From Interest Consultation to Knowledge Production:

The Evolution of Environmental Governance

in the European Union

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Abstract

This paper deals with the participation problem in the European environmental governance. Facing the critics of democratic deficit and the growing distrust of scientific knowledge, the enlargement of participation in the stage of policy formulation at the EU level is unavoidable, thus broadens the scope of participation from interest consultation to collective knowledge production. Treating the preparatory stage of policy formulation as a process of risk assessment, this paper seeks to analyze the question that if the enlargement of participation in knowledge production can better the effectiveness of European environmental governance in terms of policy learning.

This paper argues that the features of a given environmental risk and different logics of societal subsystems, including political, economic, and social systems condition the influence of scientific knowledge. In spite of the consensual scientific knowledge will decrease the complexity of a given environmental risk, the policies based on it may be rejected for lack of participation from other subsystems and judged as inadequate by their different rationales. This paper first elucidates the role of participation in formulating legitimate environmental policy. Secondly, it establishes a conceptual framework to analyze the role of participation in the risk assessment at the EU level. Thirdly, it investigates the form (the way of participation) and the scale (the involvement of different societal systems) of participation in three environmental assessments. Finally, it synthesizes the practices of the three programmes, and explains why and how the form and the scale of participation in environmental assessment affect the types and the possibilities of policy learning.

I. Introduction

Facing the critics of democratic deficits and the growing distrust of scientific knowledge, the enlargement of participation in the stage of policy formulation at the EU level is unavoidable, thus broadens the scope of participation from interest consultation in the policymaking process to collective knowledge production at the stage of policy formulation. The Auto-Oil programme, the Clean Air for Europe Programme (CAFE), and the European Climate Change Programme (ECCP) are examples of this transformation. They are environmental assessments launched by the European Commission (Commission) to design associated EU environmental policies based on collective knowledge produced by participants in each programme. There is no doubt that these programmes are the Commission's strategy to improve its policy legitimacy as well as to compensate its shortage of expertise. However, policies based on the knowledge production at the EU level do not always attain legitimacy and leads to debates in the policymaking process. As a consequence, treating knowledge production at the EU level as an activity of risk assessment, this paper attempts to explain how the variant participation affects policy legitimacy and policy learning. The first section explores the role of participation in formulating legitimate environmental policy. The second section provides an analytical framework of participation in the risk assessment. The third section examines the practice of knowledge production through the form (the way of participation) and the scale (the involvement of different societal systems) of participation in three programmes. Final section synthesizes the practices from the three cases, and explains why and how the form and the scale of participation in knowledge production affect the types and the possibilities of policy learning.

II. Environmental Policy, Legitimacy, and Participation

This section elaborates the role of participation in formulating legitimate environmental policy. Environmental policy as public policy has to fulfill the requirements of legitimacy, including input legitimacy and output legitimacy. Input legitimacy relies on the procedures during public policymaking process, in which participation is an important element. On the other hand, output legitimacy depends on the effectiveness of policy to solve collective problems in a society.

Environmental policy is one category of the public policy that consists of numerous decisions made by numerous individuals or organizations in government. According to William Jenkins' definition, public policy is "a set of interrelated decisions taken by a political actor or group of actors concerning the selection of goals and the means of achieving them within a specified situation where those decisions should, in principle, be within the power of those actors to achieve." (Jekins,

1972, adapted from Howlett and Ramesh, 2003, p.7) To wit, environmental policy is made by political actors to select goals and means accepted by the governed and to solve the collective environmental problems of the governed effectively.

Environmental policy must attain the criteria of legitimacy. Legitimacy is popular acceptance to a given rule. It is the basis for the ruler to retain the power of control. Historically, the sources of legitimacy include religion, tradition, legal/rational authority, or charisma showed by Max Weber. However, with the development of modern society, input and output legitimacy have become the core notions of democracy. Input legitimacy refers to "the trust in institutional arrangement that are thought to ensure that governing processes are generally responsive to the manifest preference of the governed." Output legitimacy refers to that "policies adopted will generally represent effective solutions to common problems of the governed." (Scharpf, 2003, p.3) Thus environmental policy has to meet the requirements of input and output legitimacy.

