climat ; territorialisation ; traduction

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1. INTRODUCTION[1]

Do contemporary societies really have the ability to address issues of climate change, especially if one takes into account their political systems? The struggle against global warming refers to different types of rationality (science and technology, but also economic, legal, ethical or philosophical) that are incompatible with the logic of short term electoral politics. On the contrary, despite its authoritarian regime, China's national policy on renewable energy is making rapid progress. This brings into question the capacity of democratic political systems to deal with global environmental change (see the German counter-example). To date, efforts have focused on the establishment of an international regime, based on binding agreements, that is to say, a political technology of multilateral negotiation (Aldy and Stavins, 2007; Bodansky, 2001). But is this technology still appropriate? Indeed, the global nature of the phenomenon brings its own problems: it is now resulting in a strong hybrid, heterogeneous and fragmented international structure (Hulme, 2009; Pattberg, Zelli and Biermann, 2010). At the same time, dissemination of public action models in the fight against global warming poses not only the question of their own effectiveness, but also of their compatibility. Convergence of public policy in this area may eventually result *après-coup* in a binding agreement. Public action, however, still remains uncomfortable with the multi-scalar dimensions of the struggle against climate change (Jasanoff and Long Martello, 2004). The formulation of a comprehensive policy framework does indeed require the involvement of many actors and sectors of activities, not only at the global scale, but also at the national and local scales (Bulkeley, 2005).

How should one understand the formulation and implementation of these policies and the real and symbolic transformations they generate? This is another basic question that my research project seeks to address.

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1 This working paper was first presented at the 6th International Conference in *Interpretative Policy Analysis: Discursive Spaces, Politics, Practices and Power*, June 23-25, 2011, Cardiff University, Wales, UK – Panel 39: "Governing Climate Change: From 'Who Gets What' to Governmentality". The author would like to thank the participants of the panel for their comments and, more especially, Pieter Leroy for his critical review of an earlier version of this article.

In most industrialized countries, and in some developing ones, taking into account issues related to global warming has led to the formulation of 'new' policy priorities, whose cross-cutting programmes go far beyond the usual reference to the environment, ranging from consumption patterns to energy questions, through social problems and public health. In this context, the political translation of scientific and technical issues related to global warming is becoming more uncertain (Beck, 2010). In fact, refinement of climate models has led to the integration of more and more data, resulting in an increasing complexity of policy implementation and decision-making. Then again, if climate change debates can no longer be understood along a spectrum of a traditional left-right opposition (Giddens, 2009), which values and 'world views' could help one to make sense of it? This question, difficult to separate from the previous ones, is more specifically related to the relations between policy/politics at work in the fight against global warming. Indeed, despite the extension of climate change issues, its public treatment still needs to gain political consistency and traction, which calls for the creation of new lines of argument (Szerszynski and Urry, 2010). However, far from describing a step backwards, the tendency to re-politicize the problem requires the realization of goals that remained largely abstract so far – or what we might also call a "rise in singularity"[2]. Describing the dimensions at work in artistic creation, this expression then returns as a statecraft, which involves the development and implementation of 'new' policies or the recycling of existing ones.

Today, the interest of studying such policies is reinforced by the emergence of relatively new problems (extreme meteorological events, increasing urbanization and energy costs), which directly question the capacity of the political authorities to put concrete actions in place (Gramelsberger and Feichter, 2010). Accordingly, the very nature of the climate issues involved requires plans that coordinate numerous actors and sectors of activity. An interesting example of this is to be found in France, where the issue was recently debated through the *Grenelle de l'environnement*, an extensive consultation on sustainable development (Boy, 2010; Godard, 2008). As some comparative politics scholars have argued, starting with an in-depth case study can be a very useful

2 In the words of Nathalie Heinich (2004: 73).

tool in order to elaborate general hypothesis about an emerging issue (Dogan and Pelassy, 1982). Studying the French case is, therefore, all the more interesting as formulating and implementing climate plans is becoming more and more discussed in both academic and political worlds. Nonetheless, any analysis of the elaboration of such plans remains necessarily extremely complex. More generally, this means that the existing norms and global instruments regarding climate change need to be considered conjointly with their localized implementation constraints and objectives. This, in turn, introduces the problem of the interplay of scales of action and government.

2. INTERPRETING CLIMATE POLICY: EXPERTISE, INTERPLAY OF SCALES AND THE CONVERGENCE OF PUBLIC POLICIES

The first section of my working paper is devoted to give an overview of the main empirical questions that climate change addresses to contemporary public action, and the ways I foresee to deal with in my research project. Environmental policies have always gone hand in hand with major public action innovations and an ever-growing call for expertise (Miller and Edwards, 2001). All these different strands of knowledge reflect, for the most part, the particular complexity of environmental issues: scientific and technological dimensions need to be meshed with economic, social and political ones (Lascoumes, 1994). One of the key questions posed by setting up climate plans may involve having to ensure the eventual translation onto a *local* scale of what were, initially, *global* concerns. In this regard, the concretization of the climate regime warrants closer study of the way in which the climate change problem may be re-framed today by national and regional public policies. On this basis, three research areas, both cross-cutting and complementary, are targeted in my current and future inquiries: expertise and politics, interplay of scales and public action, convergence of public policies and international comparison.

