REFGOV
Reflexive Governance in the Public Interest

Global Public Services

Theoretical Backgrounds for the Global Public Services and Common Goods Sub-network.

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Theoretical Backgrounds for the Global Public Services and Common Goods Sub-network (hereunder in short Global Public Goods (GPG))

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D17 : Theories of stakeholder participation in Global Public Goods Governance
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D18 : New-institutional theoretical backgrounds for the Governance of Global Commons
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Global Governance deals essentially with the provision of Global Public Goods (GPG). It is characterized by several challenges. First, there is no nation state as a key actor to provide or to organize the provision of these services. In addition a complex web of Non-State Actors together with nation states provides these goods and related services. Multilevel and international coordination and cooperation are needed to ensure their efficient provision. Second, there is a lack of knowledge on the actual needs and solutions. First, needs are to a large extent unknown. This is not only linked to a revelation problem as in traditional public good provision problems. This is due to the fact that most citizens and economic agents do not have an explicit preference for goods as "conceptual" as global biodiversity, global public health, peace, global economic security etc.; in particular because it is complex to assess how they impact on their individual situation. Second, the efficient solutions to provide these goods are to a large extent unknown. This is due to a bounded knowledge in the scientific understanding of the problems, in the design of relevant institutional and organizational solutions, and in the implementation of practical answers. In many cases the optimal way to provide these goods are partly unknown. This is also due to the fact that the provisions of these goods are inter-related and partly conflicting (e.g. development and biodiversity).

In such a context, governance mechanisms are needed that allow overcoming these problems.
In the paper, we will discuss the shortcomings of most the dominant approaches to international governance to provide global public goods. These include the conventional rule setting by nation states, multi-lateral agreements and the sole domination through one powerful global institution, all of which are based on the traditional "command and control" (or "traditional regulatory") approach. The same is true for the solutions based on market or pseudo-markets mechanisms that are supported by several international organizations and

by lobbies. Indeed all these solutions assume that the goals (preferences) and the solutions are well known and established.

What seem necessary are alternative governance principles to ensure greater consistency between the preferences of the humanity and the provision of GPG, but also to overcome the knowledge gap necessary to provide solutions. We argue that democratic debate is the appropriate alternative governance principle. Democratic deliberation can generate more efficient outcomes than conventional approaches because it allows taking into account the progress of knowledge and the evolution of the preferences of the actors involved towards building a more inclusive knowledge base and better informed preferences.

However, our analysis also aims at showing the necessity to broaden the categories of traditional nation-state focused democratic deliberation. In the context of global governance problems, the existing forms of vertical accountability between citizens and the states legitimized by representative elections suffer from a lack both of efficiency (due to the high transaction costs) and political legitimacy (due a lack of real accountability). What is needed for legitimate and efficient governance of global public goods is the elaboration of more reflexive forms of governance that allow for second order accountability such as deliberative spaces in international institutions, but also debates and transactions among various forms of state and non-state actors.

1. Scope of the problem

The problem of the provision of global public goods has been extensively discussed in the recent literature. It has been the object of recent theoretical advances and has been at the forefront of international debate both at the UN and EU level. Our focus in this paper is however not on the development of a general theory of public goods, but on the problem of the contribution of democratic debate to the solving of global public good problems. This particular focus serves a double goal, practical and analytical. First, lack of knowledge on solutions and collective preferences is a serious practical challenge in any problem of global public goods provision. A systematic study of this governance problem should open new perspectives for institutional design. Second, we think the particular case provides a good example where deliberative modes of governance play an important role. Focusing on this case should hence contribute to the development of a better analytic framework for the study of democratic deliberation.

In order to define the scope of this study, it is useful to start with a brief reminder of the basic economics of public goods and specify the knowledge problem that has to be solved in the case of the provision of global public goods.

Public goods are goods of "common concern", called more appropriately "collective goods". In the conventional approach, they are characterized by the properties of non-rivalry in consumption of the good – the use by one does not diminish the possible use by another – and non-excludability – it is costly and sometimes impossible to exclude a user from the access or the use of the good. They include both pure public goods such as national security and information, which have both properties (non-rivalry and non-excludable) and other types of public goods, which have only one of these properties. Important categories of these other types are common pool resources such as land, water etc. (rival and non-excludable) and club goods such as encrypted TV programs or intellectual property rights (non-rival and excludable).

However, it is important to qualify this conventional approach. Indeed, the properties of rivalry and excludability are not absolute. They also depend on processes of social

construction. For instance, rivalry in consumption of a good is directly related to population density and the notion of "exclusion" is an "artificial" socially constructed notion. That's why several authors argue for an "extended" approach to the notion of public goods, combining economic analysis with the analysis of the social construction of the good. In this approach the problem of provision is not only a problem of the most efficient way to deal with externalities (for example the choice of private or public provision of the good), but also a problem of legitimacy and social equity. In this broad approach, insights from economics will have to be combined with political science and philosophy of governance amongst others. It is this broad approach to the problem of public goods that is also adopted in this paper

In this paper, we are interested in the global governance of global public goods. By global governance, we mean any process of rule making and implementation whose scope is beyond the nation-state level. Some examples of global public goods have already been provided above, such as global biodiversity, global public health, peace, global economic security. As dated in the introduction, the key governance problem in the provision of global public goods is the lack of clear-cut knowledge on solutions and collective preferences. This "cognitive" problem however covers a diverse set of cases and, before discussing the contribution of democratic debate to solving this problem, it is important to specify the notions of knowledge and preferences that we refer to (without however having the ambition here to deal with the very complex definition problems of these notions).

