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The Politics of Evidence: Towards critical deliberative governance in sustainable development

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Declaration

I certify that the thesis I have presented for examination for the MPhil/PhD degree of the London School of Economics and Political Science is solely my own work other than where I have clearly indicated that it is the work of others (in which case the extent of any work carried out jointly by me and any other person is clearly identified in it).

Abstract

Recent debates about environmental governance emphasize the roles of participation, evidence and deliberation. Authors have discussed how deliberative theory can deepen commitments to public participation in policy debates. Evidence, however, is often presented as neutral and objective fact, and on this basis is privileged in policy debates, preemptively defining environmental problems and solutions. Under this circumstance, how can policy processes take deliberation seriously? How can the politics of evidence be identified and openly addressed by participants in policy processes?

These research questions are addressed by analyzing three cases of environmental governance mechanisms, in the developing country context of Paraguay. The cases were selected for their emphasis on evidence and participation in decision-making. Also, each brings into question the politics of evidence, as their policy implications have raised debate and contention. The specific governance mechanisms explored in this study are: 1) land classification for conservation and rural development; 2) land use planning scenarios generated with a computer modeling program; and, 3) the development of global certification standards for soy production within the 'Roundtable on Responsible Soy'. Each is seen as a means of addressing what is widely seen as rapid and extensive environmental degradation in Paraguay, and also the historic and continued exclusion of much of the public in environmental decision-making.

The principal findings of my analysis are that i) public participation in environmental governance is often constrained by what is considered evidence; and ii) evidence is considered such because it is assumedly based on fact, but evidence-based arguments are influenced by social and political factors. As a result of these findings, I argue for a new approach to environmental governance – *critical deliberative governance*. A reflexive, non-essentialist approach to knowledge strengthens deliberation, by making explicit the social basis for authority and credibility, and opening up its tenets to debate. This critical approach to knowledge is vital for a democracy in which normative arguments are not effectively closed off by formal and authoritative expertise.

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I would like to dedicate this work to Maureen and Lorne Elgert, my parents, from whom I have been so far, but still feel so close. They have never faltered in their love and support for me and I hope they feel they have received the same from me.

I would also like to dedicate this work to the memory of my young nephew Jesse Whiting. He tragically passed away on May 24, 2010, and I dearly love and miss him.

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Chapter 1

Improving environmental governance: questioning the participatory and evidence-based policy frameworks

1.1   Getting the politics out of policy making

In the face of looming environmental crisis and persistent poverty there is increasing pressure on policy makers to get the politics, particularly elite politics, out of policy making. There are typically two responses to this. The first response is to base sustainable decision-making on sound evidence and impartiality. This entails expertise – often scientific expertise, and policy processes that aid and abet the transfer of this knowledge into policy content (Leshner 2002; Collins and Evans 2007; Gardner 2009).

At the same time, the second response is a growing expectation that public stakeholders be involved in decision-making processes. Departing from the modern ideal that policy should be a uniquely expert business, the argumentative and interpretive turns in policy analysis have permitted a broader range of valid perspectives to policy debates, including values, interests and opinions (Paehlke and Torgerson 2005; Yanow and Schwartz-Shea 2006; Fischer 2009). Furthermore, some expect that democratized decision-making will lead to more equitable and ecologically benign outcomes (Smith 2003). The growing popularity and mainstreaming of such thinking has led international donors to increasingly place conditions on funding and assistance that involve public participation and deepening democracy. In national contexts too, demands for more democratized forms of governance become heightened, particularly in Latin America as the political landscape is increasingly characterized by the 'pink wave' populist-socialist leadership: an explicit response to decades of neo-liberal reforms including the privatization of natural resources.

Advocates of each of these positions, more participation and more evidence as a way of improving decision-making, point out their potential in terms of democratic development and environmental outcomes. But assumptions about this potential have been deeply criticized. Some claim that so-called participatory development has had questionable implications for democratic outcomes (Ferguson 1990; Li 2007) and whether or not citizens will make ecologically rational decisions when given the choice

is not easily discerned (Saward 1996; Mason 1999; Mitchell 2006; Dobson 2007). Participation, with a focus on local knowledge and ownership of project processes and outcomes is often described as tyrannical and laden with tokenism (Cooke and Kothari 2001). Likewise, the democratic potential of evidence-based policy is clearly rejected by many, as is its potential to make unambiguous contributions to good environmental outcomes (Irwin 1995; Fischer 2000; Turner 2003). Evidence-based policy is charged with overlooking the complexities of different perspectives on environmental problems and with misinterpreting the policy process (Fischer 2009). Interventions based on participation and evidence-based policy often end up attracting similar criticisms: apolitical approaches to problem solving, simplistic interpretations of environmental problems, and top-down decision-making that does not take adequate account of local realities.

Contemporary approaches to environmental governance have treated these critiques, and the tensions that exist between prescriptions of public participation and evidence in policy processes, in different ways. For one, strands within what is known as green politics have drawn heavily from Habermasian ideals to emphasize the problems of state bureaucracies and technocratic decision-making. They have emphasized the role of public discourse in expanding and deepening mechanisms of democratic communication and ultimately, of achieving consensus (Dryzek 1990; Smith 2003; Baber and Bartlett 2005). On the other hand, strands within the post-structuralist schools, have used the concepts of discourse and communication to signify strategic, sometimes coercive action, linked to contextual, historical trajectories of power relations. While many constructivists are sympathetic to the democratization of public policy, the influences of Foucault are apparent in the ways in which the potential for democratic governance become dubious and problematic (Ferguson 1990; Jasanoff 1990; Scott 1998).

Improving environmental governance means examining both participation and evidence-based policy, including the dynamics between them. Participation must be deepened through the theoretical tenets of deliberation – values, preferences and beliefs must become an integral part of a legitimate and rational basis for policy. However, this cannot come to pass as long as expert-driven evidence about what is and what is not sustainability is regarded as objective, neutral and thus, incontestable. Opening

evidence to critical analysis, by identifying the social and political commitments of evidence-based policy tools, we both legitimate and enable more and better policy deliberation. Deliberation is legitimated because evidence is not exempted from normativity – thus, norms become an acceptable basis for decision-making. Deliberation is enabled because non-orthodox policy positions are not closed off from the debate, even if they run counter to 'the evidence'.

This thesis will explore and improve contemporary approaches to environmental governance, from the position that both democratic and environmental outcomes are important considerations for public policy. The central research question is: *How do policy positions reflect normative positions in spite of appearing to privilege factual evidence in environmental decision-making and what does this mean for the relative contribution of participation and evidence to policy making?* To answer this question, I consider the following, in the context of environmental decision-making:

- How and why might public participation challenge evidence-based policy implications for policy?
- What is considered to be evidence in environmental policy and how is it often privileged in policy debates?
- How can we understand the social and political influences on evidence to develop better forms of governance?

To address these questions, I examine approaches that emphasize deliberative decision-making processes for ways in which they may understate, or neglect to address entirely, knowledge creation and deployment in policy debates. Participants in such debates cannot (and should not aim to!) avoid various types of environmental knowledge in deliberations. However, they must develop the ability to assess the social basis and political commitments of this knowledge. This critical approach to knowledge is vital for a democracy, in which normative arguments are not effectively closed off by formal and authoritative expertise.

In some respects, this critical approach is seen to threaten deliberative approaches by seeing all discourse rooted in power and politics, and surrendering any possibility of a legitimate, normative position. However, it can also be argued that a more reflexive,

less essentialist approach to knowledge can strengthen a deliberative approach to policy analysis, by making explicit the social basis for authority and credibility, and opening up its tenets to debate. The aim is to 1) promote deliberation without being naïve about the politics of knowledge and discourse; and, 2) adopt a critical attitude about knowledge without abandoning the possibility of a normative basis for policy.

This introductory chapter is divided into roughly two halves. The first half proceeds by outlining the two sets of key concepts of this thesis. Each set reflects a current, orthodox approach to environmental policy, and a corresponding approach which both critiques and improves upon the orthodoxy. The first set is participation and improvements proposed in deliberation. The second set is evidence-based policy and the improvements offered by studies on knowledge and expertise. The second half of this chapter looks at how the research question will be addressed empirically, by introducing the context of the study and the cases.

1.2   Current approaches to improving governance: Participation, deliberation and evidence

Participation, deliberation and evidence-based policy are all concepts that are increasingly appearing in the environmental governance literature. However, they are often used without a clear and explicit understanding of what they entail, and the ways in which they may or may not be compatible with each other. Thus, there is a pressing need to look critically at these co-evolving concepts, to see how far they overlap, and in what ways they may complement each other. However, there is also a need to examine potential contradictions between the concepts, in order to draw larger lessons about how environmental governance can be theoretically improved, with greater practical application.

1.2.1   Public participation in decision-making

Public participation in environmental policy is conceptually related to the participatory turn in development studies, which, loosely defined, aimed to put people in charge of decision-making that affects their lives. In development studies, it responded to the inadequacy and sometimes disastrous consequences of top-down, externally driven development projects. Participation theorists responded to disappointing outcomes attributed to top down mandates that often misinterpreted community realities,

overlooked local knowledge and bypassed local authority structures (Chambers 1997). In the environment sector, community-based natural resource management (CBNRM) aimed to "return the stewardship of biodiversity and natural resources to local communities through participation, empowerment and decentralization" (Dressler, Buscher et al. 2010:5). However, "while CBNRM emerged with promise and hope, it often ended in less than ideal outcomes when institutionalized and reconfigured in design and practice" (Dressler, Buscher et al. 2010:5).

Since its origins as a radical response to externally driven, managerially oriented environmental policy, participation has become increasingly institutionalized, ushered into the mainstream by such documents as the IUCN's 'Caring for the Earth' and the Earth Summit in Rio's 'Agenda 21' (Adams 2001; Bäckstrand, Khan et al. 2010). Agenda 21 states boldly that, "one of the fundamental prerequisites for the achievement of sustainable development is broad public participation in decision-making" (UNCED 1993:sec. 23.2). Once associated with grassroots non-governmental organizations, participation has become integrated with the agendas of orthodox institutions, such as the World Bank. While some see this as a progressive move on the part of such policy monoliths, changing with the times and adapting to the bottom up philosophy of participation, others see it as coopting of a term, emptying it of its original meaning and turning it into something unrecognizable.

An important critique of the participatory turn is that political and emancipatory objectives are increasingly overridden by more pragmatic concerns. For example, some assert that the principal advantage of participation is that state solutions are too costly and the outcomes disappointing (Gibson and Becker 2000). Such 'functional' advantages of participation stress efficiency and effectiveness over more top-down approaches. Examples of these functional advantages are (Coenen 2009:2):

- participation will increase the legitimacy of decisions taken and reduce the level of conflict;
- participation will contribute to the quality of decision –making because it will give the government the information necessary for decision-making and contribute to the systematic identification of problems and their causes, and to the consideration and assessment of alternative strategic options; and,

- through participation, people will learn of the environmental problems that society faces and change their behaviour.

Another issue that suggests participation needs to be re-examined and improved is that the participatory turn has not made inequality vanish. Moreover, there is a well-established scepticism about the extent to which approaches that are assumedly participatory and 'community-based' are beneficial for 'communities', and lead to more democratic outcomes. Within this debate, questions are raised about the nature of community, and the extent to which the term hides divisions and tensions based on gender, class, age, or other specific principles of social organization (Gujit and Shah 1998). Furthermore, there are also questions around the extent to which 'community-based' decision-making, insofar as it is decentralized aggravates inequalities between local groups and individuals (Bardhan and Mookherjee 2000). The term community often implies cooperation, unity and harmony, in a simplified manner (Murray Li 2002). In fact, many communities have been shown to be more complex, characterized by heterogeneity, inequity and power differentiations (Agrawal and Gibson 1999). This emphasizes the need for greater desegregation regarding the 'community' costs and benefits realized through interventions along socio-economic, political and gendered axes. Too often, 'new opportunities' mean new work for some, and new benefits for others - consolidating and even deepening existing inequalities (Ribot 1995).

