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**DELIBERATIVE DEMOCRACY  
AND THE PROBLEM OF THE COMMONS**  
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## **DELIBERATIVE DEMOCRACY AND THE PROBLEM OF THE COMMONS**

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### **RESUMEN:**

A partir del artículo de Hardin “La tragedia de los comunes”, se ha sostenido tradicionalmente que los gobiernos deben administrar los bienes públicos pues una administración privada llevaría a su agotamiento. No obstante, Elinor Ostrom ha desafiado esta interpretación al identificar un tipo específico de recursos llamado “common-pool” que, bajo ciertas circunstancias de confianza y comunicación fluida entre las partes involucradas, puede ser eficientemente administrada por grupos de individuos. En este contexto, este artículo sostiene que los postulados de la democracia deliberativa son compatibles con una administración eficiente de los recursos “common-pool”. Este resultado contradeciría la literatura que los gobiernos autocráticos son más efectivos en la administración de los recursos naturales.

*Palabras clave:* democracia deliberativa, recursos de common-pool, Ostrom, tragedia de los comunes.

### **ABSTRACT:**

Following Hardin’s paper of “The tragedy of the commons”, it has been traditionally sustained that the government should manage public good resources since their private management would lead to their depletion. However, Elinor Ostrom has challenged this account

by identifying a specific type of Common-pool resources that, under circumstances of trust and fluid communication between the parties involved, can be efficiently managed by groups of individuals. In this context, it is this paper's contention that the postulates of deliberative democracy are compatible with an efficient management of common-pool resources. Thus, this finding would contradict literature that autocratic governments are more effective in managing natural resources.

**Keywords:** deliberative democracy, Common-pool resources, Ostrom, Tragedy of the Commons.

## 1. Introduction

In 1968, Hardin came up with his theory of the *tragedy of the commons* according to which rational and interest-maximizer individuals behave contrary to the community's best interest by using common resources in unsustainable ways (Hardin 1968: 1234-1248). He explains that in these scenarios, we are faced with a multi-player prisoner's dilemma by which if everyone is given similar rights over a communal good no-one would have the incentive to preserve it from over-use. In addition, it could lead to a disproportionate burden of costs on the actors who choose to behave responsibly.

Hardin's theory with regard to public goods and their management has led the traditional economic theory to consider public goods as a source of market failure, thus justifying governmental intervention in their management (Cooter et al. 2008: 46).

For many years, this was the undisputed theoretical framework applied to the analysis of public goods' management. However, Elinor Ostrom, 2009 Nobel Laureate in economics, challenged Hardin's findings with regard to a specific type of good, namely: common-pool resources. It must be borne in mind that although Hardin considers these goods to be part of public goods, Ostrom builds a new category for common-

pool resources such as forests, water systems, fisheries, etc. since she explains that these goods share the attribute of subtractability with private goods and the attribute of difficulty of exclusion with public goods (Ostrom 1977: 7-49). Thus, this hybrid type of good is neither a public nor a private good.

Ostrom starts by criticizing the preconceived notion that this type of goods ought to be managed by the government since the agency in charge of controlling the correct administration of the CPR does not have all the complete information regarding the conduct of the users of said resources, the exact tipping point in order to prevent overuse and the precise sanction following the breach of that rule. However, she says that this is rarely the case since the governmental agency in charge of controlling the CPR has less information than the users and has less possibility of correctly estimating the punishment that needs to be implemented for overuse (Ostrom 1990: 9-11). Furthermore, there is a higher probability of enforcing the rules to prevent overuse when they are agreed upon the users of that CPR than when imposed from above. Indeed through the use of several case studies, Ostrom demonstrates that many community managed common-pool resources are better managed than government regulated ones. In analyzing the success of these type of resources, she states that although each common-pool resource is different depending on the cultural, historical and country differences there are two preconditions for the institutional management of that resource to work: trust and effective communication and participation between the community's stakeholders.