In a very broad sense, knowledge is a high-value form of information that is ready to apply to action and decision. For the sake of our analysis of collective governance, it is important to recognize that this high-value information is not pure explicit information for two reasons. First, knowledge also includes know-how, routines, habits, customs, etc. That means that it not only refers to codified knowledge that is transmittable in formal, systematic language, but also to tacit knowledge, which is difficult to formalize. Second, knowledge is also embodied in external artefacts such as technical realizations or cultural symbol systems. In concrete, knowledge is both embodied in the living body and embedded in a broader social context of technical and cultural artefacts. Hence, lack of knowledge on solutions refers to the idea that some problems are not identified as such and therefore not addressed, or not solved because solutions are not available (either not practically, as in the case of lack of competences or capacity, or conceptually).

This first cognitive problem can be situated in the framework of what has been called "problem solving" approaches to the provision of public goods. However, as we mentioned above, providing public goods is also a matter of social and political legitimacy. For this reason, appropriate provision requires also the satisfaction of the preferences of the concerned stakeholders and communities. This second problem raises a different knowledge problem that has to be tackled in the the provision of global public goods (GPGs).

Preferences are broadly speaking rank orderings of alternative choices. A preference system is complete when the list of possible alternative choices is complete and fully ordered. In public choice theory, the major problem that is dealt with is the building of collective preferences where the rank-ordering of alternative preference by agents is different. According to the Condorcet / Arrow paradox, reasoning this situation, there is no way to aggregate individual preferences in a consistent way. The aggregation mechanisms (voting, etc.) are thus insufficient. It is this paradox that has lead to the work on complementary approaches such as "information" based approaches to public choice (for instance through the construction of indicators (A. Sen)) or "group" based approaches (for instance, through party politics). However, GPGs also raise a different issue that has to be addressed, beyond the classic problem of aggregation. Indeed, the problem with GPGs is that many citizens do not integrate these goods in their choices, so they do not build preferences for GPGs. Their preference system is incomplete from that perspective. In addition, there is no need to express preferences in matter of "pure collective goods". In the case of common pool

resources, there can also be strategic reasons not to reveal preferences, because this reveals a propension to contribute or to excessively deplete the resource. In sum, collective preferences in matter of GPG are not only difficult to be aggregated, but also to be credibly expressed, either because of an incomplete preference system (preference not known or not ranked) or because the preference is hidden.

It might be argued that this issue of expression of the collective preferences can be addressed by considering that preferences, especially in the matter of the provision of public goods, are endogenous. They do not draw from the aggregation of individual preferences, but they endogenously result from a collective process aimed at providing public goods and in the same time of building *de facto* collective preferences in the matter. This discussion on the importance of certain social preferences as endogenous collective and autonomous entities, certainly plays an important role in the general discussion on global public goods. However, it does not solve the specific problem of the absence of credibly expressed individual preferences for GPGs. Moreover, even in the case of endogenous preferences as collective entities, one still has to solve in practice the problem of satisfying the collective preferences by individual preferences for collective goods, because these cannot be simply considered to be the same.

In fact, this central distinction in social science about the nature of collectivities (simple aggregation of individuals *versus* collective and autonomous entity) does not matter in our understanding of the building of collective preferences in the case of public goods, since in the first case we consider that the problem is not of a simple Arrow paradox type, because individuals do not have preferences about GPGs, and since in the second case individuals cannot have individual preferences about GPG (either because they are not considered to be relevant for solving collective problems or because they are considered to be identical). In both cases, the problem we want to address is not dealt with explicitly, which is to think the collective mechanisms that would enable to build preferences by implying individuals in a collective effort to do so.

2. The "political economy" of knowledge generation

As stated in the introduction, the focus of this paper is on the contribution of the procedures of democratic deliberation to knowledge generation in the governance of global public goods. The survey of the literature on the insufficiencies of the current approaches already shows that the recourse to democratic deliberation in the enhancement of command and control or market regulation does not contribute *per se* to a better provision of GPG. What is needed therefore is a framework for the economic assessment of alternative forms of democratic deliberation from a knowledge generation perspective. On this basis, we can then analyze different democratic processes in terms of their ability to generate knowledge so as to (a) make more balanced choices thanks to a better knowledge of the stake-holder preferences (b) make more efficient choices thanks to a better knowledge of available solutions and a better knowledge of their conditions of implementability.

What is missing in the current approaches is clearly a concept of knowledge, or more precisely of efficiency in the production of knowledge. It will be impossible to get further insight into the idea that democratic deliberation is efficient in generating knowledge, without developing more precisely why it is so and why alternative mechanisms fail. To do so we need a common analytical framework to deal with the issue of knowledge creation in different processes of democratic deliberation. A convenient way for developing such a framework is to adopt a process view of knowledge generation. As a process, knowledge generation is based upon the ability to (1) to re-combine existing knowledge through association, generalization and inference; (2) to express new ideas; (3) to benefit of an efficient "filter" to

sort, test and certify the new knowledge and (4) to make the resulting knowledge available to decision makers and actors. On the basis of such a framework, we should be able to explain why democratic debate should favor knowledge creation (e.g. freedom of expression favors diffusion and therefore 1; freedom more generally favors 2; right to criticize and publicity of debates favors 3; etc.).