Policies based on greater participation in resource management do not necessarily offer the kinds of freedom and power presupposed, because these policies are "applied in the same institutional and political-economic context that shaped current socially skewed and ecologically deleterious outcomes" (Ribot 1995:1588). Even within a new policy framework, people may be forced into similar kinds of decisions as before because of pre-existing conditions that make change costly and logistically difficult. In such situations, 'participation' can bring about deleterious outcomes for local people because local responsibility and accountability increases, contextual deficits to implement desired change persist. For example, experiences with decentralisation policies often result in authority structures that "…lack representation, downward accountability and/or sufficient powers" (Ribot 2003:54). Furthermore, the relegation of rights and responsibilities to local communities, can also make local people responsible for

working around, or repairing ecological damage that was not a result of local practices (Sundar 2000).

Critics have also pointed out that the idiom of participation often hides another form of politics. For example, the illusion of inclusiveness and participation can strengthen existing power structures between citizens and decision-makers, by creating fora for public involvement, but then restricting or disregarding that involvement so that it has no influence on policy. For example, "In (some) cases, participation has largely been a token gesture designed only to increase public confidence in the policy process rather than genuinely seek out the opinions of the citizens for whom the policies were intended" (Fischer 2009:74). In this vein, scholars, have illustrated how involving people in environmental projects, such as sustainable development or conservation, can create environmental 'subjects' as opposed to 'empowered citizens' (Agrawal 2005; Bäckstrand and Lövbrand 2006; Li 2007; Summerville, Adkins et al. 2008).

One of the earliest and most influential political critiques of participation was Cooke and Kothari's 2001 volume which suggests that rather than being emancipatory and empowering, participation actually embodied 'the new tyranny' (Cooke and Kothari 2001). The essays contained in the volume address three dimensions of tyranny (Cooke and Kothari 2001:7-8):

- The tyranny of decision-making and control (participatory facilitators override existing legitimate decision-making processes);
- The tyranny of the group (group dynamics lead to participatory decision that reinforce the interests of the already powerful); and,
- The tyranny of method (participatory methods have driven out others which have advantages participation cannot provide).

Some authors have persisted with the concept of participation, attempting to reconfigure it in ways that sidestep the tyranny critique, suggesting that 'new approaches' could perhaps morph participation into transformation (Hickey and Mohan 2004; Kesby 2005). This has involved replacing (or indeed, heavily supplementing) participation with concepts such as democratization, governance, and deliberation, supplanting the 'participant' of old, with a new and improved 'citizen'! In environment

and development discourse 'participatory' involvement of local people, promoted in the 1980's, eventually gave way to the 'New Policy Agenda' of the 1990's, imbued with the vernacular of governance (Edwards 1994; Edwards and Hulme 1996). Governance implicates civil society and repositions the state, at least in part, as a facilitator that determines public preferences and integrates them with policy. A strong civil society has been declared the new panacea for development and conservation, leading to greater satisfaction with the way in which society is governed and greater relevance of the policies that are instituted. Within this framework, engagement of local populations in conservation and the planning and managing of natural resources has become more intensified and 'democratized'. Governance is posited as more than the latest strategy in project implementation; it signals the rise of a vernacular that widens the parameters of conventional thinking about democracy and democratic reform. Governance creates conceptual allowance for the consideration of informal, spontaneous and dynamic arrangements as important aspects of the overall decision-making apparatus.

1.2.2   Deliberative governance: Improving upon participation

What has become much criticized as the pragmatic obsession of participatory approaches, and the ways in which participatory processes can be hijacked by powerful entities, no matter how well-meaning, is addressed through the concept of deliberation. Deliberation focuses on policy decision-making rather than implementation. As a means of this decision-making, deliberation emphasizes equal and open communication and the dominance of the 'superior' and 'reasoned' argument, rather than preference aggregation. Deliberation is very much a process driven approach to governance, underlining the importance of legitimacy and representation:

> …it is also about processes of judgment and preference formation and transformation within informed, respectful, and competent dialogue. Democratic legitimacy is sought in the participation in consequential deliberation of those subject to a decision (or their representatives) (Dryzek 2010:3).

The deliberative model posits that free, open and honest debate arises from communication between interested and informed individuals. Most importantly, communication is not just the means of fairness and legitimacy in decision-making, but also the means of *rationality* in decision-making.

The so-called 'deliberative turn' in governance theory came about around the 1990's, as an effort to theorize the 'democratization of democracy' (Dryzek 2010). This was at least in part an effort of advocates to address what they saw as the growing 'democratic deficit' - the increasing disengagement of citizens from politics, particularly in the U.S. Dryzek has identified further 'turns' (tendencies, trends) within the deliberative turn, that he says come 'thick and fast' after 2000 (Dryzek 2010). Of particular relevance to this research, are:

- the practical turn: an emphasis on strengthening the deliberative potential of real world political systems and processes; and,
- the empirical turn: an emphasis on systematic research to test the claims of deliberative theorists.

Its conceptual and practical importance has indeed been made clear over the past decade as the relevance of deliberation has outgrown the boundaries of political theory. It has become a central conceptual *and* empirical concern for scholars in various fields of inquiry, including planning, science and technology studies, policy analysis and development studies. Dryzek adds further, that deliberation has become "an international movement for political reform" (Dryzek 2010:3).

The deliberative turn does not represent a wholescale departure from participation. In fact, many deliberative theorists continue to use much of the language of participation (Hagberg 2010; Hildingsson 2010). On the surface, the deliberative and participatory turns share at least a surface commitment to public inclusion in environmental governance. At its core however, deliberation is not simply participation repackaged. There are some important differences, and in some fundamental respects, the ideas at the heart of deliberative democracy are a powerful critique of participation. Foremost is that deliberation stresses decision-making rather than implementation. This orientation puts less emphasis on the functional importance of local involvement in environment and development initiatives, and more emphasis on the normative basis for arguments.

Deliberative theorists currently enjoy renewed popularity, particularly in discussions of environmental governance (Arias-Maldonado 2007; Chilvers 2009; Neef 2009; Bäckstrand, Khan et al. 2010). Much of this work, however, under-recognizes potential

barriers to deliberation. Critics remain unconvinced that deliberation can achieve representative and legitimate policy processes and question whether deliberative policy input is anything more than a far flung ideal (Nye, Zelikow et al. 1997; Hibbing and Theiss-Morse 2000; Ryfe 2005; Elgert 2011). Perhaps most obviously, these critics claim that the possibility of open and equal debates between stakeholders is doubtful; this doubt arising when equal opportunities for affecting the agenda of the debate, and for defining the problems and acceptable frameworks for solutions, are not accessible to all (Elgert 2011). Knight and Johnson comment that, "Because deliberation revolves centrally around the non-coerced give and take of reasoned argument it also requires a more substantive notion of equal opportunity of political influence" (1997:281). This influence may be explicit, involving strategies such as overt domination, threats or bribes. Blowers et al. (2005) suggest that "it is preferable to talk of democratic deliberation rather than deliberative democracy…" noting that, "it is the status of the arguments, not the status of the participants that matters" (2005:2). However, this influence also exists at a more subtle, less malign, but perhaps more powerful and effective epistemological level. Such is the political influence of evidence and expertise in environmental debate. Taken uncritically, so-called evidence and expertise have the potential to shut down debate by providing policy positions that seem to be neutral, objective, and therefore uncontestable. This will be discussed further in Chapter 3.

1.2.3   *Evidence-based policy*

The above discussion leads us to the discussion of a third response to the problem of capture - evidence-based policy. This response is typified by calls for evidence to support decision-making, for improved uptake of research into practice, and for prioritization of research programs that respond in more direct and relevant ways to policy problems (Sanderson 2002). These reflect emergent claims about the intimacy between the authoritative generation/application of evidence and good decision-making, signalling an unprecedented willingness to turn public decision-making over to experts. This broad paradigm has been institutionalized as *'evidence-based' policy*.

In fact, evidence-based policy doesn't so much eliminate the problem of political capture, as control it, creating benign environmental effects. Rather than politicians manipulating research or hijacking the policy process, researchers would capture the politicians and decision-makers. This 'counter-capture' is encouraged in order to

improve political will to implement good policy: "in the end, good policy depends on the will of political leaders: they have to care about adopting environmental protection policies" (Ames and Keck 1997-1998:31). Thus, while 'capture' per se, is generally viewed in a negative light, capture by benevolent forces can pressure public policy towards the public good (at least one vision of it!). Evidence-based policy enables the capture of decision-makers on behalf of the 'right' influences.

The evidence-based policy framework is both a philosophy and a practice that was institutionalized in the health and medical sectors in the UK. Its influence has since spread to other public issues and to other nations. Within this framework, the 'ascendancy of evidence' embodies a 'utilitarian turn in research'; where 'pragmatism replaces ideology'; where professional practice represents a 'retreat from priesthood' (Solesbury 2001). What exactly comprises evidence is of course, the cornerstone of both praise and critique of the evidence-based framework. As Davies, Nutley et al. comment, "perhaps the unifying theme in all the definitions is that the evidence (however construed) can be independently observed and verified, and that there is broad consensus as to its contents (if not its interpretation)" (2000:2, parentheses original). Basing policy decisions on evidence is expected to lead to better policy outcomes, and reduce the cost of doing so. If this isn't benefit enough, government accountability and transparency are enhanced as evidence-based policy, with its focus on 'speaking truth to power', removes politics from the decision-making process.

What counts as evidence, however, is less clear than what is expected to result from its application. "There is nothing particularly novel – or controversial about the idea that policy should be based on evidence, but what can properly count as evidence in policy-making *is* contentious" (Marston and Watts 2003:145). However, Davies et al suggest that "perhaps the unifying theme in all the definitions is that the evidence (however construed) can be independently observed and verified, and that there is broad consensus as to its contents (if not its interpretation)" (2000:2). In the UK public sector, for example, evidence is generally considered to be limited to research and statistics, policy evaluation, economic modelling, and expert knowledge (Nutley, Davies et al. 2002). Marston and Watts respond that:

> …this comment on the preferred forms of evidence uncovers the potential problems of adopting a narrow view of what counts as valid knowledge… we

begin to see that far from being a neutral concept, evidence-based policy is a
powerful metaphor in shaping what forms of knowledge are considered closest
to the 'truth' in decision-making processes and policy argument (2003:145).

Knowledge based on scientific inquiry is most typically considered to be expert, and is
assumed to reduce uncertainty, to be universally applicable, to provide a basis for
prediction, and to be apolitical. Meanwhile, knowledge termed 'local', 'folk', or
'traditional' is often assumed to be particular, unduly influenced by politics and at worst,
based on ignorance, superstition or lack of vision (Jasanoff and Wynne 1998; Jasanoff
and Martello 2004). This 'local' knowledge is valued when it is congruent with scientific
knowledge. When it digresses, it cannot often compete with the authority and
credibility of scientific knowledge.