In this framework, this article aims to explore whether deliberative democracy presupposes the necessary preconditions that Ostrom affirms that are desirable in order to effectively administer common-pool resources. We will do so by evaluating the many instrumentalist virtues of deliberative democracy in building an effective and trustworthy deliberation process.

Firstly, I will briefly describe the theoretical framework and rules under which, according to Ostrom, common-pool resources may be used in an efficient way. Second I will explore the concept of deliberative democracy and its effects on society. Thirdly, I will refer to some case-studies that reflect the specific positive attributes of the inter-linkage between deliberative democracy and common resources. Fourthly, I will analyze the specific relation between deliberative democracy and common-pool resources management. Fifthly, I will think about the impact of this investigation on the ways we conceive environmental rights and finally, I will conclude.

## 2. Ostrom theory of efficient management of Common-Pool Resources

From Paul Samuelson's 1954 paper, traditional economic theory has distinguished between two types of goods: private and public goods. The first type of goods are both excludable (only one individual can use them) and rivalrous (if one individual consumes it, then another person will be deprived from its consumption). On the other hand, public goods are non-excludable (everyone can have access to them without paying) and non-rivalrous (many people can consume this good without exhausting its consumption). In economic theory, whilst the market can efficiently allocate private goods, the market fails in doing so with public goods because of the problem of free-riders<sup>1</sup>. Henceforth, economic theory purports that faced with this kind of market-failure, the government must step in and manage those public goods.

This binary classification of goods was firstly challenged by Buchanan when he introduced a third type of good: the

1. The term "free-riders" refers to a person that profits from a collective effort benefit but that has contributed little or nothing to it.

"club good" (Buchanan 1965: 1-14). This good is nonrivalrous and yet excludable since it was possible for a group of citizens to get together and provide for themselves small-scale goods and services that they could all enjoy while excluding non-members from their consumption.

Vicent and Elinor Ostrom went further in their classification of goods to find a fourth type of good which they called common-pool resources (from now on CPR) which share the rivalry of consumption with private groups and the difficulty of exclusion with public goods (Ostrom 1977: 47). Furthermore, they also proposed some changes to the already existing theory of goods, namely: they replaced the term "rivalry of consumption" with "substractability of use"; they created a gradient of substractability and excludability from high to low instead of analyzing whether these two attributes were present or not; and they changed the name of club good to toll good since they acknowledged that this good can be supplied by both small-scale public and private associations or clubs. The following table – reproduced in Elinor Ostrom (2005) – illustrates the four existing types of goods:

		Substractability of Use	
		High	Low
Difficulty of Excluding Potential Beneficiaries	High	<b>Common-pool resources:</b> groundwater basins, lakes, irrigation systems, fisheries, forests, etc.	<b>Public goods:</b> peace and security, national defense, knowledge, fire protection, weather forecast, etc.
	Low	<b>Private goods:</b> food, clothing, automobiles, etc.	<b>Toll Goods:</b> theaters, private clubs, daycare centers.

Henceforth, Common-pool resources, according to Ostrom, are goods that have a high difficulty of excluding potential beneficiaries and a high subtractability of use.

In this framework, one could *prima facie* predict that if we were to follow the assumptions and prescriptions of non-cooperative game theory, the high difficulty of excluding potential beneficiaries' characteristic of CPR would lead to scenarios of resource depletion as those envisaged by Hardin.

However, Elinor Ostrom cites empirical data<sup>2</sup> to support that, under a variety of what she calls design principles, CPRs can be used in an efficient way over a long term period without the State intervening. These are the following principles that she upholds to be necessary to predict a higher success of efficient CPR's management<sup>3</sup>:

- 1A. Clear User Boundaries: There must be clear and settled boundaries between users and non-users.
- 1B. Clear Resource Boundaries: a specific CPR must be clearly separated from a larger social-ecological system.