In addition, this framework should allow us to compare various types of "democratic" procedures. For this we need to draw a typology of the various possible procedures of democratic deliberation. This typology could be built on the basis of the identification of various kinds of "players" (stake-holders, independent experts, representatives of community of interests, etc.), according to their mode of interaction in various types of debates (hierarchically or not, at the same time or not, etc.). Such a typology should enable us to systematically analyze how procedures influence the efficiency of the knowledge generation process.

This line of reasoning can also give rise to a more complex argument. Indeed, for the stake of building the analytic framework, we focus in a first instance on the direct influence of the different types of democratic procedures on efficient knowledge generation, according to the process criteria we identified. However, democratic procedures also have an indirect influence on knowledge generation, as a side effect of their contribution to the legitimacy or the effectiveness of a governance framework amongst others. Our framework should allow us to analyze these indirect effects, for example through testing if the enhanced legitimacy obtained through democratic processes can be a factor for inviting people to reveal more knowledge, because they feel they are playing in a more fair / cooperative game.

A/ A framework to understand what knowledge creation means in the case of (collective) rule making

The first element of a theory of collective governance based on knowledge generation through democratic deliberation is to develop a clear concept of efficient production of collective knowledge. For this we have to break the process of knowledge production down in core components, which have different discriminating characteristics in terms of operations of production (the knowledge process) and use of the outcomes (the produced knowledge).
To do so, it is important to qualify the process view from which we started above. Indeed, in the specific case of global governance, the knowledge process is operating in heterogeneous cultural and historical contexts, failing common characteristics in terms of background representations and goals. As has been shown extensively elsewhere (in cognitive science, theories of organisational learning, etc.), this has important implications for the knowledge production process at two levels. First, in the case of highly context dependent knowledge, re-combination of knowledge is not just "receptive" association, generalization and inference of incoming information, but depends on the "framing" of the problem space through an active search for salient and relevant information. This "framing" will be different according to the existing set of representations in the social context. In other terms, the first step of the process is not only "formalisation" of an information space (through association, generalisation and inference), but also "focus" on the information that is relevant. On the other hand, testing and certifying the new knowledge at the end of the process is constrained by the knowledge and know-how that can be mobilized to do so. In practice, this requires to construct contextual models that are "embedded" in the existing behavioural, technical and institutional context. Hence, testing and filtering have to be understood as incremental, context dependent processes.

Taking into account these qualifications, one can consider knowledge generation as process involving three different analytical steps: (1) focus and formalisation (2) innovation and

invention and (3) testing, filtering and dissemination of contextual solutions. These three steps generate knowledge: (1) identification of problems (2) generation of potential solutions / prototypes (3) generation of implementable solutions. In the specific case of the provision of public goods, the problem is to produce knowledge on the collective preferences on the one hand and on the knowledge of the possible solutions for the GPG problems on the other hand. So for each of these two problems we will have to consider the three types of knowledge.

- Expression of collective preferences: producing appropriate knowledge for GPG provision involves (1) the identification of the preference set, (2) the generation of knowledge on possible preferences for GPG and (3) the formation of the individual and collective preferences that satisfy these possible preferences for the collective good.
- Generation of knowledge on solutions: the governance models will have to (1) identify alternative solutions for the provision of the GPG, (2) to generate prototypes and (3) knowledge on the conditions of implementation of these prototypes.

It is important to keep this specific case in mind and we will further develop this detailed analysis when applying our framework to GPG provision in the third section. In building a theory of collective governance based on knowledge generation, we first however need to further identify the relevant players in procedures of democratic deliberation and their involvement in the different stages of the governance processes.

B/ An analytical framework to identify the relevant governance mechanisms according to the decision making process

B.1/ Relevant way to understand rule making

Global governance is characterized by an increasing involvement of different types of new actors. In the literature, key players are, in addition to the citizens and the elected or designated representatives of the citizens, experts and interest groups. Experts can operate on a self-acclaimed basis, taking a stance on specific issues and operating through what has also been called "advocacy coalitions". They can also be designated by a multilateral body or a specific community with a mandate to provide a certain type of knowledge that is considered salient by these organisations. An important case of these designated experts is the case of epistemic communities such as the International Panel on Climate Change (IPCC) or the OECD megascience working groups. Interest groups that play an increasingly important role in global governance are multinational corporations and international NGOs. Classic nation-state based interest groups such as workers unions, religious groups or even extra-legal actors also continue to play a key role, through their influence on the state representatives in the multilateral bodies or by their reorganisation in international networks.