Despite challenges to the value of science in reducing uncertainty and creating
consensus in decision-making (Collingridge and Reeve 1986), the use of science-based
evidence for sustainable development policy is gaining ground (Kasemir, Jager et al.
2003; Gardner 2009). This became most apparent at the World Summit on Sustainable
Development (WSSD) in 2002, and at one of the Summit's major parallel events, the
Science and Technology Forum. At these events, "the importance of science and
technology in enabling sustainable development was affirmed… (and) the participating
governments acknowledged the essential role of science and technology in generating
solutions to environmental and developmental issues" (Fukasaku and Mmampei
2007:43). Indeed, the role of the WSSD in emphasizing the role of science in
sustainability was foretold by Alan Leshner, Chief Executive Office for the American
Association for the Advancement of Science and Executive Publisher of Science since
2001: "When the World Summit on Sustainable Development convenes in
Johannesburg, South Africa… it will serve as a powerful reminder that science and
technology are at the core of both the world's greatest problems and its most promising
opportunities" (Leshner 2002:897).

As a follow up to the WSSD, the conference on International Science and Technology
Cooperation for Sustainable Development was held in 2005 and was seen as a response
to pleas to "further enhance the consensus of the World Summit on Sustainable
Development (WSSD) on the application of science and technology for sustainable
development" (OECD 2005:9). The conference has since materialized into an
optimistic volume containing various accounts of 'best practices' and 'indicators' for

gauging the process of sustainable development spurred on by the applications of science and technology (OECD 2005).

The WSSD built on the ready-rooted and privileged position of science in sustainable development discourse. Ten years earlier Agenda 21, already discussed for its emphasis on participation, revealed substantial focus on 'science for sustainable development'. Sections detailing the 'means of implementation' (the fourth and final section of Agenda 21), including 'information for decision-making', 'promoting education, public awareness and training', 'transfer of environmentally sound technology, cooperation and capacity-building' and in particular, 'science for sustainable development' emphasize the unquestioned, central role of science in sustainable development. For example, Agenda 21 says: "The sciences should continue to play an increasing role in providing for an improvement in the efficiency of resource utilization and in finding new development practices, resources, and alternatives" (UNCED 1993:257) .

More recently, the concept of 'sustainability science' has assumed a substantial presence in the literature. For example, the journal Sustainability Science was launched in 2006, and in 2008 sustainability science was given 'a room of its own' (Clark 2007) – a stand alone section - in the Proceedings of the National Academy of Science (PNAS). While sometimes positioned as a transdisciplinary framework, the epistemological commitments of sustainability science are clear: "individual disciplines can provide quantifiable criteria and indicators related to sustainability… (and further,) these indicators must conform to scientific standards of objectivity" (Komiyama and Takeuchi 2006:5). For some, as science comes to the fore in sustainability debates, sustainability science illustrates that finally, the global community is 'taking sustainability seriously' (Leshner 2002).

1.2.4   Seeking an alternative to evidence-based policy: construction of landscapes, de-contextualized planning and discursive sustainability

Like participation, evidence-based policy making and its proponents have born the brunt of much criticism. Much of this criticism comes from science and technology studies (S&TS), which explores the social, political and cultural basis for the content of scientific thought (Latour 1993; Wynne 1996a; Yearley, Forrester et al. 2001) and its authority in society (Jasanoff and Wynne 1998; Gieryn 1999). S&TS also addresses the implications of this for public policy (Collingridge and Reeve 1986; Taylor and Buttel

1992) and public life more generally. This work has heavily influenced scholarship on broader themes such as quantification (Porter 1995), and even more broadly, expertise (Turner 2003; Fischer 2009). Three important interrelated criticisms of the way in which evidence is commonly understood, that emerge from S&TS relate to:

- social and political influences on how reality is interpreted and represented;
- the importance of context for understanding environmental problems and the impacts of potential solutions; and,
- the role of discourse in both interpreting and creating social reality.

First, social science approaches have been gaining ground in environmental policy, and have called attention to the ways in which social influences impact the way we perceive and respond to environmental problems – even when perceptions and responses are put forward in scientific, evidence-based terms. Social scientists argue against "the modernist narrative in which science first finds evidence of new environmental phenomena, and further discoveries and inventions inevitably lead to informed (evidence-based) social responses via avenues of prediction, rational choice, and control" (Jasanoff and Wynne 1998:4, parenthesis added). Rather, these approaches point out the way in which environmental issues are represented is socially constructed (Taylor and Buttel 1992; Hannigan 1995; Redclift and Woodgate 1997).

Social science approaches to environmental policy making can be characterized as emphasizing three potential properties. As characterized by Jasanoff and Wynne (1998:4), these are characterized as:

- *Interpretation:* tending to the significance of variation in meaning and the importance of context;
- *Reflection:* recognizing the role of human consideration and ideas in the creation, maintenance and transformation of institutions; and,
- *Construction:* social practices that influence how we represent the natural world and reality.

The constructivist concept of co-production has emerged as an important framework to view how ways of viewing and understanding environmental problems come into being.

Co-production is a way of thinking about the co-constitution of knowledge and understanding of different phenomena on the one hand, and power, culture and social structure (more broadly, social order) on the other. Co-production fundamentally recognizes that, "society cannot function without knowledge any more than knowledge can exist without appropriate social supports… it calls attention to the social dimensions of cognitive commitments and understandings, while at the same time underscoring the epistemic and material correlates of social formation" (Jasanoff 2004:3).

Secondly, evidence-based environmental policy approaches tend to decontextualize environmental knowledge, extending its reach indefinitely. Decontextualization is an outgrowth of an understanding of science as universal, and thus, its applicability to any temporal or spatial context without variance. An expert in 'objective evidence' can speak about places she has never been; can describe sustainability in a faraway place without moving an inch. This lack of contingency and context is noted by Porter: "science values experiences of a "public character," observations and experiments that can be repeated, and hence that need not be taken on faith" (1995:73). This critique brings to bear some serious problems with the so-called globalization of environmental problems, as environmental scientists come to see themselves as keepers of some global environment. They bring solutions, understood to be standardized and universal in their application, to local contexts where environmental problems are bound up with much different socio-political meaning.

The view of evidence as universal and unattached to human interpretation is what led Wynne to develop an argument concerning the 'naïve sociology' "that lies at the core of technical and institutional analyses of risk" (Irwin 2001:123). Within this framework, Wynne emphasizes that:

> …even the most controlled, objective knowledge is embedded within a tacit framework of idealized, fixed relationships. This is what allows it to be controlled knowledge. But in unreflectively extending from the laboratory or computer model to make their observations about the real world, scientists rest the validity and the objectivity of their statements upon the built-in assumptions about that real world and the social shape and limits of the real risk system. The 'objective' framework floats on a sea of subjective commitments and assumptions which have to be more openly expressed and negotiated in risk assessment processes" (1989:44)

This brings us to a third, linguistic critique of 'evidence' – critical discourse. The linguistic turn, which gained prominence in policy analysis from the 1990's had some of its most profound impacts on policy analysis through the concepts of argumentation (Fischer and Forester 1993), interpretation (Yanow and Schwartz-Shea 2006) and discourse coalitions (Hajer 1995). These approaches draw attention to the importance of language in policy debates, popularizing discourse as an analytical unit. Many of these discursive approaches built upon critical discourse analysis pioneered theoretically by Foucault and practically by Fairclough (1992). One of the main tenets of critical discourse analysis is a radical departure from thinking that language was solely constituted by an objective, knowable reality, towards the idea that language is constitutive of reality. With critical discourse analysis there emerged a new feasibility that the study of language could be not just a theory of text, but a theory of human and social behaviour, "the releasing of language from imprisonment in its communicative role" (Paget 1995:635). Likewise, in his approach to critical analysis, Fairclough takes discourse as a form of 'social practice', and acknowledges two implications of this:

> Firstly, it implies that discourse is a mode of action, one form in which people may act upon the world and especially upon each other, as well as a mode of representation… Secondly, it implies that there is a dialectical relationship between discourse and social structure, there being more generally such a relationship between social practice and social structure: the latter is both a condition for, and an effect of, the former. (Fairclough 1992:63-64).

One such approach is the Discourse Coalition Framework (DCF) (Hajer 1995), developed as an alternative to pragmatic, instrumental ways of conceptualizing policy formation and policy change. Advocates of the DCF argue that orthodox approaches to studying policy formation and change focus too heavily on cognitive beliefs about causality, and also overestimate the stability of policy coalitions. In contrast, Hajer suggests that the most significant tie that binds policy coalitions is not knowledge and belief systems, but rather overarching storylines, or discourses, that are broadened and simplified, appealing to different actors for different reasons. Storylines are the "discursive cement that keeps a discourse-coalition together" (Hajer 1995:65). Discourses created through interaction, interpretation, and are therefore products of broader processes of social learning as opposed to comparatively narrow processes of cognitive learning (Hajer 1995). Forsyth notes that, the DCF is conceptually responsive to "a need to appreciate that agreements and communication will reflect local circumstances of language, shared interest, and perceived purpose between different

parties, rather than be the absolute transfer of clearly defined concepts from one group to another" (2003:161).

The DCF recognizes that those who engage with different specific disciplinary discourses on one level, despite potential incoherence and incongruence between them, can come to discursive agreement on another level: "despite the great variation of modes of speech, they somehow seem to understand one another" (Hajer 1995:46). As Szarka puts it, "Hajer's 'discourse coalitions' concept has hermeneutic value when actors sing in chorus – but not necessarily in the same choir" (2004:319). Thus, while broad discourses need to be compelling, they are also vague. Fischer elaborates:

> What people in an environmental discourse coalition support is an interpretation of threat or crisis, not a core set of facts and values that can be teased out through content or factor analysis. Rather than a stable core of cognitive commitments and beliefs, they share storylines that often tend to be vague on particular points and, at times, contradictory on others. (2003:103).

Much of what is new about the DCF, as opposed to more evidence-based views of how policy processes emerge, comes down to the analysis of how social power is exercised in policy contexts (Hajer 1995:46); the way in which power relationships are implicated in policy debates. The DCF depicts the relationship between power and policy change in a more subtle and pervasive, less centralized way. Discourse is the embodiment of power relations, though this is often concealed. Thus, in the DCF, attention is turned towards "the combined effects of various micro powers or power/knowledge rather than to the study of the activities of a single sovereign" (Hajer 1995:39). Following this, while some authors argue that certification systems can be an impetus for social change, the concept of discourse coalitions suggests that the transformative potential of these ideas "may be reshaped and coopted by powerful narratives within stronger social networks" (Forsyth 2003:161).

These three critiques of evidence (discussed further in Chapter 4) illustrate the fundamental connection between facts and norms. Indeed, even policy that pretends to be strictly evidence-based, is not so. Norms *do* matter and their influence resonates throughout 'factual' debates in environmental policy. As put by Jasanoff: "Durable representations of the environment… do not arise from scientific activity alone, through scientists' representations of the world as it *is*, but are sustained by shared normative and cultural understandings of the world as it *ought* to be" (Jasanoff

2010:248). This *co-production* of facts and norms will be discussed in more depth in Chapter 4.

Yet frameworks such as evidence-based policy maintain that a reliance on what are sometimes misunderstood as straightforward, stand alone facts, is the unequivocal gold standard of policy making. This compromises deliberation on two accounts. First, evidence may disallow competing views that disregard or even refute the evidence. Secondly, the inordinate value placed on evidence for policy making, renders explicitly normative perspectives irrelevant to policy debate. Indeed, the aim of examining the sometimes buried normative aspects of evidence is not, as Jasanoff and Wynne put it, "to understate the role of nature in shaping scientific (and expert) knowledge but to foster a deeper understanding of how scientific knowledge assumes authority in the public domain" (1998:5, parenthesis added).