2.1. Expertise and Politics

First of all, the climate regime is the result of a long series of interactions between science and politics. As such, international cooperation on

climate change is primarily a scientific and technical cooperation, where *expertise* is central (Encinas de Munagorri, 2009). Today, models and scenarios have strong influence on perceptions of climate change, in terms of both numerical predictions and quantitative knowledge (Dahan Dalmedico, 2007). Public programs are based on these datasets, but they must also be translated into a language intelligible to all, appropriate to national circumstances, including local and urban scales (Betsill and Bulkeley, 2008). Nonetheless, this need and the increasing complexity associated with these activities confront politicians and scientists with new challenges, underscored by many scholars (Driessen, Leroy and van Vierssen, 2010; Schneider, Rosencranz, Mastrandrea and Kuntz-Duriseti, 2010).

The need to take into account the regional dimensions of the climate change issue calls, here, for the making of increasingly fine projections. The latest models used by the IPCC, that try to address instabilities and explore the possibility of strong non-linearities in climate scales, are a step in this direction (Le Treut, 2009). Yet these gains in details also face obstacles: as a matter of fact, climate models are generally better suited to synoptic scales. Taking into account the local encourages, therefore, multidisciplinary approaches and the mobilization of other sciences – including humanities and social science (anthropology, geography, psychology, sociology, political science...). Other private or non-state actors (consulting firms, multinationals, think tanks, non-governmental organizations, etc.), though less often studied (Newell, 2000), also play an increasing role in the production of expertise and counter-expertise on global warming (Dahan Dalmedico, 2009). What influence(s) does this knowledge, embedded in other social and economic realities, exert, in turn, on the direction of political programs and public decision-making? Beyond the development of techniques for evaluating the threat of climate change, my research project also aims at mapping the actors producing practical knowledge in this area.

2.2. Interplay of Scales and Public Action

The public treatment of the climate change issue leads to the formulation of a more general hypothesis on the extension of economic, legal and social activities characterizing a modern state, via a great

diversity of discourses, norms, practices and technologies (Guattari, 2000; Pettenger, 2007). The political scope of the interactions to be considered appears all the more important if one bears in mind that the techniques mobilized (economical and legal regulations, models and scenarios, local plans, dashboards, incentive labels, communication kits...) and the many power-knowledge centres involved (national and international bureaucracies, research laboratories, public agencies, think tanks, consulting firms, environmental protection associations...) aim at orientating relations between political society (via modern administration) and civil society (via its citizens), as well as between individuals or the subjects themselves (Paterson and Stripple, 2010).

In this regard, the concept of *interplay of scale*, by drawing attention to the "interleaved nature of social structure" (Revel, 1996: 13), invites analysis to be re-centred on the mechanisms of translation and hybridization which lie at the very heart of these multiple relations: from individual to collective, from scientific to political, from local to global, and vice-versa (Callon, Lascoumes and Barthe, 2009). More generally, how does the attention paid to these dynamics allow us to better understand and grasp the specific issues related to public treatment of climate change (Brenner, 2001) and illuminate the understanding of certain phenomena of "strange loops" or "tangled hierarchies" (Hofstadter, 1979) that we can associate to it? Recognizing climate change as an exemplary case to address these issues, my research project is also intended to reflect on concepts and tools currently available to social scientists to better understand the increasing complexity of global environmental change.

2.3. Convergence of Public Policies and International Comparison

Faced with global threats and international incentives for sustainable development, most countries are questioning the ability of their political and administrative organization to implement appropriate responses. The trans-national nature of the climate change issue calls here to return to the forefront of the analysis the hypothesis of a *convergence of public policies*. From this view, international comparison can be seen as a necessity. On one condition, however: that the cases are not simply juxtaposed, but confronted to show at what level(s)

convergence takes place (objective, content, tool, mode of adoption, beneficiary, effect or dominant actor) and through what process(es) it operates (transnational harmonization, 'soft' convergence, mimetism or dependence) (Hassenteufel, 2005). Whereas there are some studies that highlight the role of the European Union (EU) and other industrialized countries in these processes (Wurzel and Connelly, 2011), little has been done on the action (or inaction) observed in some developing countries, but also in high-growth emerging states, to face the threat of climate change (Roberts and Parks, 2007). Then again, comparison can be a valuable analytical tool to improve understanding of how those actors confront this issue, discuss, own or reject it, in socio-political contexts and territories deemed not only distinct, but also distant from one another. Without neglecting the contribution of case studies, what does comparison tell us about the public treatment of climate change? The hypothesis of a convergence of public policy in this area is also assumed to reflect on their 'difference', noting the forms of extraversion and appropriation of certain models or instruments promoted by the government. By confronting analysis on industrialized and developing countries, my research project is also intended as an opportunity to broaden the debate on public policy towards hitherto understudied territories and continents (Africa, Asia, India or China)[3].