For the stake of building the theoretical framework, we need a more fundamental characterization of these different actors, in terms of their involvement in elementary governance mechanisms. More precisely, what we are interested in is a typology that is based on collective choice rules, that is in terms of the rules that determine "who" decides on changes in operational rules for providing GPGs. In the classic nation-state context, the important collective choices are based on modes of decision and delegation of decision through so-called "vertical accountability". The key players are the citizens and the representatives. Through a delegation mechanism (election, co-optation etc.), citizens delegate decision making power to representatives, who remain "accountable" to the individuals that have appointed them. If the citizens can decide themselves upon some matters, through referendum or other forms of direct democracy, no delegation takes plays and decision is made by "self-accountable" individuals.

As stated in the introduction, in the case of global governance, another form of accountability has an increasing influence, the so-called "second-order" accountability or what we will call "horizontal" accountability. According to James Bohman (2004), we can observe an evolution in global governance, from forms of vertical accountability, which characterize classic command and control regulation, to so-called second order accountability. The extension of vertical accountability, characteristic of the nation state, to the global arena is at the core of the construction of supra-national institutions such as the European Union or the United Nation Organization. In those cases, the accountability of the trans-national institution to its constituents depends on vertical institutions such as direct or indirect parliamentary representation, public consultation or participatory decision-making. However, in the global context, this form of accountability suffers from a lack of efficiency, due to high transaction costs, and a lack of legitimacy, because of the difficulty to find agreements on a global level, where the different stakeholders are deprived of the confidence acquired through reciprocal recognition. Indeed, in the presence of radical different cultural horizons, one has to find an agreement on common principles with an "other" from whom one cannot recognize *a priori* the intentions and the preferences, from whom the values are strange, as well as the types of aspirations to the good life (Habermas, 2000, p. 119). Moreover, experts and theory-driven policies that allow little contestation dominate the particular form of governance that is common to many international institutions. That's why, in global governance, another form of accountability is called for, acting on the second-order level of defining the problems and the rules for reaching agreement. According to Bohman, what is needed on the global level is to go beyond the formal extension of vertical forms of accountability to trans-national institutions, in the direction of a change in the "mode of inquiry" of the trans-national institutions. A more democratic mode of inquiry, through emerging public spheres, should open up second-order forms of accountability, "such as questions related to how problems are formulated, methods of how information is sought, relevance and salience are determined, and ultimately the standards by which success and failure are determined" (Bohman, 2004, p. 347). In other words, organizing accountability in the absence of state-like institutions depends on the creation of public spheres around the supra-national institutions, with the goal of making their forms of inquiry more transparent, accessible and open to a greater variety of actors and perspectives (*Ibid.*, p. 349). In fact, this form of second-order accountability is only an extension (but an important one) of modes of horizontal delegation of decision making that are already occurring in traditional Nation-State governance: citizens accept that specific categories of agents organize themselves to produce specific outcomes such as knowledge (case of scientific communities) or goods and services (such as industry). Hence, in these cases, the delegation of decision operates through a "double" mechanism of accountability: internally, decision makers represent the organisation and remain formally accountable to the members only, and, externally, they have to take into account the concerns and the preferences that are expressed by increasingly active citizens. There is no formal delegation mechanism between the citizens and these organized communities – the members (and therefore decision makers) are only accountable amongst themselves –, but nevertheless to remain legitimate as collective agents they have to take into account the legitimate concerns and preferences of citizens in their field of activity.

B.2/ Relevant way of understanding governance

Based on this characterization of collective choice rules, it seems appropriate to limit ourselves to three elementary categories of actors to cover the different players. In terms of mechanisms of delegation of decision making we use the categories of citizens (self-accountable agents), representatives (vertically accountable agents) and organized communities (horizontally accountable agents). From this point of view, consumers can be considered as citizens (for example in the case of consumer choice on GMOs through labelling), the executive bodies and the legislative assembly as representatives and corporations, religious groups and NGOs as organized communities. The role of the experts

depends on their relationship with organised communities. Indeed, as stated above, experts can emanate from communities or can be self-acclaimed. In the first case they "represent" the community. In the second case, they only represent themselves as citizens.

To compare various procedures of democratic governance, we need to identify a set of basic components and combine them with these elementary actors. Building upon a broad approach to governance as a process of rule making and implementation, we can distinguish very generally between three elementary components: (1) elaboration of the rules (2) choice of the rules and (3) implementation of the rules. The involvement of citizens, representatives and organised communities in the three components will determine different possible modes of governance. For instance, citizen jury's are a way of combining debate amongst citizens and representatives at the level of the elaboration and the design of the rules. Choice remains in the hands of the representatives. Reflexive law making delegates the implementation to organized communities (for example environmental auditing schemes), but representatives decide upon the regulatory framework. In case of self-governance, organized communities both play a role at the level of choice and implementation.

At the present stage of our argument (building a theory of knowledge generation as a governance mechanism for providing GPG), we do not need an exhaustive description of the different possibilities of combining the categories of elementary players and components of the governance process. It is sufficient to keep in mind some general characteristics of the three components of the governance process. The first component, **debate**, is about elaboration and design of the rules. It is defined by the *involvement or exclusion of the various categories* of elementary players from the rule design process. **Decision** is about the choice of the collective rule. It is defined by the delegation of rights to decide to a category of decision makers and by the rules of *decision either by majority or by consensus.* **Rule implementation**, finally, is about the entity in charge of the enforcement. It is defined in terms of the *degree of involvement of the various categories* that play on various mechanisms; for example enforcement through ostracism by citizens and organized communities, the use of public force for the representatives.