1.3   Participation and evidence in environmental governance in Paraguay: three cases of the politics of evidence

Three case studies are analyzed to provide insights into the ways in which evidence and participation are respectively, and falsely, linked with facts and norms, and the implications this has for deliberative environmental governance. Each case questions the extent to which facts and norms can be separated in the context of evidence for environmental policy. If the potential for this separation is overestimated, it could lead to evidence that has unacknowledged normative content, bolstering the apparent neutrality, legitimacy and authority of evidence, restricting debate around the policy recommendations to which it gives rise. Providing analytical clarity about the normative commitments of evidence would then lead to decision-making with improved environmental and democratic outcomes.

Paraguay is a particularly relevant site for research on prospects for improving environmental governance through evidence and participation. Given what many view as an environmental crisis and crushing poverty and inequality in Paraguay, international observers, domestic policy makers, Paraguayan NGOs and the citizenry at large see a need for improved environmental and democratic policy outcomes. On the one hand, better decision-making is seen as dependent on access to science and technology and a modernized state that understands the importance of acting on evidence. On the other,

there are numerous calls for democratic reforms that will see decision-making based less on elite interests, and more on fairness. Prominent voices in Paraguayan society link the need for better environmental governance with a "broader imperative of building and ensuring good democratic governance in the country" (Abed 2009:32).

The much criticized environmental and social indicators in Paraguay are often attributed to highly centralized and partisan decision-making. This is compounded by the historical legacy of the longest and allegedly most brutal dictatorship in Latin American history. Alfredo Stroessner ruled the country for over thirty years, creating a culture of patronage, fear and mistrust. In the decade following the fall of Stroessner, little seemed to change in terms of democratic development or reform. But in subsequent decades, Paraguay's political tide has shown signs of turning, with an emerging groundswell of demand for a reconsideration of how Paraguay's political and productive resources are configured (Nickson and Lambert 2002:171). In August, 2008, Fernando Lugo took office as the first non-Colorado president in 61 years. His election platform was one of reform claiming "…the end of an exclusive Paraguay, a segregationist Paraguay, a notoriously corrupt Paraguay… Today begins the history of a Paraguay whose authorities will be implacable with thieves" (Reuters 2008).

Three cases from Paraguay provide insights into my research questions: i) land classification for conservation and rural development; ii) a computer modelling program used for land-use planning; and, iii) the development of global certification standards for soy production under the 'Roundtable on Responsible Soy'. These cases were chosen for this study on several bases. First, land classification, land-use modeling and certification standards are cases of environmental governance: "interventions aiming at changes in environment-related incentives, knowledge, institutions, decision-making… the set of regulatory processes, mechanisms and organizations through which political actors influence environmental actions and outcomes" (Lemos and Argrawal 2006:298). Secondly, each case is a governance mechanism that generates evidence to support environmental decision-making: land classification generates maps, modelling creates scenarios, and the standards development process generates sustainability criteria. Yet each case brings into question the *politics of evidence*, as the evidence-based policy implications have raised debate and contention. The existence of hidden politics in such evidence is increasingly problematic in light of the growing emphasis on

participation in environmental governance. This brings us to the third selection criteria: the emphasis on participation in environmental governance is particularly highlighted by the selected cases, despite their origins in more expert-dominated, exclusionary decision-making. This participatory emphasis is illustrated by the considerable attention surrounding wider debates about participatory conservation (Twyman 2000; Hernandez, Janapa et al. 2003; Chettri, Thapa et al. 2007), participatory modelling (Pickles 1995; Van der Sluijs 2001; Craig, Harris et al. 2002) and participatory development of certification standards (Klintman 2009; Auld and Gulbrandsen 2010). The case studies are explained in more detail below, following a few words on the context in which they have been implemented.

1.3.1   *Conservation and society in the Mbaracayú*

The Mbaracayú region is located in the north east of Paraguay, in the department of Canindeyu. To the north, the Cordillera de Mbaracayú marks the border between Paraguay and Brazil. This part of Paraguay was once covered by the Interior Atlantic Forest, an ecoregion characterized by a number of endemic subtropical, tropical and Cerrado tree species (Huang, Kim et al. 2009). Driving into the CARJ region, one is struck by the beauty of bright red soils which are highly fertile and well suited to agriculture. The yearly annual rainfall averages between 1600 and 1800 mm - the bulk of this falling in the rainy season extending from October and March. The driest months are July and August. Summers are hot and humid, reaching and surpassing 40 degrees centigrade. Winters are cold, temperatures reaching freezing at night.

Deep concern about deforestation in the Interior Atlantic Forest was one reason that the Reserva Natural del Bosque Mbaracayú (RNBM), the Mbaracayú Forest Reserve, was established in 1991 (more details about the conditions around this establishment will be discussed in Chapter 5). In 2000 the RNBM and the surrounding area, known as the Cuenca Alta del Rio Jejui (CARJ), the Upper Jejui River Watershed were together designated a UNESCO Man and Biosphere Reserve. The 64,500 hectare RNBM is administered by a Paraguayan environmental NGO called the Fundación Moises Bertoni (FMB). It is a privately owned reserve and recognized as such, 'in perpetuity' under Paraguayan law. The reserve is off limits to any outsider without the FMB's permission to enter, including people from the surrounding communities and settlements of the CARJ which make up the so-called 'multiple use area'. The FMB

actively reinforces this restricted access to the reserve with fences and guns. The only exception to the no-access rule is the Ache indigenous group, who are permitted to enter the RNBM, and to hunt and gather within it on two conditions: that they hunt only for 'subsistence purposes'; and that they use only 'with traditional weapons' (Yanosky 2000).

The reserve is part of the Interior Atlantic Forest, valued as a habitat for numerous and diverse species. Many consider Paraguay's Atlantic forest a globally important source of biodiversity and the RNBM is said to contain upwards of 90% of Paraguay's species classified as 'rare' or 'endangered' (Hill and Padwe 2000) Among these species are the jaguar, lowland tapir, and harpy eagle (Fragano and Clay 2003). The RNBM is also valued for its organic density, insofar as it provides capacity for carbon sequestration. It was this capacity that enabled conservationists to sell the environmental services of the RNBM to an American company in a trade-off scheme for two million US dollars in 1990 – money that enabled the purchase of the land and its conversion to a reserve (discussed further in Chapter 5).
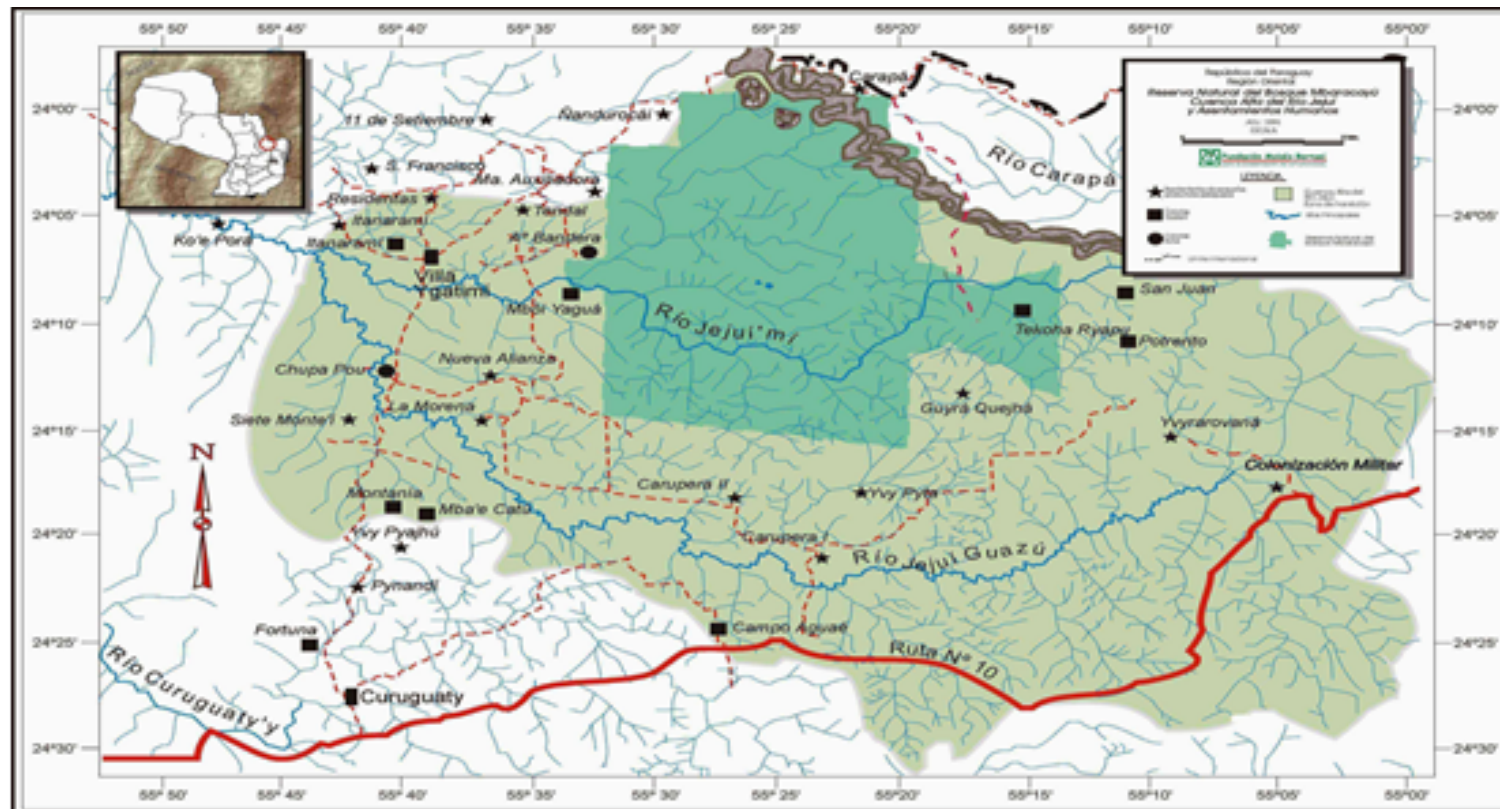
Figure 1: The Mbaracayú Bisosphere Reserve, including the Forest Reserve (RNBM) and the surrounding multiple use buffer zone (CARJ) (Source: FMB)

In addition to being prized for its high levels of biodiversity, the Interior Atlantic Forest is also widely considered among the world's most threatened ecoregions. This corresponds with data from Paraguay, where researchers have used Landsat data to find that the country's forested area was reduced to 176,741km² from 202,202km² between the 1990's and the 2000's (Huang, Kim et al. 2009). Increasing the urgency of this scenario for the Mbaracayú, is that, of the five Paraguayan ecoregions, the Atlantic forest experienced the highest rates of deforestation (Huang, Kim et al. 2009). Forested area in Canindeyu, reportedly shrank from 8262.97 km² in the 1990's to 4903.05 km² in the 2000's – a change in forest cover of a staggering 40.66% in roughly a decade (Huang, Kim et al. 2009). By 2001 the Atlantic Forest had been declared one of the earth's twenty-five official 'biodiversity hotspots' (to which nine were added in February, 2005, announced by Nature magazine headline: '9 More Crisis Areas for Biodiversity'). This, according to Conservation International, who administers and manages the Biodiversity Hotspot program, means that the area is characterized by some of the earth's richest biodiversity, containing a minimum of 1500 species of vascular plants (comprising more than .5% of the world's species) and having lost at least 70% of its original habitat (Myers 2000; Conservation International 2006).