Democratic deficit is the opposite of legitimacy. According to Giandomenico Majone, democratic deficit refers to defects in public policymaking such as lack of transparency, insufficient public participation, abuse of technical or administrative discretion, and inadequate mechanisms of control and accountability. [1] (Majone, 1989, p. 21) These defects happened at the stage of policy formulation in the EU, especially on the legislative initiatives proposed by the Commission. Charles Jones pointed out that policy formulation is to propose means to resolve the needs in a society. (Jones, 1984, p.7, adapted from Howlett and Ramesh, 2003, p.143) Thus, it is a process in which participants define, assess, accept or reject possible solutions to policy problems. To improve its policy legitimacy, the Commission has to enlarge the participation in the environmental policy formulation.

Participation is the major element of legitimacy. There are two forms of participation, one is the involvement of elites who are granted a role in decision making because they possess professional expertise that is needed by decision makers. However, experts are limited by their world views and the biases that arise from their professional training. Neither are they infallible nor are they politically or value neutral, as the work on the social studies of science suggests: their interests and values inevitably will affect their scientific judgments (Jasanoff, 1990, adapted from Fiorino, 1997, p.195) Another form of participation is based on the representation of interests, which is thought to complement the defects of elite participation because citizens can best judge what is in their interests and lead to better social choices. (Fiorino, 1997, pp.195-6) Both forms of participation are essential in developing policy to manage environmental risks. The studies of risk perception have showed that experts perceive risk differently from the laypersons. (Slovic, 1992) Experts in risk assessment use

quantitative models to estimate risk while the lay public does not evaluate risks in the same way. As a result, if the experts evaluate risks differently from the lay public, the public will not accept environmental policy based on experts' evaluation as legitimate. Then the involvement of the public in risk assessment is necessary.

However, with the complex process and numerous procedures in European environmental governance, the public in the EU does not have enough resource to engage in the risk assessment persistently. Thus participation in the EU environmental governance reveals an organized civil society whereby different organizations represent the public guarding their welfare. (Greenwood, 2007, p.341) As a result, European environmental governance is often regarded as network governance by highly organized societal subsystems. (Kohler-Koch, 1999) In a modern society, environmental policy is closely related to four major societal subsystems derived from functional differentiation, which are political, economic, social, and scientific subsystem. Each subsystem has its own logic on the perception of environmental risk. Therefore, we view the European environmental governance through the image of functional school of sociology, treating the interaction among actors as the interaction among different societal subsystems in a modern society in which distinct rationales communicate in the risk assessment.

III. Risk and Risk Assessment

Risk is a virtual danger that poses potential harm to those who take it. In the daily life, individuals take risks voluntarily to acquire what they want. Societal subsystems also spend scarce resources on selected areas, which appear worthwhile to invest by taking risks. However, risks taken by one societal subsystem might not be accepted by the whole society. In the modern, democratic society, decisions on risk taking must be accepted by the governed as legitimate or there will evoke acute opposition. Therefore, the involvement of affected subsystems in risk assessment is necessary. This section starts with identifying three characteristics of environmental risks, then delineates the rationale possessed by different societal subsystems, finally combines these characteristics and logics of four societal subsystems into a conceptual framework.