C/ Capacity of alternative institutional frameworks to generate knowledge

Combining the results of the two previous sections, we can build a schematic overview of the different ways that governance processes can contribute to the generation of knowledge on preferences and solutions and evaluate their influence on the efficiency of this knowledge generation. Generally speaking, the organisation of procedures for debate, decision and enforcement will play a role for each of the core components of the knowledge generation process, which is the problem identification, building of prototypes and the generation of implementable solutions. Thus, we will have to consider the involvement of the various categories of players in the debate, decision and implementation of collective rules for each of these core components. By evaluating at each stage how the players influence the efficiency of the knowledge generation, we should be able to generate a picture of the optimal "reference case" of a governance mechanism designed for generating knowledge.

C.1/ Identifying problems

An efficient mechanism for identifying problems has to be able to draw the attention to the most salient issues (focus) and to structure information through association, generalization and inference (formalisation). The optimal way to involve the alternative players in the democratic procedures will be different for the components of debate, decision or enforcement.

Organizing the debate for generating knowledge on possible problems to be addressed, requires both a mechanism for drawing attention to problems that are not considered by the current governance mechanisms (new contexts or new ways of considering the contexts) and procedures for structuring the information coming from a broad set of cases of local dysfunctioning. Citizens can play a role through their ability to take legal action on an issue that is not considered by the representatives (so-called legal activism) or through bringing a topic in the public sphere by mobilising attention of the media. However they lack structured information. Organized communities (scientific communities, NGOs, corporations etc.) have a clear advantage on citizens in this respect. Indeed, they can make relationships amongst different local contexts where problems arise and have the capacity to mobilize attention in their field of activity. Representatives are both far away from local contexts and lack access to emerging problems.

The decision on the set of problems to be effectively addressed needs to address different constraints. Indeed, at this stage, a sub-set of problems is selected that is considered to be the most representative of the problems raised by the citizens and the organized communities. Citizens could play a role here, as long as they are put in a position where they consider the general interest. However, in practice citizens are limited by their bounded cognitive frames. As has been shown in contemporary critical theory (Goodin, Bohman), overcoming this limit depends on the organization of a process of learning that is often taken for granted by the advocates of this mode of governance (Habermas, Rawls). In this case, representatives are the best placed to overcome both the self-interested nature of the organized communities (by definition) and the citizens (contingent, because depending on the level of collective learning). They can make an appropriate choice amongst the problems that are raised by their ability to access a broad range of citizen's preferences and aggregate them through democratic delegation processes.

The enforcement of the decision to engage a process of knowledge generation on the selected subset of problems is again a governance process that highly depends upon access to contextual information. Indeed, documentation is required to show that one has already appropriate knowledge to deal with the selected problems and the problem set has to be formulated in a way to credibly reflect the concerns of the affected populations. Representatives have some strength in structuring the selected problem set in a credible way, through their administrative ability to access expertise and knowledge of citizens preferences (through organizing polls for example). Organized communities, if available, have however more direct access to the "field" while being able to organize the information in a structured manner.

C.2/ Building prototypes of possible solutions and salient preferences

The second stage of the knowledge generation process that we identified is the stage of the building of general models of the available knowledge, involving innovation and invention. Again we consider the influence of the different democratic governance process, i.e. rule design, choice and implementation, on the efficiency of this component of the knowledge generation.

The organisation of the debate on prototypes depends both on cognitive capacities of generalization and invention and on the motivations and the incentives to generate knowledge to innovate generation of new ideas and perspectives. Both representatives and organized communities (of a certain size) have the organizational capacity to build general knowledge, whether by drawing on expertise that can be mobilized in the executive bodies (case of representatives) or by their possibility to select and access the most relevant knowledge in the field of activity (case of organized communities). However, organized communities clearly have a stronger orientation towards innovation, both through their ability

to bring new ideas based on community practices and by the incentives they have to bring knowledge to innovate. Citizens clearly lack the ability (individual or organizational) to build general knowledge (in general citizens have for this reason a strong disadvantage in any of the governance process geared towards building prototypes) and lack the ability to build the collective preferences in their generality, because of the tendency to overemphasize the individual preferences of each of them, and therefore to fail to agree on general interest.

The decision on the choice of the prototypes that will be adopted involves the capacity to balance the available scientific knowledge and the expression of the citizen preferences. On the one hand, one needs to select the most credible proposals and evaluate if the research programs to implement them could be feasible. On the other hand, one has to remain accountable to the citizen preferences. This is again very knowledge intensive and representatives and organized communities have better access to the required knowledge. Representatives lack some of the scientific knowledge to guarantee the practicality and feasibility to which the organized communities have access. However, in the case of organized communities there is a risk of biased research programs and biased choices because of a lack of direct accountability to the citizens.

Implementing and monitoring the research programs to further develop the prototypes is essentially depending on access to the available knowledge in a specific field of expertise. Organizational communities typically are able to mobilize this knowledge directly. Representatives can do so only indirectly, by targeting specific goals through grants and research proposals. In case of large scale research programs (international cooperation or big infrastructures) the involvement of the representatives may be necessary, in order to the gather the requested capacity (threshold effect).