2. As noted by Ostrom's acceptance of the Nobel Price Speech: "The design principles appear to synthesize core factors that affect the probability of long-term survival of an institution developed by the users of a resource. Cox, Arnold, and Villamayor-Tomás (2009) analyzed over 100 studies by scholars who assessed the relevance of the principles... Two thirds of these studies confirm that robust resource systems are characterized by most of the design principles and that failures are not".

3. Note: These principles are a combination of her 1990 and 2005 articles with some corrections from Cox, Arnold and Villamayor-Tomás. Bibliographical references: Ostrom, Elinor (1990), *Governing the Commons: The Evolution of Institutions for Collective Action*, New York: Cambridge University Press. P. ; Ostrom, Elinor (2005), *Understanding Institutional Diversity*, Princeton, New Jersey: Princeton University Press. P. ; and Cox, Michael, Gwen, Arnold, and Villamayor-Tomás, Sergio (2009), "A Review and Reassessment of Design Principles for Community-Based Natural Resource Management," submitted to *Ecology and Society*.

- 2A. The rules of appropriation and those of provision (most likely payment rules) must be in correspondence with local social and environmental conditions. There must be some sort of proportionality.
- 2B. Appropriation rules must be in accordance with provision rules. That is to say the benefits should be allocated proportionally to the costs.
3. Collective-Choice Mechanisms and rule building: All those individuals who will be specifically affected by a certain resource regime can participate in discussing, making and modifying its rules.
- 4A. Monitoring Users: All users must monitor over the appropriation and provision of other users. In this way, the horizontal management regime is reinforced.
- 4B. Monitoring over the resource: The users or individuals that are accountable to the users must monitor over the correct usage of the condition of the resource.
5. Uprising severity for recidivism in rule violation: Sanctions start very low but then get tougher and tougher if the individual continues to violate the commonly established rules.
6. There must be rapid, cheap and local conflict-dispute resolution mechanisms.
7. The government must acknowledge and respect the rights of users of the CPR to make their own rules within certain conscriptions.
8. If a CPR is linked to larger social-ecological systems, the governance and rule creation activities must be organized in "multiple nested layers".

Of all these principles, number 3 is the foundation of governance and has a strict resemblance to the postulates of deliberative democracy, as we will later explain.

All these are merely institutional principles that need to be observed, but there are two preconditions that enable the correct function of this institutional setting, namely:

information/communication flow and trust between the individuals that manage CPRs (Ostrom 1994: 319-330).

Indeed, as Ostrom acknowledges: “The opportunity for repeated face-to-face communication was extremely successful in increasing joint-returns”. In effect, Hardin’s prediction holds with regard to CPR “where individuals do not know one another, cannot communicate effectively, and thus cannot develop agreements, norms, and sanctions, aggregate predictions derived from models of rational individuals in a noncooperative game receive substantial support” (Ostrom 1994: 319). In other words, when individuals can interact between each other, communicate, have full information and trust each other (or at least can anticipate each other’s behavior), CPRs can be efficiently managed by private individuals without leading to the depletion of the resource in question.

It must be borne in mind that the set of principles described above do not amount to silver bullets in assuring an efficient management of CPR. As Elinor Ostrom asserts: “After reading hundreds of cases that described both successful and unsuccessful private, government and community property arrangements, without finding a clear set of specific rules associated with long-term sustainability, I derived a set of design principles to characterize those cases of local, common-pool resources that had survived long periods of time” (Ostrom 2008). Thus, although there is no causal link between communities that use the design principles and the success of the CPR sustainable use, there is a high correlation as evinced by very many studies in Mexico (Dayton-Johnson 2000: 181-208), the Andean Region (Trawick 2001: 1-26), Japan (Sarker 2001: 89-102) and Canada (Weinstein 2000: 375-412) amongst other places.