Climate change is a global environmental issue, which has resulted in a proliferation of state control devices in the last twenty years. These devices now have a significant impact on the formulation and conduct of public policy. Just as, in its time, the 'fear of hell' did more for religion than the 'promise of paradise', today the threat of climate change probably contributes more to political involvement in sustainability than a genuine concern for environmental protection – which consequently further complicates the ethical debate (Skrimshire, 2010). In the face of these developments, what role for social science research? Even as works on the topic abound, it still appears somewhat reflective about its own role (Yearley, 2009). Calling for an interdisciplinary dialogue (among political scientists, lawyers, sociologists, economists and geographers), my current research project invites then researchers,

3 In this regard, a conference – titled "Public Action to Address Climate Change" – will be organized by the Centre Émile Durkheim, at Sciences Po Bordeaux, France, March 15-16, 2012. See the call for papers: http://calenda.revues.org/nouvelle21184.html, consulted October 2011.

through critical and comparative lenses, to grapple with major issues related to the public treatment of climate change around the world.

3. CLIMATE CHANGE AND PUBLIC POLICIES: THE CASE OF FRANCE

The case study tackled in this article is based on the collation and analysis of a documentary corpus – focused on the materials and instruments developed by ministerial bodies, public agencies, research departments, local authorities, consulting firms, environmental protection associations and think tanks – and a dozen of interviews with major actors involving in the climate policy of France. With respect to the preliminary aspect of my investigation, the work exposed here mainly deals with 'policy in plans and legislation' rather than 'policy in practice', and proposes opened lines of thought more than definitive results and conclusions, all of which require further investigations. By organizing, in the wake of the last presidential election, a vast national debate on sustainable development, the French government made the "fight against climate change" one of its priorities[4]. The legislative application of those negotiations was to lead the government, but also local authorities and numerous civil society actors, to invest massively in the political treatment of this question. I will introduce the institutional process involved in that case before entering more into details and formulating specific questions it may invite to deepen.

3.1. Climate as Policy Priority

Policy-wise, climate change has been a major concern of the French government since the early 1990s (Chabason and Theys, 1991). Although integrated into the *Stratégie nationale de développement durable* adopted in the wake of the Rio Earth Summit in 1992, formulated as action plans in 1995, and then as a *Plan de lutte contre le changement climatique* in 2000, the French climate policy still has a prolonged uphill struggle to come up with concrete measures (Szarka, 2006). In 2003, when the EU was introducing its own greenhouse gas (GHG) emission trading scheme, the French government undertook to first stabilize emissions and then divide them by four by 2050 (the 'Factor 4' objective). This

4 http://www.legrenelle-environnement.fr/, consulted May 2011.

policy, which closely follows European guidelines (Connelly and Wurzel, 2011), was reflected the following year in the adoption of a new *Plan climat 2004-2012*, aimed at respecting France's international commitments and, more specifically, as set out in its prologue:

"To attract the adherence of our society at large and to encourage citizens' involvement by promoting awareness-raising and further information; to favour carbon-free sources of energy; to introduce ecology into the economy thanks to efficient, flexible innovative mechanisms; to prepare the future by means of research efforts putting France on the way to a low-carbon society; to make the public sector exemplary; to enable the local authorities to implement their own climate plans."[5]

Following the entry into force of the Kyoto Protocol in February 2005, this plan is revised every two years, in application of Article 2 of the Programme Law, laying down the orientations of France's energy policy, which was adopted a few months later[6]. In 2006, a new climate plan, updating the first one, was adopted to allow the country to respect its engagements and to prepare the post-Kyoto period. This plan adds ecological tax measures to the previous one, thereby foreshadowing several electoral debates (Hulot, 2006). By following the broad European orientation guidelines[7], France's climate policy finds itself based on two main pillars: that of *mitigation*, the reduction of GHG emissions, and that of *adaptation*, the reduction of the vulnerability of natural systems and humans as regards the real or supposed effects of climate change (Adger, Lorenzi and O'Brien, 2009; Jordan, Huitema, van Asselt, Rayner and Berkhout, 2010).