The socio-economic diversity in the communities and settlements outside of the CARJ (outside of the RNBM) is every bit as fascinating as the biological diversity in the reserve. It is characterized by multiple productive activities, and several distinct livelihood patterns, which roughly correspond with a range of ethnic identities. Most people are largely agriculturalists and range from small-scale subsistence growers occupying ten hectare family farms to proprietors of large-scale soy plantations and cattle ranches covering hundreds of hectares. Peasant livelihoods are diverse: small-scale subsistence farming is supplemented by some cash crops, typify peasant production undertaken predominantly Paraguayan mestizo peasants or *campesinos*, along with a handful of Brazilians and 'Brasiguayos'[1]. In terms of population, campesinos, producing on a small-scale, are by far the largest group of Mbaracayú inhabitants.

There are two Indigenous ethnicities represented in the area, one of which is Guarani, who much like the campesinos, primarily undertake subsistence crop production but

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[1] The name given to Brazilians who have moved to and live permanently in Paraguay. Differentiated from the absentee Brazilian landowners, Brasiguayos have integrated with Paraguayan society and most often speak Spanish and/or Guarani.

also engage in some cash crops production. The Guarani, however, engage in collective production on collective lands, while peasant production is largely undertaken by family units on family-owned land. Ache is the second Indigenous ethnicity represented in the Mbaracayú. The Ache engage in and identify themselves with hunting and gathering, but with the encouragement and support of the FMB, are increasingly undertaking cultivation of subsistence and cash crops[2].

Finally, there are larger scale cattle ranching and soy growing operations that extend over hundreds of hectares. With a few exceptions, these operations are owned by Brazilians, most of whom live in Brazil. The largest landholdings in the CARJ are Brazilian-owned.

Relations between these different groups in the CARJ cannot be described as harmonious. Conflict and social tension runs deep in Canindeyu, as they do in many parts of Paraguay (Nagel 1999; Steward 2007). Much of this conflict and tension stems from the 'soy boom' that has come to dominate the landscape and economy of Paraguay over the past three decades (Dros 2004; Nepstad, Stickler et al. 2006). Paraguay's relatively cheap land has attracted international agriculturalists and investors, particularly from Brazil, and has aggravated pre-existing inequalities in land distribution. Social movements such as the Campesinos Sin Tierra (Peasants without Land) have emerged to protest inequality by engaging in land occupations (termed 'invasions' by large landholders) (Gillette 2004) and burning Brazilian flags (Painter 2008). Furthermore, the expansion of soy production throughout Canindeyu has been accompanied by increased pesticide use by large landholders. The application of pesticides by aircraft has had detrimental effects on human and animal health, and on the crops of surrounding campesino communities. Beyond careless or reckless use of pesticides, there have also been cases where it appears that pesticide has been used as a weapon. For example, in 2009 CNN and Amnesty International reported that "more than 200 indigenous people who refused to vacate their land in eastern Paraguay were

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[2] Promoting agriculture among non-agriculturalists is controversial, but is promoted to "assure the present and future sustainability of the Ache people", in terms of access to food and cash crops. For the present this supplements their hunting and gathering activities in the Reserve, but also could be required to supplant these activities altogether should the time come when the Ache are no longer permitted access to the protected area. Continued access to the Mbaracayú for the Ache is debated within the FMB and high levels of disagreement exist as to whether or not their activities are affecting resource abundance over the long term. There is a general agreement, however, that if the Ache are shown to have an impact on overall biodiversity in the Reserve, their access should be disallowed (personal communication).

sprayed… with what some believe was pesticide, sending seven to the hospital" (CNN 2009).

According to many, the soy boom is also to blame for much of the deforestation in Paraguay (Altieri and Pengue 2005; Hecht 2005; ASEED 2006). Between 2000/01 and 2007/08, soy production increased 3.5 metric tons to 6.8 metric tons (Garcia-Lopez and Arizpe 2010), which corresponded with an expanded area under cultivation of 2 million hectares from 1.3 hectares (Garcia-Lopez and Arizpe 2010). As one of the country's principal soy growing areas (Dros 2004), the forests of Canindeyu, and thus the Mbaracayú region, are seen to be particularly at risk from soy expansion (discussed further in Chapter 7).

Small scale agriculturalists are also held responsible for much of the deforestation in the Mbaracayú region, often charged with engaging in unsustainable agricultural practices (Di Bitetti, Placci et al. 2003). Constructing an image that is familiar in many developing areas, these practices are generally labelled as shifting cultivation, and blamed for a vicious cycle of poverty and environmental degradation. These agricultural practices, it is alleged, are unsustainable because they degrade soil quality and under constant use, render the soil unproductive. As this degradation takes place, the producer must shift production to other parts of his land, or abandon the land altogether and find a new place to clear further forests, live and produce. On a regional landscape, once this land is gradually used up, the producer will eventually have no further options than to migrate to other parts of the country or to cease production and move into an employment market that is already insufficient to provide jobs to all who are in need. This story has become so commonplace, as to serve as the conceptual framework for UNESCO's Man and Biosphere program, which advocates for the integration of conservation and ecological research with the promotion of sustainable agriculture (discussed further in Chapter 5).

More acute causes of deforestation, namely forest fires, also have heavy impacts. In September of 2007, Paraguay came under the grip of forest fires that came to be described as among the world's 10 most devastating fires of the twentieth century (SAARC Disaster Management Centre 2008). The fires were difficult to reach because of rudimentary or non-existent infrastructure, leading FMB management to declare that

the only way they could be extinguished would be with helicopters (personal communication). National resources to combat the fires were insufficient; and with slow-in-coming and limited international assistance the fires spread fast, consuming thousands of hectares of forest before they could be sufficiently extinguished. In addition to forest, the fires consumed the subsistence and cash crops of thousands of small producers, affecting over 125,000 people (SAARC Disaster Management Centre 2008). The RNBM and surrounding areas were hard hit (personal communication, various FMB staff, September, 2007).

The most common official explanations linked the veritable inferno to the common agricultural practices of clearing forest and renewing cropland with fire. Combined with dry conditions brought on by a country-wide drought, fires raged out of control. In discussions with local people, however, other potential reasons for the setting of fires came to light. Indeed, in light of the fact that many of the fires started along the perimeter of the reserve fed speculation as to who was responsible for the fires, and what the reasoning or motivation may have been. Many observers suggest that the fires have some connection with the illegal marijuana plantations that are commonplace in this part of Canindeyu and thrive because of excellent growing conditions, extremely little police presence, and close proximity to the relatively unmonitored border between Paraguay and Brazil. One theory suggests that the Mbaracayú fires could be an act of revenge, pointing out that the fires occurred shortly after a sweep of the area by the United States Drug Enforcement Agency during which they set fire to hectares of marijuana crops. Subscribing to the guess that the fires were an act of revenge, others suggest that it may be in response to arrests of trespassers from surrounding communities, who despite prohibition by law, enter the reserve to hunt wild meat. While the 2007 fires were the worst ever experienced in the Mbaracayú, they were not the first. Several times during my fieldwork, while driving through the reserve, I discussed these potential explanations for scorched areas with my colleagues.

These explanations resonate with work done in Indonesia on the use of fire as a weapon, found to increase with: insecurity of access to resources; perceptions of inequity and injustice; and, increased involvement of external actors in forest governance (Colfer 2002). While the cause of the fires in and around the Mbaracayú remains unclear, some of the guesses above seem more feasible in light of further

context and history of the FMB in the CARJ. It is indeed the case that the FMB has made many allies in and around the CARJ, working with several hundred families. The organization is also, however, regarded suspiciously at best, by some. Some people take the FMB as a facade for some undisclosed rich and powerful American landowner. For some, the FMB is a front for the American government to steal water. Some take the FMB's rural development workers as American spies, and there were instances during my fieldwork when the well was poisoned with pesticide and threats elicited to burn down the FMB office.

This complicated, at times tumultuous context has been further textured by the significantly reduced role of the state in funding and implementing environmental protection (Bebbington and Thiele 1993; Sundberg 2003). In Paraguay, as elsewhere, NGOs and other private actors have filled this gap. Indeed the environmental governance architecture prominently features international and national environmental NGOs, big business and local industry that increasingly advance sustainable development. Such is the impetus for the three interventions discussed in this thesis. Each of these emphasizes the significance of expert led, evidence-based policy to guide decision-making on the one hand, and optimism about public participation in emergent decision-making, on the other. In the first, rural development is a means for small scale cultivators to participate in orthodox conservation projects. In the second, landscape modelling provides outcome scenarios so that stakeholders can discuss preferences, priorities and trade-offs. In the third, the Roundtable on Responsible Soy brings different interests and perspectives together to contribute to the definition of a sustainable soy sector.

1.3.2   Case 1: Construction of conservation landscapes in the Mbaracayú

The first case, presented in Chapter 5, examines the construction of landscapes through the FMB's work with conservation and rural development in the Mbaracayú region. Under the FMB model, conservation is undertaken in an orthodox manner: the RNBM is privately owned, and protected by park guards. In addition to conservation, the FMB engages the surrounding communities in rural development. Two principal dimensions of the rural development program are: promoting alternative crops and sustainable production techniques. Each of these dimensions are aimed at improving productivity

and income, at the same time as reducing the environmental impact of smallholder production.

In FMB texts, the ways in which the Mbaracayú landscape is classified, is a familiar story – one that leads to a view of the FMB programme, as a rational means to sustainable ends. For example, the people of the CARJ are characterized as extremely poor and as 'lacking education and understanding of the importance of the Mbaracayú forest' (Fundación Moises Bertoni 2002; Alberta Research Council 2007). Poverty and ignorance (both about sustainable practices and the value of sustainability itself) thus drive the dependence of small producers on unsustainable agriculture, which characterizes cultivation in the CARJ (Fundación Moises Bertoni 2002; Alberta Research Council 2007). The familiarity of this story, in some respects, is enabled by inattention to contextual and historical events and processes which lend themselves to a surprisingly predictable and seemingly sensical view of the landscape. This view, while often accurate in a partial or superficial way (leading to continued acceptance and propagation), often turns out to be overly simplistic or even misrepresentative.

Rural development is expected to both contribute to conservation efforts and to add a participatory dimension to conservation in several ways. First, it will improve peasant livelihoods and quite simply, reduce the need to seek to exploit resources in the RNBM. Assuming that local people illegally access the RNBM out of need, providing new and improved ways of boosting household income will reduce pressure on the resources contained in the RNBM. Secondly, protected areas cannot exist indefinitely as isolated 'islands'. In order to assure their continued existence, there must be attention paid to sustainability outside protected areas, as "massive forest loss in the surrounding… may also be a precursor to rapid forest loss within the protected areas" (Huang, Kim et al. 2009: pg 8-9). The creation of forest islands also complicates the matter of connectivity: developing 'biological corridors' between protected areas allowing wildlife to move between them, thereby expanding the amount of habitat available to them (Bennett 1998). Thirdly, rural development is expected to improve relations between the FMB and surrounding communities (Padwe 2001). Good social relations are an important way to influence peoples' behaviour. Additionally, in light of increasing concern of funders, about the role of local people in sustainable development, and the impact of environmental programs on them, demonstrating

good social relations with communities surrounding the RNBM is an important element in the ways in which the FMB secures funding for its projects. Fourthly, it is expected will enhance local peoples' understanding and contribution to sustainability in the CARJ; particularly reduced deforestation and reduced pressure on the forest reserve.

Chapter 5 questions this orthodox, mundane construction of the Mbaracayú landscape. It argues that rather than be taken for granted, intervention landscapes should be seen as outcomes of socio-political influences. Such influences spring from relationships and protocols between international NGOs, local NGOs and inhabitants (Sundberg 2003), but also from broader dynamics such as national identity formation and resource distribution. Indeed, a more critical look at the ways in which the intervention landscape of the Mbaracayú region has been constructed questions the wisdom of the FMB's sustainability program – involving conservation and rural development. It presents alternative views of the intervention landscape, through the lens of historical inequalities that may influence local interpretations of conservation, and nuanced reasons that rural development often fails to improve peasant livelihoods or incite a spirit of participation in conservation and environmental sustainability. Thus, these alternative views question the appropriateness of the FMB's interventions.