### 3. Deliberative Democracy

Deliberative Democracy implies that public decision-making should be the result of a deliberation process of rational

citizens with diverse views on the common good. Rationality in the latter context refers to citizens that “should be open to reconsidering their preferences in light of persuasive argument as to what is in their interest” (Ferrejohm 2013: 28). Further, as suggested by Habermas, a necessary component of deliberative democracy implies that a policy decision is justified as long as all those who are affected by that policy have participated in the deliberation process and can accept it as reasonable discourse.

The concept of deliberative democracy entails a powerful premise: a praiseworthy political system is one which brings about impartial decisions. That is to say, decisions are taken without specifically favoring a certain person or interest group but rather everyone is treated with an equal respect and consideration. According to Gargarella, the main virtue of this conception of democracy lies in an open and robust public discussion. There are four main reasons that explain the close inter-linkage between open public discussion and impartiality of outcome-decisions.

Firstly, discussion gives place to the correction of factual and logical mistakes in argumentation (Nino 1998).

Secondly, deliberation allows us to incorporate new information and arguments on issues that we didn’t know or hadn’t thought about. Discussion in this way fills the informational void created by our lack of knowledge with regard to certain public sphere issues.

Thirdly, discussion is extremely important in eliminating misconceptions or prejudices that we incorporate on a daily basis (Nino 1991). The latter hampers reasoned decision-making since it ties us down to dogmas that are logically-inaccurate. On this view, a deliberative conception on democracy would also be superior to others from an epistemic position as conceived by Nino or Habermas.

Fourthly, deliberative democracy has an important educational aspect upon those who take part in the deliberative process (Pateman 2003: 41).

In that context of discussion and debate, every person must be conceived as an equal moral agent and her views must be equally respected. Agents reason reciprocally. That is to say that they “can recognize that a position is worthy of moral respect even when they think it morally wrong” (Schumpeter 2003: 18). This is what Jeremy Waldron calls Good-Faith Disagreement (Waldron 1999).

As suggested, deliberative democracy has not only intrinsic value but also instrumental value. Amongst the many instrumentalist consequences of deliberative democracy there are two very relevant in solving collective action problems without governmental interference, namely: the building of trust and of cooperative communication.

As cooperative game theory proves, prisoner’s dilemmas can be turned into coordination games through a previous interaction of the parties playing the game. Indeed, the dominant strategy in these kinds of games is the so-called “tit-for-tat” which basically entails both players always cooperating in the first round and then imitating whatever action the other took in the previous round.

However, classical game theory explains that mere cooperation is not sufficient since if the players know when will the last round comes, they will defect in the previous to last. But this strategy is also conditional on the fact that the “rational” player will also predict that her opponent will defect. The missing element in keeping this coordination from continuing is the trust element. Thus, trustworthy communication is the only way that the multiprisoner’s dilemma of CPR will be turned into a constant coordination game where all parties will get the higher payoff. Deliberative democracy, in turn, proposes constant debate, deliberation and communication between groups of people thus building upon trust between the members of a certain community.

Moreover, there is a second advantage brought about by deliberative democracy in solving the problem of imperfect information. Asymmetric information between the players in a

certain game may also hamper cooperation. For example, when the players cannot distinguish defection from cooperation, they do not have the specific payoffs, etc. In these cases, the relevancy of the impartiality of decisions brought about by deliberative democratic processes should be highlighted. Indeed, if we don’t have perfect information about the future or the outcomes of a certain game, the more rational strategy is to try to establish impartial institutions or to adopt impartial and universal institutions, rather than institutions that merely favor us. As Gutman and Thompson describe, the moral reasoning purported by deliberative democracy: “falls between impartiality, which requires something like altruism, and prudence, which demands no more than enlightened self-interest”.

In all, society’s capacity to manage CPR would be reinvigorated by resorting to deliberative democratic practices insofar as they promote a better understanding of collective problems, allow for the construction of shared visions and permit the constant adjustment of preferences through deliberative exchanges (Meadowcroft 2004: 184-185).