3.2. The Elaboration of a 'New' New Climate Plan

Based on a two-fold observation concerning the risks bound up with the degradation of the state of the planet, and the urgent need for action, the new President of the Republic announced in 2007 the launching of a *Grenelle de l'environnement*, a vast concertation procedure bringing

5 Mission interministérielle sur l'effet de serre (MIES), 2004, *Face au changement climatique, agissons ensemble. Plan climat 2004*, p. 1 (I translate).
6 Law n°2005-781 of 13th July 2005 determining energy policy.
7 European Commission (EC), 2008, "20 20 by 2020: Europe's Climate Change Opportunity", COM(2008), 30 final.

together the actors engaged in the issue of sustainable development: employers, trade unions, associations, State, local and regional authorities. Fortified by a campaign promise, the concertation process involved in these debates resulted in a large consensus and ambitious objectives, sustained by a particularly substantial financial effort[8]. At national level, the major commitments retained were the following: control of the demand for energy in new constructions, with the radical renovation of existing social housing; the end of the 'road-only' transport mode; the development of renewable sources of energy; and waste reduction[9]. At regional level, equally, the Grenelle Environment Forum marks an important step forward, by extending the planning process to all local authorities of more than 50,000 inhabitants. The updating of engagements and measures taken during the Grenelle Environment Forum led on to new legal provisions: the *Grenelle 1* law of programmation[10], the *Grenelle 2* law of programmation[11], and the 'greening' of the annual Finance Acts.

3.3. A Critical Interpretative Policy Analysis

In retrospect, analysis of this reform suggests the need to take a more qualified view concerning the logic of 'rupture' promoted by the government. Firstly, the highly performative nature of the mechanism put in place should be noted: the ephemeral institutionalization of a concertation, with a large portion of symbolic action; an affair, above

8 Ministère de l'Écologie, du développement durable et de la mer, 2010, *Plan climat de la France. Mise en œuvre du Grenelle Environnement*. Over 20% of the plan's budget is used for so-called 'green' measures, compared with 13% in the US, with financial support from the state reaching €140 billion in France over 12 years, against €70 billion in the US over 10 years ($102 billion). Similarly, the state and local authorities have committed a budget of €170 billion to be invested before 2020, compared with Germany's 'Energy and climate plan 2007', with additional sums added in 2009, for a total value of €42 billion (cf. Boston Consulting Group, 2009, *Réflexions sur le portefeuille de mesures Grenelle Environnement*).

9 We should notice here that three dossiers have been sidelined – GMO, water and nuclear power. The path followed by France in these fields – especially the choice of nuclear energy – should be emphasized in a comparative perspective (see the German or Swedish case).

10 Law n°2009-967 of 3rd August 2009 regarding the implementation of the Grenelle Environment Forum.

11 Law n°2010-788 of 12th July 2010 on the national commitment to environmental protection.

all, of images and symbols – all the more powerful as they enjoy high-profile media coverage – creating a supportive legitimacy which could come over as *not* being overly concerned with results. Secondly, the 'novelty' of the measures taken should also be relativized. If we consider the commitments made by France during the 1992 Rio Earth Summit, it was to take almost twenty years for the country to implement a concrete strategy of sustainable development. This encourages us to see the Grenelle Environment Forum less in terms of a radical 'green revolution' than as the simple update of a 'catching-up policy' (Godard 2008).

If the Grenelle Environment Forum comes over as a typically performative type of action, it nonetheless raises important questions in what concerns the *problematization* of public action. As regards the many discourses, practices and techniques involved in the making of climate change policy, this point should be emphasized and deepened, on both theoretical and methodological sides. In the sociology of translation, drawing on the reflection of Michel Foucault, the concept of problematization is used in a relatively broad sense (Latour, 1986): first and foremost, this concept means working out what, in terms of words and arguments, defines the border between what does *not* constitute a problem and what *does* – whence the need to study in detail the 'career path' of the instruments, documents and procedures used to format and equip the problem (Trépos, 1996); problematization is, however, equally used, in this light, to designate a hypothetical reality, whose successive recommencements in time only gradually become consolidated – whence the need to study also their successive transformations and developments (Rumpala, 2010).

For a number of authors, the Neo-foucaldian approach allows to better understand the emergence of new forms of authority, which articulates climate change as an economic issue that requires market-based solutions to facilitate cost-effective technological solutions (Oels, 2005). In this regard, one can assume that these 'solutions' tend to replace hierarchical command by coaching techniques designed to govern individuals' conduct 'at a distance' (Miller and Rose, 2008). Nevertheless, it should be stressed that, whether imposed or not, the instruments employed must equally be *appropriated* and that, accordingly, they are

always susceptible of triggering unexpected effects, making the final outcome of public action-in-the-making somewhat uncertain (Callon, Lascoumes and Barthe, 2009). The following sections seek to address those issues by giving some empirical landmarks to the study of the French case.