1.3.2 *Case 2: Decontextualized planning with computer models*

The second case, discussed in Chapter 6, analyzes a modelling software program adapted for the Mbaracayú region. Adapted from its original use in Alberta, Canada, the program is called a landscape cumulative effects simulation (ALCES) program and is promoted as a powerful tool for mapping out long-term trends in economic, social and ecological outcomes vis-à-vis land-use patterns and policy choices. It is also positioned as a tool for deliberative governance, bringing stakeholders together around central land-use issues to discuss, debate, and reach consensus. The creators of the software, envisage that:

> In practice… the greatest utility of our modelling approach will be in facilitating land-use planning among groups of stakeholders. The primary benefit of the model is that it provides a level playing field of stakeholders to assess the costs and benefits associated with alternative management options (Schneider, Stelfox et al. 2003: online resource).

Outcomes are measured in ALCES by key indicators: measurable variables that accurately reflect progress, or lack of progress, towards certain predefined goals. Because indicators define desirable outcomes, they should be developed with local participation. Thus, in conjunction with the development of the ALCES scenarios, project staff undertook work with communities in order to develop 'community-based indicators' for potential use in the modeling exercise. Ultimately, no indicator developed in this way was used with ALCES. This was mainly because of an overwhelming lack of data and the indicators chosen in the community-based work were not quantitatively and incrementally associated with land-use.

The simulations, prepared by an expert technician, used the following indicators: large producer income; small producer income and 'natural area'. The simulations showed clearly and simply that unless small producers in the CARJ switch from their current 'unsustainable' practices, to 'sustainable agriculture, the end result will be "environmental and social 'ruin and destruction'" (Carlson 2006:12). Agricultural income will plummet and the remaining natural area outside of the RNBM will be converted to a barren wasteland. If they do switch, however, to a gamut of sustainable practices, then the fortunes of the CARJ will be reversed.

Chapter 6 discusses the ways in which this development and analysis of the ALCES scenarios reflects 'naïve planning' in contrast to a (more) adequately complex, carefully considered and nuanced view of the CARJ context. For example, during the basic, preliminary task of 'establishing planning principles' it is assumed that advantages and disadvantages of various land-uses will accrue to stakeholders in the same kinds of ways. It is also assumed that values can be aggregated to a point where they become universal, without losing meaning. It is found, however, that agreement about broad goals such as 'maintaining biodiversity' quickly lose coherence once questions arise about which biodiversity is important, and which are the best ways of conserving it. Furthermore, the ALCES models are presented as an objective, realistic view of prospects in the CARJ. However, following the work of other authors on the social construction of 'natural' and 'objective' categories (Yearley 1999; Robbins 2003) even the basic categories used in ALCES (ie: small and large producers; natural area) are not fixed and remain debatable.

1.3.3 Case 3: Discursive sustainability at the roundtable on responsible soy

The third case, discussed in Chapter 7, is the Roundtable on Responsible Soy (RTRS), an international stakeholder process for establishing criteria for 'responsible soy'. Paraguay and other soy producing countries including Brazil, Argentina and Bolivia have experienced the 'soy boom' over the past three decades. For some this has been a financial boon, but the cultivation of soybeans has become a controversial business, perceived by many to occupy a central role in environmental and social problems. Evictions of peasant and indigenous populations, pesticide-related epidemics and deaths, and even kidnappings and murders have been linked to the soybean as conflict infects the soy producing countryside.

In response to this, and to an increasingly global awareness of the issues associated with the soy industry, stakeholders in soy production have come together in meetings to figure out how to establish standards for production that will make it less problematic. The RTRS, as other standard-setting entities, is on its way to becoming a powerful international institution for global governance, within which the criteria for responsible soy production will be created, housed and managed. While this process is distinctly political, it has relied heavily on expert scientific opinions to make the best judgments about how to qualify and quantify sustainability, or as it was expressed at the Roundtable, 'responsibility' in the soy industry.

Despite the apparent promise that a proposal of 'sustainable soy' was expected to have for addressing the concerns expressed by campesino organizations, rather than participating in the talks, many participated in a 'counter-conference', which culminated in a demonstration of protest, involving hundreds of people, outside the RTRS. The anti-soy discourse that emerged from this counter-conference and more generalized opposition has stood in direct contrast to the discourse of the RTRS.

Chapter 7 discusses the emergence of these discourses of sustainability as linked to social identity. Within the RTRS, making soy sustainable is largely about sustainable agricultural practices and zoning soy expansion away from areas of perceived ecological importance. Yet this technical, environmentalized view of sustainability in the soy industry is particular to those who have the power and wealth in society – often wealthy non-Paraguayans. But from a different social purview, that of the peasant, the

possibility of sustainable soy is much more unlikely. Indeed, I was told once that 'la soja es completamente a contra el campesino' – soy is completely against the campesino. This chapter discusses what the emergence of the sustainable soy discourse has meant so far, and could mean for the future of opposition in the mainstream policy debate.

1.4 Thesis outline: Towards critical deliberative governance?

Before a more detailed discussion and analysis of the cases is undertaken, Chapter 2 will outline my methodology and Chapters 3 and 4 will set out the theoretical project addressed by this thesis. This project interrogates participation and evidence respectively - questioning the potential for an emergent theory of governance that is both critical and deliberative. Such a theory would entail an improvement of current approaches to environmental policy with developments in deliberative theory and critical, social science approaches to knowledge and expertise. This theoretical project draws from deliberative theory, arguing that both the *basis of* and the *means for* public participation need to be strengthened by emphasizing policy as primarily, if not exclusively, a normative and social phenomenon. Chapter 3 characterizes the contribution of deliberative theory to the substantive area of environmental politics. Deliberative theory draws heavily on Habermasian ideals of the public sphere and communicative action and are explored as a model for deliberative governance.

Theoretical improvements for environmental governance must also draw on social science theories of knowledge and expertise, such as Science and Technology Studies (STS). Chapter 4 discusses how expertise can pose a barrier to policy deliberation, and explores how deliberative processes can be improved through a more critical, historical approach to knowledge, communication and democracy that attends to issues of the influence of power over public matters. This entails discussion of more post-structuralist-influenced notions of knowledge, discourse and democracy and the challenges they pose to deliberative theorists. This coalescence of deliberative governance and post-structuralist discourse is achieved through recognizing and reconciling the tensions between them.

After the cases are presented and analyzed in Chapters 5, 6 and 7, Chapter 8 will offer a concluding discussion of the principal emergent themes in this thesis. This chapter

returns to the key issues raised in this chapter and relates them more broadly to theoretical and empirical implications for a critical deliberative environmental governance.

Chapter 2

Methodology: Exploring the politics of evidence

My research aim is to develop a theoretically and empirically informed framework for how to examine the politics of evidence and improve broad based involvement in environmental governance. It seeks to explore and explain why arguments based on what is considered to be evidence are often privileged in policy debates and how such evidence may preemptively define environmental problems and solutions. This work examines how, under such circumstances, policy processes can take deliberation seriously by addressing the politics of evidence openly in policy processes. It specifically addresses the following questions:

- How and why might public participation challenge evidence-based policy implications for environmental policy?
- What is considered to be evidence in environmental policy and how is it often privileged in policy debates?
- To what extent is evidence influenced by social and political factors?

This chapter describes and explains the methodology undertaken to address these research questions and the overall research aim. It is structured according to the four 'methodological dimensions' identified by Bauer et al.: the design principle, data elicitation, data analysis and knowledge interests (2000:5). Following these core elements of the methodological discussion, I discuss issues of positionality, challenges and ethics in my research. Summary comments conclude.

2.1   Research design and case selection

Researching evidence within the so-called 'idiom' of co-production takes on a wide variety of methodologies and approaches within a range of disciplines. Drawing on much work within the study of expertise, my research is designed as an ethnographic, multi-sited case study approach. Despite the lack of much explicit methodological guidance in STS, substantial work in the area takes theoretical and methodological cues from ethnography (Hess 2001; Pors, Henriksen et al. 2002; Hine 2007).

STS ethnographies have been, "defined in contrast with a naïve view of scientific work as a purely rational process of representing a nature that revealed itself in transparent observations" (Hess 2001:234). Indeed, to examine the politics of evidence, researchers must interrogate the oft-held ideal that specialized information and knowledge can be uprooted and transplanted with consistent outcomes and implications. Rather, an important aspect of taking a critical approach to expert knowledge, is to recognize that it is contextually contingent and contestable. This perspective on science is congruent with the focus of ethnography on viewing phenomena as embedded within the cultures and politics of specific times and places. Indeed, "the strengths of ethnography are found in the particular opportunities it offers for interacting and engaging with the field studied" (Pors, Henriksen et al. 2002:4). Clifford and Marcus write in their seminal collection of ethnographies, "Writing Culture", the authority and rhetoric of ethnography "have spread to many fields where 'culture' is a newly problematic object of description and critique" (1986:3).

As with ethnography more generally, I approached my research as an inductive, iterative exercise. I took, as Maxwell calls it, an interactive approach (2005). Thus, the research design was conceived as a "reflexive process operating through every stage of (the) project" (Hammersley and Atkinson 1995:24), rather than set in stone as a linear process from the beginning. This means that prior methods and findings determined subsequent methods and thematic focus; ongoing work allowed for reinterpretation of earlier work.

I designed my project as a multi-sited case study research. Case study design is not a methodology so much as an overarching strategy; a 'case study' is not so much what a researcher does, as a framework for how and why a researcher approaches research the way she does (Hartley 2004). Following Yin (2003), three particular aims of research make the case study approach suitable. These aims, that broadly and accurately characterize my research puzzle, are (Yin 2003:xi):

- to define research topics broadly and not narrowly;
- to cover contextual or complex multivariate conditions and not just isolated variables; and,
- to rely on multiple and not singular sources of evidence.

My research examines why the politics that is embedded in information and evidence needs to be more explicit in policy debates, and how policy processes can make these politics more explicit. In light of this, I selected three case studies of environmental governance mechanisms within which politics is embedded, but not explicitly recognized. These mechanisms were chosen because they represent the growing trend of using expert-led evidence as environmental decision-making support. They also, however, represent an increasingly explicit emphasis on public participation in public policy, despite their origins in more expert-dominated, exclusionary decision-making. Further, they represent three increasingly prominent trends in governance, namely participatory conservation, participatory modelling, and inclusive processes of certification standards development. The governance mechanisms explored in this study are:

1) land classification for conservation and rural development;

2) land-use planning scenarios generated with a computer modelling program; and,

3) the development of global certification standards for soy production.

A final note on research design addresses the scale of my research. Appropriate scale is a question that has occupied the foreground in debates about methodologies in STS:

> Are the most useful insights about co-production to be discovered at the level of science, power and culture writ large? Or is it more illuminating to trace in fine-grained detail how particular concepts for classifying or ordering social worlds... gain, or have gained, stability and coherence, along with equally particular expressions of knowledge... (Jasanoff 2004:5).

The scale at which research should perform investigation, was a question famously addressed in the 1960's by Merton who critiqued the polarization of social science research between,

> ...over-ambitious and premature attempts to develop unified theories with little obvious connection to observable social experience; and a tendency to produce descriptive data focused on specific situations without providing enough conceptualization to guide future study or generalize to other situations (Hine 2007:654).