C.3/ Generating practical solutions

The third analytic step involves the testing, certifying and dissemination of contextual solutions that can implement the prototypes designed, selected and developed in the second stage. As stated above (sub-section A), this is an incremental, context dependent process that builds upon the already available know-how and knowledge that is required for problem-solving and adjustment to the local situation.

The debate on the design of contextual solutions requires both an access to local knowledge and to the local preferences. Organized communities have an advantage both over the citizens and the representatives. Citizens have access to the local preferences, but can mobilize only a limited amount of knowledge. The representatives can, although not completely, access local know-how and knowledge, but they lack access to the local preferences (perhaps with the exception of local authorities). Organized communities have in principle a better access to both.

The choice amongst the proposed solutions requires the capacity to adopt a broader perspective on the available local preferences (choice in function of the general interest) and the adoption of a broader perspective on the context (choice in function of the embedding of the solution in the technical and institutional context). Organized communities do not seem appropriate, because of their lack of accountability and partial perspective, even if they can more easily evaluate the technical reliability of the implementable solutions. Both citizens and representatives have some of the characteristics that are required. Citizens have the ability to access the local preference from a general point of view and can access the knowledge. However this is not valid in cases of complex problems and large populations. Representatives have the administrative capacity to access knowledge and to adopt a broad perspective on the preference (under the condition of an appropriate organisation of the vertical accountability). However, their ability to make choices is dependent on a clear definition of the citizen preferences.

The implementation of the practical solutions that have been selected requires local knowledge and a capacity to monitor and enforce the agreed upon solution. Successful implementation at this stage will hence depend on the ability to identify problems that can occur during the implementation process and to test and disseminate the solutions. Organized communities have a clear advantage for this task. Citizens have an ability to identify problems that occur, but cannot always share knowledge and propose efficient solutions. Representatives are in any case too far from the local context to have access to the individual knowledge about possible improvements and defaults linked to implementation.

3. Evaluating the contribution to the provision of global public goods

The "political economy" of deliberative arena shows the existence of different strategies for organizing procedures of public deliberation that contribute with varying degrees of efficiency to the process of knowledge generation, that is the building of common knowledge on solutions and the expression of collective preferences.

From our theoretical discussion in the second part, the ideal process or "reference" case can be deduced. Selecting at each analytic step the best option, we can see that the "reference" case of a governance process specifically designed for generating knowledge is to organize for each step the following sequence : communities (for debate), representatives (for decision) and communities (for implementation). Note that citizens are always not the best solution (from a knowledge generation perspective). If we want to apply this sequence specifically to design procedures for problem identification, prototypes building and elaboration of solutions we have to be more precise by identifying the various types of representatives and various organized communities.

Nevertheless the evolution towards such a "reference case" is only a possible outcome of the institutional experimentation with deliberative procedures. It is not an automatic consequence of the adoption of new forms of governance based on public deliberation, but depends on a reflexive process of institutional adjustment by the actors which have to direct the institutional choice towards the goal of enhanced knowledge on GPGs : the correlation between the experimentation with procedures of deliberation and their contribution to knowledge generation for the provision of global public goods is still something that has to be constructed for its own sake.

In this third section, we confront our findings with the extensive applied literature on democratic deliberation in the governance of global public goods, in order to build a set of design rules that can be used in the evaluation of the contribution of democratic debate to knowledge generation and hence contribute to a more reflexive construction of these deliberative spaces. Here the challenge is to identify a set of principles (as often as possible illustrated by existing practices) that should constitute the basis of evaluating efficient ways of governing the provision of global public goods. In addition to these principles the problem would be to assess how an institutional framework could be designed to implement these principles

A/ A typology of collective decision processes

If we want to apply our theoretical model to the extensive applied literature, we first have to indentify the properties of the existing modes of deliberation through which different categories of players can impact on decision and knowledge generation. The goal here is to identify some simple criteria that are broad enough to classify the most important empirical types of governance processes.

A1/ Processes based on Citizens

Direct involvement of citizens in collective decision-making has become an important practice of governance in the information society. In political process, parliamentary hearings of citizens and referenda have always been an important component of democratic society, but increasingly (since the 1970ies) new mechanisms play a role such as citizen jury's, citizen surveys and permanent "citizen observatory's. In market processes, direct involvement of citizens through eco-labelling in the case of GMO's for instance has also become increasingly important.

However, these initiatives have been criticised for two main reasons. First, one can wonder if the participation to public deliberation is not just happening at the "margin" of the governance process. Often, as in the case of "public consultation" on EU policies, the information is only solicited and used by the officials in order to test the public acceptability of the proposed measures. Also, if the involvement of the citizen only happens after decision is made, their role is limited to expressing an opinion on the possible "mitigation" measures. Second, these processes have been criticised for the way they organize the participation of the citizens to the deliberation. How are the relevant actors convened to the deliberation, what are the costs to participate and what are the required capacities to credibly participate? Often the threshold for participation is very high and *de facto* the deliberation process only allows the participation of a small number of citizens and do not address a wide audience.

The relevant criteria to classify the empirical types of citizen based deliberation can be drawn from these criticisms. First, one can distinguish between processes that are only directed to gathering information from the citizens and process where citizens have a real influence on the decision making. Second, one can distinguish between processes that address all citizens or that only address few citizens.