#### **4. The relationship between the effects of deliberative democracy and the efficient use of Common Pool Resources.**

*The Theoretical Framework of Game Theory: The land alongside the river.*

John Elster imagines a society of a hundred farmers who own land adjacent to a river (Elster 1983: 27-29). On each plot there are trees and land that can be cultivated. As the families get larger, they decide to cut more trees in order to cultivate more land. However, when the trees are cut their roots loose grip on the subsoil and possible cultivable land is lost due to the river’s erosion. Nevertheless, erosion only

occurs if all the trees of all the plots adjacent to the river are cut at the same time. Henceforth, if all the families cut down the trees with the purpose of obtaining more land, they will all get less.

From Elster's analogy of what seems to be a simple game, I propose two different scenarios that I have adapted to the current investigation.

Firstly, suppose that there is no connection between the farmers – they are anonymous users of the land - and they know that if they all the trees, they will be flooded in the long run. Notwithstanding, in the short run, they will be able to cultivate more land and get more wood from the trees. The immediate incentives they get are to all cut down all the trees – indeed the classical prisoner's dilemma operates. This is the so-called intertemporal problem with incentives in the context of the prisoner's dilemma (Parfit 1973). It is very useful to clearly envisage this example because it illustrates the usual problem with the management of environmental resources.

However, imagine that the farmers don't know each other but that they have already experienced erosion and want to stop it. They are a bunch of strangers with a common end: stopping the erosion that is harming everyone. Therefore, they get together and develop a planting system to plant new trees and deter erosion. They have to cooperate and trust that they will all plant the trees that they were committed to since if only one link of the community fails, they will all be jeopardized. This is the so called assurance game (Sen 1967).

Furthermore, this last scenario allows building upon the cooperation and trust of the community members for the solution of future collective action problems. This is what Ostrom has in mind when proposing a collective management of CPR.

In what follows we will analyze real case studies that have attained sustainable management of CPR because of cooperation, information availability and trust. Indeed, as

they will show, in the presence of deliberative, trustworthy and communicative interactions, community managed CPR are more successful than the government managed ones.

### *Case-Studies*

#### a. Comparing Farmer and Government managed Irrigation Systems

Farmer's irrigation systems have been a very interesting case to study in the context of the Commons Problem. The leading study in this regard is Lam's comparison between governments managed and community managed irrigation systems in Nepal (Lam 1998). He developed three performance measures that he then used to compare and contrast the difference in CPR management applied to all systems:

- (1) Irrigation System's physical condition.
- (2) Availability of water to farmers throughout different seasons of the year
- (3) The System's Agricultural Productivity.

The author found that farmer led CPR perform substantially better on the three criteria than others (Ostrom 2009: 427). As Ostrom points out: "On the farmer-governed systems, farmers communicate with one another at annual meetings and informally on a regular basis, develop their own agreements, establish the positions of monitors, and sanction those who do not conform to their rules. Consequently, farmer-managed systems are likely to grow more rice, distribute water more equitably, and keep their systems in better repair than government systems" (Ostrom 2009: 427).

These results can also be expanded to other areas of the world such as Japan, India (Meinzen-Dick 2007), Bangladesh

and Sri Lanka (Uphoff et al 1991). Mexico is also a prototypical example of the success of farmer managed irrigation systems (Meizen-Dick 1997: 108).

#### b. Forests

Forest management is a case of commons *par excellence*. In effect, as the forest is out in the open, everyone has incentives to overexploit them by cutting wood excessively. Consequently, a very commonly diagnosed way of protecting the depletion of the forests is that of developing government-owned protective areas over the forests (Terborgh 1999).

However government-managed forests are not necessarily more successful than community-managed forests. For example Hayes analyzed 163 case studies of forests, 76 were government-owned forests and 87 were public, private or communally owned (Hayes 2006: 2064-2075). In this study, the latter scholar affirmed no statistical difference in forest density between both types of institutional structures of the forest management (Hayes 2006: 2064-2075).