This 'middle-range theory' advocated by Merton has received substantial attention in Science and Technology Studies (STS) as a way in which STS research can: "engage(e) with reality, albeit a limited aspect of it; producing theoretical accounts that engaged with that reality which themselves could be used to communicate with others, whether policy makers or scholars from other disciplines; and providing ideas for future work" (Wyatt and Balmer 2007:621). My research approach falls into the 'middle-range' between describing and analyzing case studies and looking to inform, and be informed, by broader theory about environmental governance. Chapters 3 and 4 examine the theoretical potential for developing a framework towards a deliberative and critical approach to governance. Chapters 5, 6 and 7 examine the empirical implications and lessons for this framework.

2.2   Data elicitation: Participant observation, interviews, textual analysis

As emphasized above, case study research involves multiple methods for collecting data from diverse sources. Below I describe my principal means of data elicitation: participant observation, individual and focus group interviews, and textual analysis.

2.2.1   *Participant observation*

The use of participant observation was key to my fieldwork because I wanted to see how expert framings of environmental problems measured up to the day-to-day realities and various experiences of environmental problems. To this end, an in-depth understanding of these diverse realities and experiences, within a specific context is required. Such an understanding is best afforded by participation observation of everyday life, within which politics and culture are embedded (Hilhorst 2003). Indeed, researchers consider participant observation the pillar of fieldwork (Rabinow 2007), as "a way to collect data in naturalistic settings by ethnographers who observe and/or take part in the common and uncommon activities of the people being studied" (DeWalt and DeWalt 2002:2). Participant observation entails direct involvement with people in a naturalistic setting, observing ordinary and extraordinary activities, exchanges and gestures, talking with people and generally learning from them about their reality (Agar 1996). Different ways of describing the kind of methods engaged within a general participant observation approach include 'table-top interviewing' (Rothe 1993), the 'go-along' (Kusenbach 2003), and 'friendship as method' (Tillman-Healy 2003).

I was in 'the field' for nearly 23 months over the course of four and a half years (see Table 2.1), primarily (not exclusively) working with the Moises Bertoni Foundation (FMB). The FMB (discussed in Chapter 1 and discussed further in Chapter 5) is an environmental NGO in Paraguay that works in the Mbaracayú on conservation and development interventions. I spent most of this time in the Mbaracayú region, where I lived in the village of Villa Ygatimi, spending work days with FMB staff and weekends and holidays with them and their families in Villa Ygatimi. This helped me to understand rural Paraguayan culture, and to understand Guarani – widely spoken in the Paraguay countryside. Over the weeks and months, I spent most days travelling around to surrounding communities, working with the FMB's rural development team. The FMB employs a team of rural development technicians that works with small producers in the Mbaracayú region dispensing material assistance, running workshops, providing personalized advice and assistance and generally supporting the proliferation of sustainable agriculture. On a typical day we would visit between 3 and 10 small producers, with whom specific discussions centred around agricultural issues such as agricultural production, markets and social tensions. It was during these visits that I learned about small scale agricultural crops and techniques, social relations between various ethnic and socio-economic groups, the role of the state in agricultural extension and enforcement of environmental legislation, grievances with local government representatives, peoples' perceptions of local conservation efforts, relations between local people and the FMB and other NGOs, and internal relations and politics between staff at the FMB.

I also spent some of this time in Asuncion, working in the main FMB office and meeting with people from NGOs, government departments, universities and research organizations interested in the issues of sustainability, agriculture and development in rural Paraguay. Sometimes interviews provided occasion for these meetings, but often our interactions were less formal, in the context of larger meetings, conferences and social occasions.

Finally, in 2008 I attended the 3rd annual Roundtable on Responsible Soy as a participant and observer. This was a three-day event that involved plenary sessions and small group work that contributed to the development of the responsible soy certification criteria.

Table 2.1: Fieldwork periods, 2004-2008 (Source: Author)

Dates of Field Visits	Methods Engaged	Sample Activities	Case
Jan 2004 (3 weeks); May–Jul, 2004 (3 months); Feb–Mar 2005 (2 months)	Participant observation; informal interviews; formal interviews	Working with the rural development team in Villa Ygatimi; ride-alongs, introductions in communities Working with coordination in Asuncion	Case 1 - landscape classification; environment and development interventions
Aug-Dec, 2005 (5 months); Mar-May, 2006 (3 months); Sep-Dec, 2006 (2 months); Mar-Jun, 2007 (4 months)	Participant observation; Focus groups; Technical training	Community-based indicators focus groups; work with FMB on establishing indicators; locating data sources for ALCES inputs; Present the baseline data and first round results from work with ALCES to community and FMB groups. GIS training ALCES training	Case 2 - modelling for sustainable land-use planning
Apr–Jun, 2008 (3 months)	Participant observation; Textual analysis	Buenos Aires, attended 3rd annual RTRS conference and counter conference; Analyzed presentation from 1st, 2nd, and 3rd RTRS meetings	Case 3 - certification standards for sustainable commodities

Participant observation proved synergistic with other methods in three ways. First, as others, I found that participant observation improved both the quality of data collected and the quality of the interpretation of the data because it was collected in a meaningful context (Fetterman 1989). By learning from participants, the fieldworker can come to better understand their point of view, and begin to develop a tacit understanding of meaning and behaviour. Participant observation combines participation in daily life and careful observation (looking and listening) with recording field notes (the usefulness of which is contested by some researchers (Agar 1996)), and asking informal questions to establish a greater richness of context and meaning (informal interviews). This brings us to the second synergy, which is that participant observation leads to other data collection methods that might not otherwise be identified. This is most readily illustrated when by being a participant observer, I met new people to interview, that I would not have known of had I been following a more detached research schedule. Finally, participant observation allows for data collection with a degree of informality

not enabled by more unembedded, scheduled methods. Informality, particularly in the context of sensitive topics (such as the relationship between small-scale farmers and NGOs from which they receive some benefit), can help respondents to more freely express their opinions on matters that might otherwise be constrained by their 'official line'. Because of this potential for reduced constraints in responding, informal data collection techniques (ie: informal interviews) can produce higher data validity than more formal methods (Kvale 1996).

Trotter and Schensul (1998) describe participant observation as a 'starting point', and indeed, the 'foundation method' for ethnographic research. Participant observation shapes subsequent data collection, and the specificity of methods increases as fieldwork proceeds (Fetterman 1989; Agar 1996). This certainly resonates with my approach, as all of the empirical case studies examined in this research drew on this foundational participant observation. Subsequent methods including individual and focus group interviews and textual analysis supplement, and build upon, the findings and questions raised in participant observation (See Figure 2.1).

Figure 2.1: Interactions between data collection methodologies (Source: Author)
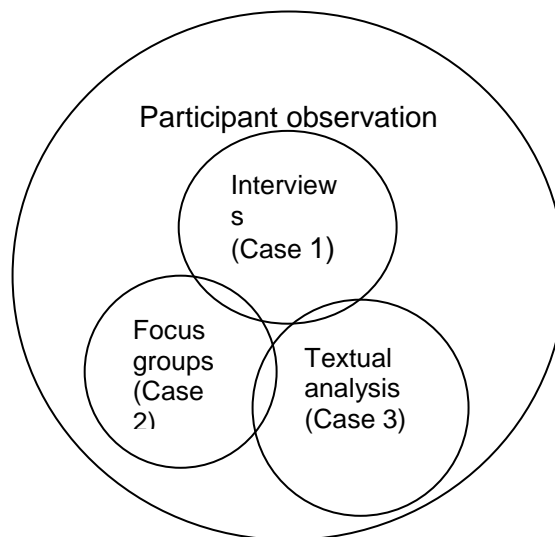
2.2.2   Individual and focus group interviews

Interviews are perhaps the most widely used qualitative research technique (Gaskell 2000), allowing for greater exploration of issues that arise from other data collection

methods. However, it is not just depth that is achieved through interviews, but also diverse perspectives. They serve to "classify and organize and individual's perception of reality" (Fetterman 1989:50). The importance of interviews (not unlike other qualitative methodologies) is that the social world is "actively constructed by people in their everyday life, but not under conditions of their own making. It is assumed that these constructions form people's paramount reality, their life world" (Gaskell 2000:39).

Following Gaskell (2000), I identified 'natural' groups that share a 'social milieu'. While it is certainly not the case that individuals within a social milieu will necessarily share the same thinking on a subject, these groups are loosely defined as individuals who "interact together; they may share a common past, or have a common future project. They may also read the same media and have broadly similar concerns and values" (Gaskell 2000:42) . Examples of actor groups sharing a social milieu in my research include small producers, large producers, environmentalists, and ecologists. In some respects, these labels homogenize these groups when in reality they are highly diverse and certainly do not represent consensus on environmental and sustainability issues. They do, in important ways however, represent a shared 'social milieu' as defined by Gaskell, in the context of this research.

I chose to use semi-structured and informal interviews, given that the purpose of the interviews was to explore the range of perspectives and representations of research themes (Gaskell 2000). More structured interviews are generally considered less helpful in exploring complex political themes, often used to enumerate opinions, or to count responses. Structured interviews are often criticized as bearing closer resemblance to surveys than interviews, because of their rigidity and sometimes even their quantitative bent (Rothe 1993). In line with the interviewing methodology outlined by Rothe (1993), my semi-structured interviews consisted of lead questions, but invited the participant to take different directions and raise points that he/she considered relevant – even if these directions were not explicitly solicited by the me as the interviewer. I conducted a number of formal, semi-structured interviews, when I needed to speak with someone with whom I would not otherwise have had contact. These included people in Asuncion from the university, NGOs, international organizations, and government departments. In Canindeyu, these included people from local government departments and large landowners.

I made frequent use of informal interviewing. Following Kvale (1996), my informal interviews resembled conversation, and were most often unscheduled, and impromptu, undertaken in the 'heat of the moment'. Such interviews took place with a degree of informality and would be well described as an element of participant observation. Many of these informal interviews, however, became semi-structured. This happened easily over a meal, over the course of a long drive, over a beer in the evening, during a walk in a farmer's field, or during a wait or delay. These kinds of opportunities arose often, with small producers, members of the FMB rural development team and sometimes local authorities in Canindeyu. Within the course of an interview, unanticipated themes, metaphors and explanations can emerge; this is the key strength of this methodology. Thus, interviews can take research in new directions, and make it more grounded in local realities.

Focus group interviews are considered the methodological middle-ground between individual interviews and participant observation, by producing "an opportunity to collect data from groups discussion topics of interest to the researcher" (Morgan 1997:16). share many advantages of individual interviews. They allow for greater in-depth exploration of issues and reveal different perspectives on the research. Focus groups, however, are fundamentally different from individual interviews in several respects (Gaskell 2000:47):

- a synergy emerges out of the social interaction: in other words, the group is more than the sum of its parts;
- it is possible to observe the group process, the dynamics of attitude and opinion change and opinion leadership; and,
- in a group there can be a level of emotional involvement which is seldom seen in one-to-one interviews.

I conducted focus groups in the context of the second case, the ALCES models for sustainable land-use planning. Two general rounds of focus groups were conducted: one before the land-use planning scenarios were modelled; one after the scenarios had been modelled. The first was to discuss and establish locally based indicators of sustainability, in 8 different communities in the CARJ and with the FMB rural

development and administrative teams, in Villa Ygatimi and Asuncion respectively. These focus groups began with a 15 minute presentation about land-use models and the role of indicators in models. Participants were then asked to develop locally relevant and significant indicators. These groups lasted between 1 and 2 hours. These focus groups were tremendously useful in generating data on different perspectives of social and environmental issues. As will be discussed further in Chapter 6, these groups offered insights into how particular dimensions of more mundane indicators are relevant to different stakeholders. For example, forest cover was a sustainability indicator of interest to both the FMB and local communities. However, while for the FMB staff, the primary importance of forest cover was as wildlife habitat, for local people the importance of forest cover was as a source of livelihood resources. Thus, it was not only forest cover per se that was an important indicator of sustainability, but level and type of access to forest resources that made the forest cover relevant to sustainability.