Such a typology allows encompassing most of the known types of direct involvement of the citizens in the collective decision-making as illustrated in table 1.

	Information Gathering	Medium	Decision Making
All citizens	Survey	Public Debate	Referendum
Few Citizens	Citizens Jury Public hearings		

Table 1. Classification of different empirical types of citizen based procedures of democratic deliberation

A2 / **Mechanisms based on Representatives**

Representative systems of governance have been extensively discussed in the literature. The classical distinction used to discriminate amongst different types of representatives focuses on the election process, which can vary from majority vote systems, where only few categories of citizens are represented in the decision making (winner takes all) to proportional systems where most categories are represented (in each category a different winner can emerge, the representative body is a composition of these different winners). The decision making in the latter case will involve a complex process of making of compromise and consensus building, while in the former case the majority that comes out of the "winner takes all" competition has the full decision making power even if this majority represents only a part of the population.

This key distinction would be sufficient for our purposes, if we want to focus only on nation-state democratic representative bodies resulting from open processes of election. However, in the context of global governance, not all nation-state representatives have come to power through open election processes. Moreover, the nation states representatives are not the only types of representatives that play an important role, even in the context of the nation state. In global governance, multi-lateral bodies, international working groups or international organizations also are accountable to the entire community of citizens through formal mechanisms of delegation (vertical accountability), even though often indirectly limited (for example if they are appointed by the nation-state representatives). In the local and national context, one can point to vertically accountable organisations with politically appointed members, such as the chamber of commerce, committees deciding on wage indexation or state universities.

Hence, vertical accountability can vary from broad access of the citizens to representation (case of direct election) to a closed access to representation (as in the case of appointment). Several discussions in the literature illustrate the importance of this second criterion. For instance the access to membership of representative bodies can depend on objective criteria, such as in the case of the World Bank or the World Trade Organisation (membership depending on payment of fees and compliance with a set of common standards), or on a mechanism of cooptation, such as in the case of the European Union (membership depending on a process of acceptance by those who are already represented). In other cases, the access to representation is limited by a mechanism of "weighted voting". In these cases, representation is either based on the actual contribution of a member or on the ability to cover the costs of participation. Finally, very often the representation is not based on direct membership of individuals, but by representation of groups of interests / stakeholders.

Adopting this broad perspective on "representation" we can classify most of the known types of representation systems along two dimensions: (1) closed *versus* open access to representation / the delegation mechanism of power (2) majority *versus* proportional election systems. Such a typology allows encompassing most types used to make decision, locally, nationally, regionally or globally as illustrated in table 2.

	Winners take all	Compromise
Closed/Appointment	Russia, XIXth century France/GB/Germany, UN Security Council, ICANN	China, EU, Chamber of Commerce, European Space Organization, ITU, Universities, WIPO working group on traditional knowledge.
Open/Direct Election	France, World Bank (while the weighed voting tend to make it close to a close system)	Israel, Switzerland, WTO

Table 2. Classification of different empirical types of representation systems

A3/ Systems relying on Organized Communities

As we have extensively discussed in this paper, organized communities play an important role in democratic deliberation. However, only some have as their specific purpose to generate and disseminate knowledge oriented towards the solution of specific problems (whether it be knowledge on the collective preferences or on the most optimal solutions). Important types of organized communities such as scientific communities or social movements are more general in nature : their purpose is to gathering information and bring it to the public debate. By this they contribute to identifying issues that should be dealt with in the collective decision processes, without however promoting specific solutions.

Both "general purpose" and "problem-solving" organizing communities have been criticised however. Indeed organized communities have a tendency to adopt exclusive modes of operation (self-referential modes of operation, self-interested nature). This problem plays a role both in the way organized communities manage knowledge and the way they represent social interests. Exclusive knowledge management is characterized by the selective use of information, with the goal of pushing a certain solution or promoting debate on a specific issue that the organization wants to bring to attention. Inclusive knowledge management is open to the full range of available knowledge and hence to new ideas, and often involves an effort of collective inquiry to generate new knowledge. In a similar manner, exclusive representation of interests in organized communities is characterized by a focus on the interests of specific category of agents, while inclusive communities organize themselves to focus on the defence of the interests of the widest possible community.

Based on these debates, most known types of organized communities can be represented by using three criteria : (1) general purpose *versus* problem solving (2) exclusive *versus* inclusive knowledge management (3) exclusive *versus* inclusive representation of interests.

Such a typology allows encompassing most of the known type of organized communities
- Solution/Exclusive Knowledge/Exclusive Interest: Industrial lobby, Legal activists
- Solution/Exclusive Knowledge/Inclusive Interest: Churches/Religions
- Solution/Inclusive Knowledge/Exclusive Interest: Foundation
- Solution/Inclusive Knowledge/Inclusive Interest: OSS, Scientific Advocacy Group (Pugwash), Citizens Advocacy Groups (Amnesty, Greenpeace, etc).

