

# **Management and Impacts of Climate Change Programme GICC CRP 1999**

## **4/99 - Analysis of international negotiations on climate change prevention: constitution of coalitions, and issues in terms of equity and acceptability**

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### **2.1. Coalition formation and dynamics**

In a first phase, the work concentrated on the maximum scope that a cooperation agreement can reach in international negotiations on environment. This part focused mainly on information to be found in the environmental economics literature. On the one hand, some authors acknowledged the ineffectiveness of the initial situation and proposed global cooperation agreements with appropriate transfer systems to facilitate the attainment of Pareto's 'state of efficiency'. On the other hand, other authors showed that the logical outcome of an environmental agreement could only be a partial cooperation agreement, and that a firm commitment, involving transfers, of at least some of the participants was the only way to eventually reach an agreement covering all states. This result is explained by the 'free rider' behaviour that pervades this type of problem. On the whole, the literature underlines the central role of transfers (lateral or implicit transfers in the case of 'issue linkages') in participation incentives. This particular area of our research emphasized a particular view of negotiation processes. In the framework of discrete-time dynamic game theory, we envisioned a step-wise modelling of the negotiation process in which authors considered that the states could, at each step, reconsider their participation to the process. More often, however, in analyses of participation in a cooperation agreement, the negotiation strategy of a given state does not go beyond calculating individually which approach - cooperating or not cooperating - will yield the greatest benefit to itself.

More importantly, the literature can be classified into two types. One, based on a positive approach, explains the emergence of partial cooperation in negotiations through the sole interaction of individual interests. The other, with a more normative vision, proposes a global cooperation agreement with a transfer system that would benefit all states. It seeks to identify means of promoting full cooperation between states. This approach explicitly refers to the presence of an international institution. Combining these two approaches gives insights into what happens in reality, and in particular explains the emergence of the Kyoto Protocol - which may be considered as a partial agreement since it did not involve all states. The global cooperation model suggests that transfer and flexibility mechanisms are not powerful enough to allow a global agreement on reduction to be reached. However, this analysis

was still incomplete, and it is probably necessary to seek elsewhere the reasons for the failure to reach a global agreement. Other parameters can be mentioned, in particular the presence, in international negotiation processes, of groups of states with intermediate positions. This is the focus of the next phase, which reviews the tools needed for the study of group constitution.

The introduction of game theory in regard to coalition structures helped us to understand why and how coalitions could appear. The important aspect to consider is how coalition is interpreted. On one hand, players may associate to share their resources as well as the surplus produced by the coalition. This is the case, for example, of oligopolies, the provision of public goods and most international environmental agreements. Here, coalitions are 'cooperation circles'. On the other hand, the players may only associate for the purpose of negotiation strategy. Players seek to constitute the coalition that will be most able to defend their interests with a view to the final negotiation involving all partners. This is the thesis developed by Hart and Kutz [1983, 1984], according to whom coalitions are not cooperation circles, but 'instruments of negotiation'. In the context of international negotiations on climate change, the Kyoto Protocol may be considered as a 'cooperation circle' coalition, but 'G77 and China', JUSSCANZ, the European Community, etc. are all examples of 'instrument of negotiation' coalitions.

One of the fundamental difficulties in analysing global environmental issues remains the intrinsic 'free rider' behaviour of the players. Dealing with this requires studying the behaviour of players outside the coalition. It then becomes necessary to examine the stability of the coalition structures and to develop an appropriate definition of the rules governing accession to membership. Research on 'free rider' behaviour and on the emergence of cooperation in the analysis of global environmental issues uses models of non-cooperative games using coalition structures or of cooperative games using the concept of core, the two giving contrasting results. We showed that one reason for this could be the different interpretations these analyses give of the final, all-inclusive coalition. Moreover, all are based on coalitions considered as well-known in cooperation circles. The envisaged extension for this type of analysis is therefore to introduce negotiation groups with intermediate positions, which makes it possible to interpret the coalition as a strategic instrument for negotiating.

Other extensions can also be considered by taking into account, for example, ethical issues that may arise during the negotiations. Two lines of reasoning can be followed at this point. One concerns the transfers that will take place between states. What rules should be set for the initial allocation of permits, the redistribution of tax revenue or technological transfers? These sharing rules along ethical lines must be based on a bargaining process between the states. Another approach is to consider that states have ethical preferences. In this case, the introduction of an ethical variable in the objective function of a given state may lead to more cooperative behaviour. These lines of reasoning could not be fully explored in the course of this project.

## **2.2. Analysis of the equity issues at stake**

### **a. How is the equity issue raised in climate negotiations ?**

The issue of equity may be dealt with from a normative (what is a fair society ?) or positive (what situations do agents consider equitable ?) point of view. A good part of the debate on justice focuses on the judgement of historical processes, but, for three reasons, the problem is less complex in the case of climate change limitation policies. Climate stability is a Global Public Good: states benefit from it according to their characteristics and contribute to it in various ways ("*common but differentiated responsibility*"); the climate convention and the protocols produced by the successive COPs generate a 'meta-agent' able to make political decisions; the equity issue is a recurrent concern in international negotiations. The notion of global public good adds three elements to that of public good (characterized by free rider + prisoner's dilemma): the international dimension, the high number of involved socio-economical categories and stakeholders, and the relevance of an inter-generation perspective in its management. The difficulty springs from the fact that there exists no regulatory body at the international level to impose cooperation - hence the recourse to a solution based on the quest for equity.