In a different study, Chhatre and Agrawal have examined the changes and forest density in over 152 forests under different institutional structures (Chhatre 2008). They concluded that “forests with a higher probability of regeneration are likely to be small to medium size with low levels of subsistence dependence, low commercial value, high levels of local enforcement, and strong collective action for improving the quality of the forest”. This last finding of the strong collective action is indeed the key point to their study. Where there is a strong, conscious and collective involvement in the tackling of common problems entailed by the management of the CPR, there is a higher probability of success.

Other studies have also highlighted the importance of high-levels of rule-monitoring and free-riders’ punishment (Coleman 2009: 122-146). Indeed, once again this could not

be possible without a previous conscientious public reasoning process and with a strong collective involvement.

#### *The linkage between deliberative democracy and CPR-management.*

In their 1994 paper: “Rules, Games and Common-Pool Resources”, Ostrom, Gardner and Walker explain that allowing previous communications between the users of a CPR leads to a more efficient use of that resource (Ostrom 2008: 152-153 and 160). This result strikingly opposes Hardin’s prediction of the multi-player prisoner’s dilemma of resource depletion. There were still free-riders in the experimental settings developed by the previously mentioned paper yet they were effectively contained by a system of verbal or other type of punishment and negative reputational effects (Ostrom 2008: 154).

Consequentially, communication and deliberation between players is necessary to facilitate agreements and commitments with regards to the use of CPR but also as a follow up to enforce those agreements (Ostrom 2008: 215). The latter has been supported by the success of those case-studies that have been closely monitored. The sanctioning part is extremely important since: “To prevent agreements from unraveling, the ability to chastise offenders verbally on a repeated basis is essential in laboratory experiments without sanctions” (Ostrom 2008: 215). The word “sanctions” in the last quote refers to monetary types.

Moreover, constant interaction and communication between groups – as the one postulated by a robust theory of deliberative democracy – allows the users to build a shared group identity through the pledges that they decided to uphold and gives the individuals higher incentives to abide by those rules.

To sum up, the ideal deliberative process of rules coordination, agreements and monitoring is brought about by deliberative democracy in the following ways:

1. Under deliberative democracy scenarios, members are found to talk for longer periods of time in the making and deliberation of rules (Schwab 2004). This leads to more communication and thus to better management of resources.
2. Deliberative democracy allows community members to form a bond, to know each other and to learn to respect and to hear one another (Pateman 2003). This, in turn, creates a community spirit which leads individuals to put the interests of the group ahead of their own self-interest and makes it more difficult for them to defect those rules that they have commonly created (Luft 1984: 11 and 19-21).
3. Deliberative democracy fosters the building of cohesive groups which are more likely to support the use of sanctions (Horne 2001: 253-266). This is directly linked to the findings that individuals from cohesive groups want to maintain friendly relations with the sanctioner (Horne 2001: 253-266).
4. Lastly, Deliberative Democracy fosters the creation of impartial institutions by the adoption of impartial decision making procedures. These institutions are greatly important in the management of CPR.

### **5. The Consequences of the inter-linkage between CPR and deliberative democracy in the way society conceives environmental rights.**

Pursuant to Hardin's conclusion that there must be "mutual coercion mutually agreed upon" (Hardin 1968) in order to preserve the Commons from depletion, some authors have gone as far as claiming that an authoritarian government is needed in order to adopt the necessary coercive methods and regulations that will prevent the general population from using CPRs in unsustainable ways.

Indeed, much of the literature draws from Hardin's coercion advice in order to justify the idea that more authoritarian and centralized governments are more efficient in dealing with the environment and in allocating environmental rights (Hochstetler 2010: 200). Yet Ostrom's theory goes hand in hand with a more robust deliberative democracy perspective than with an authoritarian regime. Henceforth, Ostrom's conclusion imperils the conception that coercion should be imposed from above (from a governmental entity or regulatory scheme) and redefines Hardin's prescription of "mutually agreed upon coercion" in the sense that the community itself should set the rules and sanctioning mechanisms with the purpose of preserving the use of CPRs.