(I). Complexity, Uncertainty and Ambiguity of Environmental Risks

Complexity, uncertainty, and ambiguity are closely connected elements in decision making on environmental risks. (Renn, 2004, pp. 296-301) Complexity refers to the difficulty of identifying and quantifying the relationship between potential causes and effects. (Schellnhuber, 1999, adapted from Renn, 2004, p.297) If complexity cannot be resolved by science, uncertainty will evolve. Uncertainty

derives from statistical variation, measurement error and ignorance of data because scientists have no consensus on which model or explanation is the most convincing. (Striling, 1998, adapted from Renn, 2004, p.297) Ambiguity denotes the variability of interpretations based on identical observations or data assessment (Renn, 1999). Two situations contribute to ambiguity, one is the scientific system has no consensus on the causal link of the problem, and the other is the gap between scientists and the publics on risk definition. The role of scientific knowledge is important but not dominant from the perspectives of risk society. Ulrich Beck pointed out that deeming science the only one authority in an age of risk is a myth, for science is operating in terms of probabilities, which does not exclude the worst case. Scientific knowledge can only provide more or less uncertain factual information about probabilities, but never answer whether risk is acceptable (Beck, 1998, pp. 12-14). In addition, recent studies show that local knowledge is equally important as science when dealing with risks (Wynne, 1989; Radaelli, 1995; Jasanoff et al. 2004). As a result, both situations necessitate the participation of the public in the risk assessment.

(II). Elements of Environmental Risk Assessment

Dealing with ambiguous environmental risks often leads to social conflicts on the goals and the means. Everyone might demand for safety and environmental quality, but they differ in the two questions, namely, “how safe is enough” and “who bears the risk and who get the benefit”. As suggested by Alvin Weinberg, activity like risk assessment is a trans-scientific question, which the facts can be stated in the language of science but is unanswerable by science (Weinberg, Alvin, 1972. adapted from Majone, 1989, p. 3.) In a modern society, four main functional subsystems constitute its foundation and are essential in assessing environmental risks; these are political, economic, social, and scientific system. Decisions taken by one subsystem may pose potential dangers to other subsystems which regard the risk is unacceptable according to their rationales on risk definition. In this situation, subsystems have to communicate and make decisions to maintain the functioning of the whole society.

Each subsystem has different rationale of action that leads to different definition and acceptability of environmental risks. In the political system, the source of power is legitimacy. To seek legitimacy, decisions are made on the basis of institutionalized procedures consented by the governed. Efficiency is the rationale of the economic system, which means to allocate optimal resource to maximize profit. To attain efficiency, decisions in the economic system are based on the cost-benefit calculation. In sustaining social cohesion, the major task is to build a collective identity in spite of different values among actors. Decision is made through a communicative exchange of values, which helps actors to reach a jointly agreement

on the ways to solve collective problems. In the realm of scientific system, pursuing objective truth is the goal of science, presented in the form of knowledge. Actors use a series of methodological procedures to evaluate the validity of knowledge claims. These claims provide insights for other subsystems to deal with environmental risk effectively. The relationship between four subsystems in the environmental risk assessment is illustrated as follows. (Figure 1)