The question of justice arises in a particular way in negotiations between nations. The existence of a convention, although it introduces the principle of a limited abandonment of sovereignty by the signatory states, remains contingent to the adherence of these states to each of its decisions. In a context of sequential decisions, states remain free to refrain from committing themselves further or to impose conditions on their commitment. The ability of the central authority – or of whatever serves this purpose – to set and enforce ambitious objectives thus remains questionable.

It must moreover be underlined that this is a question of global justice. This implies: differentiating between individuals and states; acknowledging the multiplicity of the concerned socio-economic groups and stakeholders; raising the issue of the legitimacy of the 'initial allocations' to the states; and realizing that management carried out in an inter-generational perspective creates links between efficiency and equity. In addition, the current choice of regulating greenhouse gas emissions with quantitative instruments implies an initial allocation procedure of emission permits to each country and a set of rules to govern trading, observance, etc., which almost explicitly takes into account issues such as equity. In practical terms, we have so far focused on the criteria that are likely to produce a fair initial allocation.

Because of the dynamic, launched in Kyoto, of allocating permits for 5 years (2008-2012) renegotiable from one period to the next, this issue will still be present in future phases of the negotiations. In addition, the permits' negotiability, by introducing flexibility into the states' strategies, offers substantial leeway to the negotiation process, which would otherwise be brought to a standstill by technical, economic or demographic constraints – these having to be allowed for at time scales of 10 to 15 years. In contrast to the spontaneous response of part of the public, the recourse to tradeable permits is probably to the advantage of the inclusion of equity considerations

in the negotiations. It makes it possible, at least, to deal explicitly with the issue of equity.

These observations made, it becomes possible to analyse the options that are effectively encouraged in the course of the negotiations, to characterize the reasoning underlying the differentiation of efforts and quotas, and to develop a few scenarios building on the idea of a long-term convergence of *per capita* emissions. But negotiations do not focus on a single criterion, and the reference to the historical responsibility of states is omnipresent.

### **b. What is the contribution of theories of justice?**

The modern, post-welfarist, theories emphasize the 'essential goods' that serve to produce well-being. Since well-being is subjective in nature, these theories focus on equality of resources<sup>1</sup> and differentiate between controlled resources, for which the state is responsible, and resources beyond its control, concerning which it cannot take decisions. As the latter affect its well-being, it is only fair that the consequences should involve compensations.

What are a given state's controlled resources ? Its demography ? Its level of development ? The way it utilizes fossil energy ? Its industrial specializations ? How can its 'historical responsibility' be characterized ?

Is emission regulation a 'manna', i.e. a resource without master ? Yes, but in a negative sense: what can be allocated freely is the effort to limit emissions – which makes it possible to use the initial permit allocation as a means to compensate existing inequalities. This brings us to the question of the criteria on which the permits are allocated. The theories of international justice are still not very advanced and several conceptions coexist: national particularism, 'grand universalism' (Chauvier) and multiple affiliation (Sen). The central issue is that of the legitimacy of initial allocations. We started with the allocation criteria used in the actual negotiations, that can be linked to more general theories: the population criterion (pure egalitarianism, the right to use the atmosphere is part of the common heritage of humanity); GDP criterion ('initial allocations' are judged legitimate and states are assumed to have all variables under control); capacity criterion (efficiency is the priority, before permit trading – industrial specialization and the way of using energy are historical 'non-negotiable' vicissitudes); Maximin justice (the criterion of Rawlsian justice, which combines egalitarianism and Pareto optimality, and according to which inequality is acceptable if it benefits the most disadvantaged); and proportional efforts at reduction (this criterion, although mentioned in the discussions, appears to be ill-founded and incapable of being linked to any theoretical referent).

*<sup>1</sup> We should mention here that there exists another postwelfarist approach, based on the equality of sets of choices. Since we did not use this particular framework, we will not consider it any further.*

### **c. The experimental approach to equity issues**

Our objective was two-fold: to examine the ethical judgements voiced by individuals confronted with various situations typical of different conceptions of justice, and to observe the sensitivity of these subjects to changes of context. The novelty of the approach lay both in its scope and in the fact that the experimental subjects had to give their opinion on allocation systems that only concerned them indirectly. We did not require them to answer as heads of state. The object of the allocation was a fixed amount of emission permits. The five allocation principles were all proposed. The experiment was carried through in three sessions and involved a total of 146 people, all students. The experimental design comprised an initial explanation phase, during which a leaflet outlining the context of the experiment (and its remuneration system) was given for the participants to read. In the experimental phase, the subjects were handed tables of values giving the various patterns of permit allocation between three states and their consequences in terms of individual well-being. The students then had to answer three questions: Which allocation pattern do you prefer ? Which one do you think is the fairest ? After reading a literal presentation of each allocation principle, which one do you think is the fairest ? Three different situations were enacted, corresponding to the three original positions: no information regarding their affiliation (subsequently attributed at random) for the 'grand universalism' theory, information on nationality for the 'national particularism' theory and information on the group of affiliation for the 'multiple affiliation' theory.