- Issues/Exclusive Knowledge/Exclusive Interest: Clubs (Lyons Club, Anonymous Alcoholic, econsence, …), Global Business Council, Protest Groups, Workers Unions,
- Issues /Exclusive Knowledge/Inclusive Interest: Society for the Protection of Animals, Anti-nuclear Movements, RAFI,
- Issues /Inclusive Knowledge/Exclusive Interest: Indigenous groups, Think-tanks,
- Issues /Inclusive Knowledge/Inclusive Interest: Scientific Community, WWF,

B/ Principles for evaluating collective decision processes

The various empirical types of collective decision making processes should be assessed according to their ability to produce knowledge and to build collective preferences.

The performance of the knowledge production will depend on the performance of the operations of production of knowledge (the knowledge process) and the performance in the use of the outcomes (the produced knowledge) (cf. intro to section 2/A). So we can assess very broadly the performance of the knowledge generation according to the criteria of production / innovation and usability. The first relates to the ability of a mechanism to increase the stock of knowledge; the second relates to its ability to increase the use of the relevant knowledge in the relevant context. It therefore covers the problems of access and diffusion of knowledge and the production of meta-knowledge which is necessary to exploit knowledge (ability to apply knowledge to the right problem).

As discussed in the first section (scope of the problem), preferences are rank orderings of alternative choices. A preference system is complete when the list of alternative choices is complete and fully ordered. The performance of the process of expression of collective preferences will thus depend on the ability to be inclusive (tendency to build a complete list) and to construct a consistent set of preference. In the collective decision making, inclusiveness relates to the ability to build collective preferences through a process that guarantee that the widest possible collection of stakeholders is included. This should also allow to build credible and representative preferences. Consistency relates to the ability to build collective preferences that are consistent amongst each other and across time. For instance, this allows to criticize "apparent" preferences for a public good, which are in contradiction with the overall tendency of the main preference set.

B.1/ Increasing the stock of knowledge

Citizen based procedures of democratic deliberation vary much in their ability to produce and innovate. Clearly information based procedures, such as surveys and jury's are efficient at gathering knowledge of the citizens, while the decision based procedures are not designed to do so (they relate to the existing knowledge base). Procedures including fewer citizens enhance incentives, specialization and increase consistency.

As discussed in the second part, representatives are not efficient producing innovative knowledge allowing increasing the existing stock. This efficiency is not necessarily enhanced in the cases that satisfy the criteria of open appointment. Indeed, open appointment does not guarantee that the most skilled person will make the decision. In a similar manner, closed appointment does not always guarantee that the most competent person is appointed. The organization of the election process seems to have some influence nevertheless; consensus requires more imagination and more inclusiveness of knowledge to build solutions.

In the case of organised communities there is no big difference between "problem-solving" and "general-purpose" communities. Indeed, the two types are aimed at producing knowledge. They simply provide different knowledge. Also both inclusive and exclusive interest communities have incentives to innovate. The main difference is situated at the level of the knowledge management, where the inclusive types have a clear advantage in the production / innovation.

B.2/ Promoting the usability of knowledge

Citizens are not especially efficient at promoting the usability of knowledge (cf. also our general assessment of the role of citizens in knowledge generation in the second part). Nevertheless, organizing citizen based deliberation (both in the case of information oriented ant decision oriented types) is an incentive for the diffusion of information and for learning. Deliberation involving more citizens widens the diffusion.

The representatives have not a very strong incentive to promote usability of knowledge. Open systems of representation might incite representatives to transfer knowledge as enlightened representatives might do in a closed system. Again, consensus based system can increase the performance, because they force to make arguments explicit, to teach one own views and to understand the vision of others.

"Problem-solving" communities are by definition incited to promote the usability of knowledge. This is true both for inclusive and exclusive knowledge management procedures, because in both cases the communities have an interest in promoting diffusion. However, the incentives to do so will vary (and increase) with the inclusiveness of the representation of the social interests.

B.3/ Building consistent preferences

Again citizen based procedures of democratic deliberation vary much in their performance. Information oriented types of citizen procedures are good at building consistent preferences. Indeed, information gathering disconnected from decision increases the likelihood to gather unbiased information and to identify span of compromise. Also citizen procedures including few citizens increase the chance to be able to understand the overall problem and to reach compromise.

Open and closed representative systems do not vary much in their ability to build consistent preferences, except for the fact that open systems tend to encourage over-reactions and hence make consistency more difficult. By definition, consensus based systems are oriented to consistency, while winner-takes all not.

In the case of organized communities, both inclusive and exclusive communities have incentives to guarantee consistency. In the case of exclusive interests however, preferences evolve separately in the community and inconsistency should be high.

B.4/ Promoting inclusiveness in the preference building process

Citizen involvement in democratic governance promotes by definition inclusiveness in the preferences building process, whether this is oriented towards information gathering or decision making. Wider involvement (procedures including all citizens) will increase inclusiveness, because it guarantees that all stakeholders will voice.

In the case of representative systems, obviously inclusiveness varies very much. Both the "open access" and the "consensus" based types promote a process of inclusion of the widest possible group of stakeholders, while the "closed" and "winner-takes-all" types do not.

Organized communities, because of their operational closure will most of the time build biased solutions, both in the solution-based and general-purpose types. The inclusive types (both no level of knowledge management and interests) are by definition better suited for promoting inclusiveness in the process of the building of collective preferences.