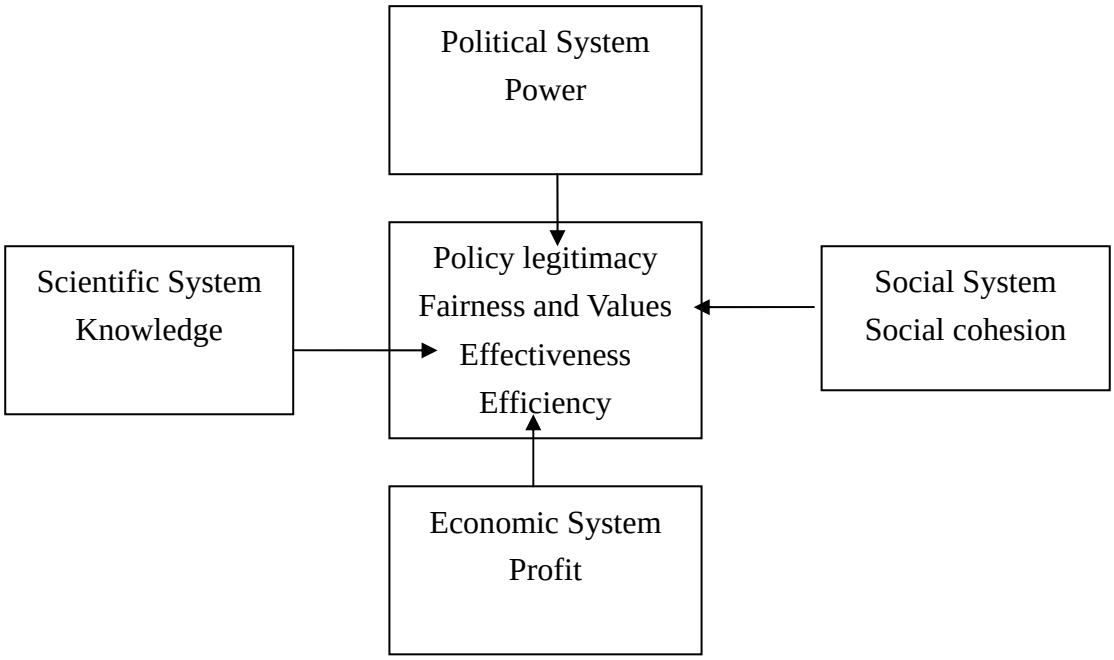

Figure 1: The conceptual framework of risk assessment, modified from Renn, 2004, Figure 9.1, p. 295.

In risk assessment, political system pursues policy legitimacy to acquire the agreement of the governed to its policy decision. To pursue efficiency, economic system weighs the cost-benefit of reducing environmental risks. Scientific system provides knowledge to deal with environmental risks effectively. Social system pursues fairness on the distribution of risk or prevents the values from the threat of environmental risks to maintain the social cohesion.

IV. Policy Learning and Knowledge Production at the EU Level

What is the relationship between policy learning and the knowledge production at the EU level? Pieter Glasbergen proposed four types of learning in policy process: technical, conceptual, cognitive, and social. (Glasbergen, 1996, pp. 176-184) Technical learning refers to a new invention of policy instrument without change of the policy objectives themselves. Conceptual learning denotes the redefinition of policy objectives. Cognitive learning bases on the acquirement of knowledge about a

given environmental problem, which improves stakeholders' understanding of a given environmental problem and develops better solution on it. Social learning refers to the self-examination of respective rationales in each subsystem. Different organizing of knowledge production will result in different type of policy learning.

With the initiation of the Fifth Environmental Action Plan (EAP) in 1993, the economic and social system became increasing involved in the policy process at the EU level. Ten years later, the launch of the Sixth EAP in 2002 recognized that the EU environmental policy should base on the sound science, economic cost-effectiveness and the engagement of the stakeholders in a manner of transparent partnership. (European Commission, 2001) This transformation exemplifies the broadening scope and scale of participation in the stage of policy formulation at the EU level. The Auto Oil programme, CAFE and ECCP were large-scale collaborations launched by the Commission to facilitate environmental policy formulation and policymaking at the EU level. In this section, we analyze how the form and the scale of participation from four subsystems in the three programmes lead to different types of policy learning.

(I). The First Auto-Oil programme (AOI)

The Commission launched AOI in 1992 in identifying cost-effective measures to reduce road transport emissions to levels consistent with clean air. The programme included three research areas: a technical experimental research, an air quality modeling study, and a cost-effectiveness modeling study. The technical experimental research was carried out by the automobile and fuel industries on the effects of different vehicle technologies and fuel qualities on the emission performance. The air quality modeling study was lead by the Directorate General (DG) Environment to predict the air quality in seven European cities and the ground level ozone across the EU for the year 2010. The cost-effectiveness study was conducted by the Consultancy Touch Ross based on the data supplied by the automobile and oil industries. Participation in AOI was called "tripartite dialogue", including automobile industry, fuel industry, and three DGs (Environment, Energy, and Transport) of the Commission. (Friedrich et al. 2000, pp. 597-8)