4. TRANSLATION: FROM GLOBAL SCIENCE TO NATIONAL EXPERTISE

In order to fully appraise such mechanisms, the first part of my enquiry examines the networks of stakeholders involved in evaluating climate risk across France, and the implementation methods that have been underlying this process for the last two decades. My explorations here have been fuelled by three main empirical fields – first, the methods and techniques developed by the Intergovernmental Panel on Climate Change (IPCC) in connection with the activities of French climate modelling laboratories; then, the development of a national body of expertise; and, finally, the elaboration of new systems for measuring and quantifying progress within the framework of the Grenelle Environment Forum. I will expose each of these empirical fields before discussing the territorialization process that comes along with it.

4.1. Scientific Framing of the Issue

Ever since the emergence of a global environmental governance policy, the authority of science in the field of climate change has largely depended on the work produced by the IPCC (Miller, 2002; Shackley and Wynne, 1995). As this body of experts reviews and assesses the work of other experts (peer review), this practice might therefore be considered as "meta-expertise" (Collins and Evans, 2007). At the same time, IPCC Assessment Reports receive a great deal of media coverage and play a key role in establishing science – although controversial – as a *sine qua non* in framing the uncertainties surrounding climate policy-making (Hulme and Mahony, 2010).

Understanding the dynamics behind this expertise, and the different operations of translation that can be attached to it, calls for a closer examination of the links created between the IPCC and the French

climate modelling laboratories. Research in science studies has revealed the extent to which increasingly critical geopolitical concerns have led, these last few years, to a partial reconfiguration of the scope of national research in some European countries (Nolin, 1999; Siebenhüner, 2003). In France, until the early 1990s, climate research was, accordingly, polarized in two main modelling laboratories: the *Météorologie nationale*, the state-run weather forecasting office, and the *Laboratoire de météorologie dynamique* (*LMD*), an affiliated member of the *Centre national de la recherche scientifique* (*CNRS*). In 1994, a new pole was opened at the *Institut Pierre-Simon Laplace* (*IPSL*), bringing together six research laboratories under the aegis of the *CNRS*, including the *LMD*. For the community of scientists working on climate change in France, the sociological dimension of their activity (organization and division of research between the different institutions involved, the position of the scientists on their models, the conception of what constituted 'good scientific practice', idealized personal projections of the scientists, environmental commitments…) seems to have been essential in determining how the broader geopolitical stakes were to be addressed (Dahan Dalmedico, 2008). In fact, these factors appear to have held far more sway than the presence (or absence) of national research policies promoted by the public authorities. That could well explain why today the essential part of the research carried out by these research centres reflects IPPC concerns[12].

4.2. Developing National Expertise on Climate Change

A second grey zone, which requires more ample consideration, relates to the expertise constituted by the French state. In 1992, the *Mission interministérielle sur l'effet de serre* (*MIES*) was established in order to respond to the international community's solicitations. The numerous reports on national GHG emissions produced by the *MIES* during the 1990s made it a key translation forum for global climate science, with its findings being regularly relayed by the media (Rabeharisoa, 1997). In the early years of the new millennium, the setting up of the *Observatoire national sur les effets du réchauffement climatique* (*ONERC*) marked an important new stage in the process. The *ONERC* was created in order

12 I refer here to interviews held with Hervé Le Treut, current director of the *IPSL* and member of the IPCC, and to information from his latest book (Le Treut, 2009).

to assess the problems associated with "increased global warming", and to adapt to eventual climate change, public health and economic consequences. Its expertise has greatly contributed to bringing global warming threats to the forefront. A more detailed scrutiny of the composition of this organization shows that several of the previously-mentioned political and scientific networks reappear[13]. Accordingly, the work of the *ONERC* invites to explore the ways in which the question of climate change has been qualified from the *technical* point of view: symposiums on the consequences of climate change and the threat posed by extreme weather phenomena; a guide produced for local government institutions on how to adapt to climate change; technical notices (pertaining to coastal areas in French's overseas territories, to grape growing and wine-production, or to mountainous regions...); evaluating the impact of climate change in parallel with the national climate change policy; aiding the implementation of regional climate policies; helping cities adapt to climate change, etc.