Drawing from Ostrom's findings and this investigation's thesis, governments, instead of trying to cope by themselves with public goods market failures, could develop institutional settings construed upon trust and cooperation in order to deal with the problem of the commons. This could be another way of envisaging the management of environmental rights and of the preservation of the environment: assigning clear institutional rules to a certain community over a certain common pool resource and allowing them to effectively manage it. The institutional rules must build upon trust and cooperation in a deliberative democracy context. If all these requirements are fulfilled, it is our contention that this community will rule over the commons more effectively and efficiently than the government.

Secondly, Ostrom's findings, in the framework of this investigation, should also confirm Hochstetler's hypothesis that "democratic political systems have better environmental protections than do authoritarian regimes" (Hochstetler 2010: 200). Indeed, democratic regimes do not only favor freedom of expression and institutional settings that are akin to environmental protection but also permit higher degrees of decentralization and participation with regards to environmental rights. Hochstetler uses qualitative data to

show how the democratization of Latin-America led to more decentralized and participatory processes in protecting the environment (Hochstetler 2010: 215-222). The latter may have very well allowed communities to deliberatively decide the common use of some CPRs and indeed this could trigger future empirical investigations in Latin-America.

## 6. Conclusion

The tragedy of the commons can be turned into a “happily ever after” story but only when certain institutional conditions are granted. Indeed, if the institutional settings are the correct ones, community managed CPRs will be more efficiently ruled than those monopolized by the government. Yet one should be wary of concluding that there is a silver bullet that works for every case-scenario. As Ostrom suggests, institutional settings should be adapted to each specific case according to historical, social and cultural contexts. Indeed, one could think that a general rule related to how communication, interaction and trust between stakeholders (CPR’s users) is essential in developing sustainable CPRs. This is where deliberative democracy has a lot to contribute to Ostrom’s theory. It is our conclusion that, leaving all other factors constant, communities that have deliberated the most under equitable consideration of all the possible stakeholder’s views, should be more successful in using and managing CPRs over a long period of time.

There are three observations that must be borne in mind in thinking about this investigation’s conclusion. Firstly, the use of case-studies and data to show the positive correlation between CPR management and deliberative democracy did not specifically analyze direct consequences of the latter on the former. We used indirect variables such as communication, monitoring, etc. which are in themselves consequences of adopting a deliberative democracy perspective on institutions

yet they were not corollaries of this form of democracy. This is something that could be specifically addressed in future case-studies and experiments.

Secondly, the empirical and theoretical data that we have cited is mostly related to small groups’ communities. Although there is mathematical support for the extrapolation of our conclusion to big groups, namely that larger groups reach even better decisions (Page 1992: 26), it has also been challenged by some empirical studies (1993: 954-974). This could also pose a problem or a restriction upon our conclusion since the difficulty of implementing deliberative democracy increases as the size of the group gets larger. However, since, in the case of CPRs, there is rivalry consumption, the people in charge of using and administering them will most likely be small groups and thus in most cases the thesis affirmed by this paper applies.

Lastly, one could also wonder whether trust is construed through deliberative democracy or is presupposed by the latter. Indeed, there is a minimum requirement of trust (or fear in the Hobbesian way) that is required for deliberative democracy. However, in order to effectively manage a common-pool resource, one must develop a more robust trust in order to establish and respect control mechanisms that may enable the entire community to comply with the previously settled rules for the sustainable management of CPR. This is so since in the context of the deliberative process, the participants of said process get to know each other and conjunctly develop the rules to effectively govern the commons. In turn, this progression in trust building makes it less likely that its participants will cheat in the future because they trust that their counterparts will not cheat either.

But all in all, the marriage between CPRs and deliberative democracy could *prima facie* prove to solve Hardin’s tragedy of the commons for this type of resources.

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