Participation in AOI lacked the participation of social system. It resulted in that scientific system in the AOI dealt with the general impact of air pollution on human health without considering the variation of local traffic flow and excluded other environmental problems like acid rain and climate change into the air quality modeling. The study of cost-effectiveness reflected the rationale of economic system without taking the social cost and environment damage into account. Policy legitimacy was undermined by lack of transparency and participation from the social system. Thus in the policymaking process, the legislative proposals provoked severe

debates in the Member States and generated a requirement of stringent standards for car emission and fuel quality from the European Parliament.

(II). The Second Auto-Oil Programme (AOII)[2]

The AOII aimed to establish a consistent framework for policy options to reduce the emission of pollutants by assessing air quality and identifying all emission sources. The participation of AOII included relevant stakeholders such as the Member States, industries, and the non-government organizations (NGOs). The AOII established a management group, a contact group, and seven working groups. Management group includes the chair of working groups and staff from the Commission. It was to facilitate the interface between different working groups and coordinate the administrative details relating to the organization of meetings and contracts. The contact group served as an exchange platform, all interest groups could express their concerns and received reports from working groups. Seven working groups conducted studies on environmental objectives, vehicle technology, fuels, inspection and maintenance, non-technical measures, fiscal instruments and cost-effectiveness. Each working group was formed of a number of experts nominated by the stakeholders and chaired by the Commission official. (Auto-Oil II Cost-Effectiveness Study, Draft Final Report, August 1999, pp. 9-10)

The AOII broadened the participation of four subsystems. Each working group contained members from different subsystems according to respective assessment items. All the results produced by them were integrated into the final cost-effectiveness study. In addition, AOII enjoyed a high degree of transparency for all information was available for those who were concerned about it. The Commission proposed a legislative initiative concerning the emission standards on two and three wheeled vehicles based on the AOII. However, the policymakers at the EU level still took a long time to reach consensus on the mandatory standards in 2006 for motorcycle. This is due to different understanding on competitiveness in the economic system but not the contention between different subsystems.

(III). Clean Air for Europe (CAFE)[3]

The CAFE launched in May 2001 to develop an integrated long-term policy to protect human health and the environment from the effects of air pollution Assessments items included setting air quality target and policy, assessing the concentration of particulate matter in the air, reviewing the national programmes on the implementation of national emission ceilings Directive, and identifying policy instruments for better implementation of air quality directives in the member states.

The CAFE was implemented under the leadership of the CAFE team of the DG

Environment. It was assisted by an inter-service group, chaired by DG Environment and composed of all relevant Commission services. CAFE steering group composed of representatives of the Member States, the staff of European Parliament, stakeholders and relevant international organizations. It meets two or three times a year to advise the Commission on the strategic direction of the programme. Ad hoc working groups would be set up when necessary for a limited duration to address specific tasks and policy measures.

What distinguished the CAFE from the Auto-Oil programme is that it contained not only four subsystems but also broadened the participation in each subsystem. Members with different rationales in the working groups conducted collective research through the procedure of peer review. These results were brought into the steering group and discussed by the stakeholders. At the end, the Commission initiated a thematic strategy on air pollution and a proposal for a directive on the ambient air quality according to the CAFE efforts. The thematic strategy on air pollution integrated sporadic EU policies on air pollution into a consistent framework. With the unanimous confirmation of the strategy by the Council of Ministers, the European Parliament asked for legal actions to set more stringent standards to attain the objective of Sixth EAP. It is hard to evaluate the influence of CAFE on the proposal for a Directive on the EU ambient air quality for it is still under legislative process.