The other network involved in the development of this expertise includes major elements from the previously-mentioned actors: the machinery set up by the Grenelle Environment Forum itself, especially the activities of its "Fighting Climate Change and Controlling Energy Demand" think tank[14]. In this light, the continuity between *technical* and *political* problematization of the climate threat should be stressed

13 The president of the *ONERC* is Paul Vergès, senator of La Réunion, while its director is the leading meteorologist from the *Météorologie nationale*. It also includes members of the *MIES*, *Conseil national de l'air*, representatives from the government (Ministries of the Environment, Overseas Territories, the Interior, Public Works, Research, Agriculture, Industry and Co-operation), leading scientists specializing in France's overseas departments (*IRD* [*Institut de recherche pour le développement*], *CIRAD* [Centre de coopération internationale en recherche agronomique pour le développement]), MPs and members of the Senate, *Météo-France*, the *Institut français de l'environnement*, specialists in the field of climate impact (*CNRS*, *IPSL*, *CIRED* [*Centre international de recherche sur l'environnement et le développement*], INED [*Institut national d'études démographiques*], etc.), along with representatives from local authorities and environmental protection associations.

14 Co-presided by Jean Jouzel, former director of the *IPSL* and France's representative on the IPCC since 1994; Nicholas Stern, professor at the London School of Economics and Political Science, and former economist with the World Bank; along with two vice-presidents: Édouard Bard, geologist and professor at the *Collège de France*, and Yves Lions, architect and urban designer, founder of the *École d'architecture de la ville et des territoires* in Marne-la-Vallée, with ten members per representative college.

(Barthe, 2003). Indeed, the composition of this think tank clearly confirms the existence of key players (scientists, top-ranking civil servants, politicians...) (Boy, 2010), with multiple roles in both international and European networks, able to select and rank by order of importance the problems and solutions involved in elaborating the national public policies related to climate change.

4.3. New Scenarios and the Quantification of Progress

The third dimension of the translation processes to be considered concerns the elaboration of scenarios and progress quantification methods stipulated in the Grenelle Environment Forum. In this regard, an inventory of measures aimed at directly or indirectly reducing GHG emissions in France has been established. This entails an extended network of stakeholders to be taken into account: the *Institut national de la recherche agronomique* (*INRA*), charged with drawing up the inventory of GHG emissions in the agricultural sector; the *École des Mines de Paris*, responsible for the inventory of CFCs[15]; the *Direction générale de l'énergie et des matières premières* and the *Commissariat général au développement durable*, which both draw up energy consumption scenarios.

As regards the instrumental chapter, two scenarios pertaining to GHG emissions in 2020 have also been established – one for existing measures only, the second scenario for additional measures. The assessment of GHG emissions, based on these two scenarios, was carried out by the *Centre interprofessionnel technique d'études de la pollution atmosphérique* (*Citépa*). Further instruments were equally used to measure these emissions: thus, in addition to temporal sequencing, the French Ecology Ministry has developed a tool for measuring variations in emissions across different sectors of activity. This tool, known as *SceGES* (*Scénarisation des émissions de gaz à effet de serre*), was designed in a partnership between the *École des Mines de Paris*, *Citépa*, *INRA*, and two other consultancy organizations working in the field of environmental analysis – *Solagro* and *Énergies Demain*. Thanks to its projections, extending from 2005 to 2035, *SceGES* enables the whole range of sectors of activity – detailed in the national inventory drawn

15 Synthetic gazes of primarily anthropic origin.

up by the United Nations Framework Convention on Climate Change (UNFCCC) – to be covered. This instrument offered a key innovation, enabling researchers to develop spatial inventories at departmental level. Indeed, unlike the traditional macro-economic models (Dahan Dalmedico, 2007; Le Treut, 2009), *SceGES* uses a bottom-up approach, opening up new potential horizons for translating climate policies locally.

To sum-up, whatever their technical or political characteristics, the links established between the different forms of problematization of public policy-making in the French 'field' of climate change may be referred to as a *translation* process, which functions on a range of different registers (scientific, legal, economic, social, etc.) that it helps bring together and correlate (Latour, 2005). This translation process, based on a hypothesis envisaging the future form of society (Urry, 2011), remains nonetheless conjectural. The second step in the sociology of translation aims to account for *intéressement*, that is the process through which the identity of other key players is imposed and stabilized[16]. This means, in other words, establishing a network of partnerships defined by the problematization process.

5. THE TERRITORIALIZATION OF CLIMATE POLICIES

A further dimension of my current inquiries seeks to account for these hybridization processes, by studying the territorial chapter of France's climate policy. In this light, the territorial measures undertaken can be defined as so many *intéressement* mechanisms aimed at according a specific role to local stakeholders. Accordingly, a distinction must be made between three empirical considerations – defining a 'carbon neutrality' target for local authorities to work towards; rolling out climate plans across France's national territory; and assessing and reviewing measures taken in the wake of the Grenelle Environment Forum. Then again, I will give an overview of each of these empirical fields before questioning the controversies it may involve.

16 In the sociology of translation (Callon, 1986), there are four stages in the dynamics of a socio-technical network – problematization, *intéressement*, enrolment and mobilization. Then, as Michel Callon reminds us: "to be interested is to be in between (inter-esse), to be interposed".

5.1. The 'Carbon Neutrality' Objective

As early as 2004, the French local authorities were strongly encouraged to include the "fight against climate change" and "controlling energy use" in their own policies and planning documents. This means setting up specific watchdog climate change and energy production and consumption commissions, and instigating their own campaigns to sensitize local populations to these questions and foster 'good practice'. That is why the *Contrats de plan État-Région* (*CPER*), jointly signed by central government with regional government institutions for 2007-2013, accorded priority to sustainable development and to the "fight against climate change", defining long-term 'carbon neutrality' as their overall target. Today, nearly three-quarters of regional authorities have drawn up the relevant programmes. Similarly, as part of the contracts entered into with the *Agence de l'environnement et de la maîtrise de l'énergie* (*ADEME*), most major and mid-sized agglomerations have launched the public works needed to reach their own climate plan targets.

Numerous instruments, some of them already employed and others experimental or innovative (Szarka, 2003), have been adapted by central government for use by local authorities. Aimed at mobilizing local populations in the "fight against global warming", the deployment of these instruments invites more detailed study regarding the process of local stakeholder *intéressement* for the strategies proposed by the government. In this respect, the *CPER*s stipulate that all assessed projects to receive financing must be 'carbon neutral'. Thus, the two main instruments which regulate urban planning and land use in France – *SCOT* (*Schémas de cohérence territoriale*) and *PLU* (*Plans locaux d'urbanisme*) – were required to set clearly-designed targets for the "moderation of energy consumption" and "the fight against urban sprawl". Similarly, the *ADEME* launched projects and instruments in partnership with local authorities to implement 'eco-responsible' measures, such as providing an 'internal PR kit' to sensitize local authority personnel.

5.2. Setting Regional Climate Plans

The additional measures adopted as part of the Grenelle Environment Forum may be interpreted as a way of extending this *intéressement* dynamic. Once again, certain of these instruments existed already, being either adapted or 'recycled' (Lascoumes, 1994). In this light, the territorial chapter proposed by the Grenelle Environment Forum revolves around five key measures: first, overhauling urban planning laws to include the notion of "fighting against climate change" and "controlling energy use" as targets for local authorities; second, introducing sustainable development directives for local city planning and land use; third, instigating a new regional strategy for climate, air pollution and energy use which guarantees the coherence of local policies and activities with national targets (*Grenelle 2* law); fourth, rolling out country-wide climate-energy plans now made obligatory for major local authorities and inter-communal institutions of more than 50,000 inhabitants (*Grenelle 1* and *2* laws); and, finally, standardizing the cost price of renewably-produced electricity. Various national research programmes have equally been set up, to ensure the adaptation of cities to climate change.

In addition to these national concerns, analyzing the setting of regional climate plans involves examining several *trans-national* dynamics. It seems that little attention has been paid so far to such mechanisms, although central in the territorialization of climate policy (Lövbrand and Stripple, 2006). The first one concerns the Europeanization process involved in the diffusion of regulatory EU directives. In this light, the importance of the renewed synergy between the *CPER* and the European Regional Development Fund (ERDF) becomes clear, especially as regards Target 3.1, "Facing the Challenge of Climate Change" for 2007-2013. From the standpoint of a more horizontal Europeanization, the role played by Local Climate and Energy Agencies should be also signalled. These agencies form, indeed, an informal network forum for sharing individual experiences regarding the programmes implemented by different member states[17]. Last but not least, a further dynamic to be considered is the growing internationalization of the different forms of

17 In particular, the SAVE programme (*Specific Actions for Vigorous Energy Efficiency*), launched in the early 1990s.

mediation and expertise deployed in the elaboration of local climate plans, especially at town and city level (Betsill and Bulkeley 2008; Bulkeley and Kern 2006). In this respect, several measures mentioned in the territorial chapter of the Grenelle Environment Forum are clearly inspired by the climate plans recommended, since the 1990s, by the major international organizations as part of a local Agenda 21[18].

5.3. From Expertise to Counter-Expertise

The dynamics of territorial *intéressement* and enrolment involved in implementing climate policy invite, finally, the whole follow-up and monitoring process adopted by the Grenelle Environment Forum to be taken into consideration. This review procedure, being part of the negotiation process, merits closer examination for at least two reasons: first, because it may be interpreted as another form of investment of civil society and local stakeholders in France's problematization of climate change measures; secondly, because the ensuing evaluation process directly paves the way for debate and controversy, which supposes that the outcome of the policies implemented remains open-ended (Callon, Lascoumes and Barthe, 2009). So far, the French government has effected two official assessments of the Grenelle Environment Forum. Both were carried out by internationally recognized management consultancies – the first, in 2009, by the Boston Consulting Group, an agency specializing in strategy consulting; and the second, in 2010, by Ernst & Young, in partnership with a number of 'renowned specialists'[19]. These audits help validate the choices made by the state and clearly bolster the government's control of how the problems

18 Just like the ICLEI (*International Council for Local Environmental Initiatives*), established in 1990 under the aegis of the United Nations.