(IV). European Climate Change Programme (ECCP)[4]

The ECCP launched in June 2000 to identify and develop EU strategy to implement the Kyoto Protocol. The Commission claimed that ECCP was a multi-stakeholders approach supposed to provide positive experience for the Commission at drafting legislative proposals. (European Commission, COM/2000/88 Final, p.6) This programme separates into two phases: ECCP I was conducted from 2000 to 2003 to develop policies and measures on the energy, transport and industry sectors and ECCPII has launched in October 2005 and is still on the move. Thus we focus mainly on ECCP I. The ECCP I contained a steering committee and eleven working groups. The steering committee composed of all Commission services that took part in the programme and met once a month. It was in charge of managing the programme and maintaining regular contacts with stakeholders. The working groups operated based on the timetable and terms of reference developed by the steering committee and assessed the implications of policies and measures on the society according to the information provided Commission services rather than adopting their own models.

The ECCP I focus more on evaluating the cost-effectiveness of policy options

rather than environmental risk. Nevertheless, it can still be regarded as a risk assessment for the implementation of policy has impact on the whole society. Members in the working groups communicate on the information provided by the Commission services. They express their concerns either on the possible policy impact or advocate certain policy options according to their expertise. The results of ECCP promoted the establishment of EU-wide emission trading scheme and developed a more comprehensive EU climate policy.

Participation of different subsystems and their functions in the risk assessment at the EU level is summarized in Table 1.

Table 1: The participation of functional subsystems in EU Programmes

	AOI	AOII	CAFE	ECCP I
Political system	coordination	coordination, consultation	coordination, consultation	coordination, consultation
Economic system	consultation, information provider	consultation, information provider	consultation, information provider	consultation
Social system	None	consultation	consultation	consultation
Scientific system	knowledge production	knowledge production and integration	knowledge production and integration	knowledge production
Types of policy learning	none	cognitive	technical, cognitive	technical
Legitimacy of legislative proposal	low	high	high	high

V. Conclusion

Participation of all societal subsystems at the stage of policy formulation increases the opportunity of policy learning as the cases illustrated. The reason of no conceptual and social learning in these programmes might be due to the goal of themselves—to identify cost-effectiveness policies to solve environmental problems, assessment items in threes programmes were confined by the Commission.

The acceptability of legislative proposals depends on the participation and the functions of the subsystems in the policy formulation process. As the AOI showed, legislative proposals base on it were not acceptable for the lack of participation of social system as well as the lack of consultative function in the political system. Consultation is crucial for the collective knowledge to be accepted by stakeholders. In addition, stakeholders' involvement in the European environmental governance

demonstrates not only the different rationales held by different subsystems but also different ways of pursuing goals within a single subsystem, especially in the economic system, such as the polity debates on competitiveness in the AOII.

Literature on global environmental assessment pointed out that the process of environmental assessment affects its influence on the issue domain whereby actors have a common concern on one issue but with divergent beliefs and policy preferences toward it. (Mitchell et al., 2006, p.11) To be influential, the design of environmental assessment must correspond to the requirement of credibility, salience, and legitimacy. [5] (Farrell and Jäger, 2006) Researchers on global environmental assessment admit that different actors perceive credibility, salience and legitimacy differently for the characteristic of actors. However, they do not specify these characteristics and maybe this is the reason that they can only answer that the three attributes are necessary but not sufficient condition. Perhaps this framework will provide them with some insights to identify the sufficient conditions by taking different rationales of actors into analysis.

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[1] Scholars disagree with if there is democratic deficit in the European Union due to different standards. See Giandmenico Majone, "Europe's 'Democratic Deficit': The Question of Standards" *European Law Journal* Vol. 4, No. 1 (March 1998): 5-28.

[2] Information on AOII available at: http://ec.europa.eu/environment/autooil/index.htm.

[3] Information on CAFE available at: http://ec.europa.eu/environment/air/cafe/index.htm.

[4] Information on ECCP I available at: http://ec.europa.eu/environment/climat/eccp.htm.

[5] Legitimacy in the definition of global environmental assessment is to take the stakeholders' interests into account, involvement of stakeholders in the assessment is not necessary.