19 Beginning with Jean Jouzel, assisted by Bruno Gazeau, general delegate of the *Union des transports publics* (*UTP*) since 2006, and former consultant for the *Bureau d'études et de réalisation urbaines* (*BERU*); Alain Liebard, current president of the *Observatoire des énergies renouvelables*; Philippe Pelletier, a geographer specializing in Japan and 'high-level growth'; Jean-François Le Grand, senator-president of the *Conseil général de la Manche* since 1998, president of the working group on biodiversity for the Grenelle Environment Forum and member of the *Office parlementaire d'évaluation des choix scientifiques et technologiques* (*OPECST*); Nicole Notat, former general secretary of the *CFDT* trade union, now CEO of Vigéo, a consultancy agency working in the field of social responsibility in Europe; and Alain Grimfeld, paediatrician, president of the *Comité consultatif national d'éthique* since 2008.

should be apportioned. However, they also lend themselves to a certain amount of criticism, thereby fuelling further discussion and debate.

Eventually, it is essential to examine the role played by counter-expertise organizations in this controversy. The first of these is the *Fondation Hulot*, which has pointed out the inadequacy of certain measures, and positioned itself as a "rich source of ideas for public debate". The Foundation's aim is not to serve as a "substitute source of expertise" but, rather, to make its "own contribution to the assessments" officially ordered by the government. A second source of counter-expertise is the non-governmental organization, *France Nature Environnement*, which works as a federation of local organizations across France, and aims to act as a watchdog and whistleblower ready to alert public opinion. Last but not least, a third organization of this type is *Réseau Action Climat-France,* whose recently published counter-expertise was by far the most overtly critical. It notably voices profound reservations about the methods set in place for the implementation of regional and local climate plans. Its arguments, which lie on an extremely diverse range of sources – from 'lay expertise' to IPCC reports –, condemn France's lack of ambition in this field. Not only does this criticism mark a clear break with the official line, it also underlines the potential *reversibility* of the power-knowledge tandem at the heart of the climate policy-making process.

6. CONCLUSION

The succession of translation operations, and the mingling of mechanisms and measures involved in the preparation of a climate plan for France, have first led me to highlight three main empirical fields - the scientific framing of the problem; the development of national expertise on climate change; and the establishment of new scenarios and progress quantification methods. Analysis of the instruments used, and the network of stakeholders gravitating around this body of expertise, enables to better understand the ways in which international and European requirements can be connected to the specificities of France's own situation (Adger, Lorenzi and O'Brien, 2009; Wurzel and Connelly, 2011). The interplay of scales involved in these activities and measures amounts, as it were, to following a zig-zagging path, which

should certainly invite us to pose questions about the 'strange loops' of public policy-making (Lascoumes and Le Galès, 2007). The translation processes underpinning the implementation of climate policy in France can be seen, then, as the deployment of an ever-increasing level of co-ordination, both within and between the national's political and administrative instances involved.

My investigation concerning the growing regional specificity of climate policy in France has led me to pursue the analysis of the following three empirical fields - reaching a 'carbon neutral' target; rolling out local climate plans; assessing and reviewing the diverse measures, and taking counter-expertise into consideration. While the local transformations involved in envisaging and handling climate change problems are certainly very real, it should be recognized that these transformations mainly function in incremental fashion; the climate plan produced by the Grenelle Environment Forum appearing itself as a 'recycled' tool. More generally, the fact of braiding the *intéressement* mechanisms to which these developments – including several trans-national dynamics – may be applied, calls for the existence of a "socio-technical pathway" (Callon and Law, 1989) to be clearly described; a pathway in which irreversible positions, mostly from below, are produced and new horizons opened up. In conditions such as these, the *intéressement* and mobilization of an ever-increasing number of stakeholders – including individuals and populations – necessarily leads to 'betrayals' which, in turn, require new forms of translation. The body of expertise produced by the national assessment and review procedure provides an eloquent illustration of this process. In this light, climate change can be considered as a form of *politicization*, expressed by different means of rationalization and registers of justification (Lafaye, Moody and Thévenot, 2000), all of which require further clarification. This shows just how important it is now to turn our attention to one or several specific localities (cities, regions, etc.) in order to better apprehend the emergence of controversy and debate rooted in the social reality mentioned above[20].

20 Other researchers have also stressed the importance of carrying out empirical analyses at local level (Aall, Groven and Lindseth, 2007; Bond, 2010; Galarraga, Gonzalez-Eguino and Markandya, 2011; Tryhorn and Lynch, 2010).

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