The second type of focus groups was meant to elicit discussion about the ALCES models of land-use scenarios to different groups. These focus groups lasted for between two and four hours. They began with a half hour-long presentation of the ALCES scenarios developed by the modeller and then invited questions, discussion and feedback regarding participants' views of the scenarios. These focus groups generated important and relevant insights into the underlying assumptions of the models, the complexity of setting goals and assessing trade-offs, the appropriateness and adequacy of the indicators chosen in the models, and sufficiency of the data requirements of the indicators.

I also used focus groups, because the impact of group dynamics on discussion was particularly important for my research. This is because governance is not typically an individual affair, but involves groups (or coalitions) vying for rights to decision-making. Indeed, deliberation – a key concept in this research – has at its heart discussion and debate in a group setting. Gaskell even suggests that focus groups 'might be characterized' as an approximation of Habermas' public sphere: "The debate is an exchange of views, ideas and experiences, however emotionally and illogically expressed, but without privileging particular individuals or positions" (Gaskell 2000:49).

2.2.3   Textual analysis

Textual analysis was performed at various stages of the research, but was most important in the context of the third case: the development of certification standards for sustainable soy. Text was used as data, based on the assumption that "a text corpus is the representation and expression of a community that writes" (Bauer 2000:133). I analyzed two principal bodies of text: newspaper articles and presentations delivered during the RTRS meetings. For each body of text, I used a different analytical strategy, as posited by Krippendorff (1994): the first examines texts for *trends and patterns*; the second *compares* texts to detect differences and contrast.

The FMB librarian scans four Paraguayan newspapers daily for articles related to the environment, and she clips these articles and puts them in binders. From these binders, I extracted articles related to soy and used them to identify shifting emphases and clusters in relation to a given topic (Krippendorff 1994) namely, the environmental and social impacts of soy production and expansion. This analysis enabled me to get an impression of attitudes towards soy production and expansion among the Paraguayan public, and also to get details of some of the specific controversies surrounding soy production. The analysis of these trends, patterns and events were important in contextualizing the attempts to legitimate soy production made by the RTRS process. Secondly, I compared and contrasted the presentations and documentation from the RTRS meetings (made publicly available on the RTRS website) with letters, essays and news releases published by the movement opposed to the RTRS. Through this analysis, a characterization of the RTRS discourse and the counter-RTRS discourse was made possible.

2.3   Critical discourse analysis: Interpretive and critical

The fieldwork and data collection methods produced a large amount of different kinds of data, including observations, field notes, interview recordings and texts. The overarching analytical framework for analyzing these different data is discourse analysis. The increasing popularity of discourse analysis as an analytical tool in the social sciences is owed to the 'linguistic turn' (Fairclough 1992; Fischer and Forester 1993; Yanow and Schwartz-Shea 2006), or the recognition that "changes in language use are linked to wider social and cultural processes" (Fairclough 1992:1). The idea of language as transparent and descriptive has been largely overturned in favour of a view of language

as a social practice; language is not only constituted by the social world, but is constitutive of the social world (Fairclough 1992). Discourse analysis is interpretive because it bears implicit recognition that the same social phenomena are viewed in different ways by different social actors.

The space given to interpretation in discourse analysis is what also makes it potentially critical. This is because different ways of interpreting environmental problems and their solutions do not carry equal weight in the social world; they influence the emergent social order in disparate ways and to different extents. While discourse analysis takes many forms, it is critical discourse analysis, pioneered by Fairclough and Wodak, that is most relevant to this research. The principal objective of critical discourse analysis is to analyze "opaque as well as transparent structural relationships of dominance, discrimination, power and control as manifested in language" (Wodak 1995:204). As put by Fairclough, critical discourse analysis "aims to show non-obvious ways in which language is involved in social relations of power and domination" (Fairclough 2001:229). The influence of discourse on the social world is not down to an inherent superiority of some perspectives over others, but is a product of power relations.

Concepts and social practices surrounding *evidence, participation* and *sustainability*, among others that feature in this work, are fertile ground for examining the nexus between language, social practice and social structure. The aim of this work is not simply analytical, though it is projected to contribute to a better understanding of environmental governance in developing areas. But, congruent with the tenets of critical discourse analysis, the aim is also transformative:

> It is not enough to lay bare the social dimensions of language use. These dimensions are the object of moral and political evaluation and analyzing them should have effects in society: empowering the powerless, giving voices to the voiceless, exposing power abuse, and mobilizing people to remedy social wrongs. CDA advocates interventionism in the social practices it critically investigates (Blommaert and Bulcaen 2000:449).

2.4   Positionality, challenges and ethics in research

I came across a number of challenges throughout my research process: some logistical and some ethical. The biggest challenge is somewhat predictable – the issue of language. Paraguay has been dubbed South America's most bi-lingual country, because

in addition to being officially bilingual, upwards of 95% of the population speaks both Spanish and Guarani. For the majority of my interactions in Asuncion, and with government departments and NGOs in the countryside, Spanish was perfectly adequate. Among rural people in areas such as Canindeyu, however, Guarani (albeit peppered with Spanish words and phrases) is clearly dominant; people prefer to speak Guarani and have a higher level of comfort with it. Indeed, during my time in Paraguay I came to develop a basic understanding of Guarani from listening to the discussions of my co-workers, who for the most part, spoke in Guarani. However, my ability in Guarani did not reach a level which afforded me to use it, or to trust my ability to understand it. During such interviews, I typically spoke in Spanish, and my respondents answered with linguistic mixture. Thus, during my work with small producers particularly, I depended quite heavily on a field assistant, who spoke both languages fluently, to translate.

Many authors have called attention to the importance of social relations within research (as opposed to only researched social relations) as worthy of attention (Arendell 1997; Herod 2005). Difference between the researcher and researched, based on gender (Herod 2005), social status, ethnicity or power (McCorkel and Myers 2003) holds potential challenges. Indeed, the mixture of difference that characterized my difference from those I worked with and interviewed provided a bricolage of advantage and disadvantage. As a woman, and moreover a foreign woman, I was often not taken seriously in my work with the rural development team. For example, sometimes I would be left behind or be begrudgingly taken along on field visits. I was also recognized, however, as someone with access to resources and not subject to the same power structures within the NGO management as the rest of the rural development team. At times, my colleagues appreciated the ways in which I could help them because of this. In some respects the disadvantages of my positionality in the field were worn down over time, as I proved myself interested and able in terms of the work. In other respects, gender biases disallowed me access to the inner circle of the rural development team.

Perhaps less discussed and acknowledged in qualitative, case study research are the ethical challenges involved, that often provide occasion for consideration and reflection. In her work on NGOs in the Cordillera of the Phillipines, Dorothea Hilhorst writes an

epilogue about the politics of research. I would like to echo one of her thoughts. The first regards the relationship between this work and the production of truth. As Hilhorst says:

> "This book provides a narrative on Cordillera NGOs. This means that it presents an interpretation of events and processes. It hopes to be plausible and convincing, but it does not attempt to claim the hegemony of truth…the narrative simply hopes to provide readers with some alternative ways of looking at familiar things" (2003:230).

This is not only the claim of one researcher, but a more generalized tenet of interpretive work. Indeed, as Gill comments, "Discourse analysts tend to be quite humble people who dislike overblown claims and would never argue that their way is the only way of reading a text. In the final analysis, a discourse analysis is an interpretation, warranted by detailed argument and attention to the material being studied" (Gill 2000:188).

Though I faced these challenges, I also experienced some distinct advantages due to my particular position in the field. In 2004 I began working with the department of 'sustainable ecosystems' at a research organization called the Alberta Research Council, based in Alberta, Canada. Having had recently embarked on pursuing international development projects and funding, the ARC hired me to work with a multi-disciplinary team including a sociologist/forester, an economist, an ecologist and a landscape modeller; my role in this team was 'community planner'. Our team won a contract from the Canadian International Development Agency to implement a 3 year project called "Capacity Enhancement for Community and Ecologically-Based Management in the Bosque Mbaracayú Biosphere Reserve". Working on this project afforded me several of what might be considered luxuries in the context of doctoral research. First, the ARC-FMB project, in large part, offered the subject of my study. The project was my first point of contact with the FMB and the Mbaracayú region more generally. Furthermore, the computer modelling that comprises my second case study (described in Chapter 1), was undertaken as an integral part of the ARC-FMB project. Secondly, project work necessitated that I make several distinct trips to the field, rather than undertaking fieldwork all at once (see Table 2.1). This allowed me to punctuate my time in the field with prolonged periods of doing reading, library research and discussing with my peers and supervisor. It enabled my work to become truly iterative

in that the theoretical and empirical aspects informed each other at various, multiple stages during the research.

While assuming the concurrent positions of researcher and project worker provided these distinct advantages, it also provided additional challenges, or potential challenges, in terms of research ethics. Among these challenges, is the extent to which the researcher's involvement in the project can affect the outcomes that then become objects of research. Does the researcher unwittingly produce the project outcomes that correspond with research goals? Can the researcher behave in ways that are in the interests of project and research goals simultaneously? Can the researcher act as an interested actor in terms of project objectives, but disinterested in terms of research bias?

I considered these issues carefully and repeatedly throughout my simultaneous involvement with the CIDA-funded ARC project, on the one hand, and my doctoral research on the other. I took some measures that were explicit from the outset of the work; others cropped up along the way of the research trajectory. First, I took care to be open about my research intentions and obtain authorization from project management and my PhD supervisor. My doctoral aspirations and research intentions were openly expressed and discussed with ARC management when I applied to for the position of project officer. All of the senior staff involved with the project supported this, expressly welcoming the possibility of me conducting doctoral research at the same time as working with the project. Signaling this support, the ARC offered to provide funding for my tuition costs, on the condition that I return for a set period, after graduation (an offer I ultimately declined). Furthermore, the management of the FMB, ARC's partner organization in Paraguay was consulted on the issue at the outset of the project, and they also agreed that my dual involvement could be of benefit. The staff of the FMB, including the people with whom which I worked closely in the field, also knew that I was conducting research for my PhD and that this was technically separate from my project work.

Secondly, I took several measures to physically separate my project work from my doctoral research. Throughout the years of my fieldwork, I scheduled particular weeks in which I assumed the distinct role of researcher, as opposed to ARC/FMB

employee. During these weeks I was not remunerated with project funding, and indeed, personally remunerated my own research assistant. During these periods, any support granted me by the FMB (housing, for example) was directly granted to me, rather than as 'in kind' project support. These measures formally separated my project work from my research.

Ultimately, of the three case studies examined in this dissertation, only the subject matter of the second, the cumulative effects simulation program, was directly related to my project work. Indeed, much of my professional responsibility involved the dissemination and solicitation of local feedback and assessments of the scenarios and related policy recommendations. The transformative potential of my project work, for the nature of the interventions, and my research outcomes, was most pronounced in this land-use planning case study.

Despite these measures to separate project work from doctoral research, I do not wish to overestimate the extent to which these can be completely distinct endeavors, particularly when undertaken by the same person, in the same place, treating similar themes. A researcher cannot simply turn a blind eye to what she observes because she is not in research 'mode'. This would be ludicrous to suggest, and perhaps more ludicrous to attempt. Certainly, my work on the project was bound to have some impact on my research approach, assumptions and ultimately, findings. But then, I would question the extent to which this is something that should be viewed in a negative light.

2.5   Conclusion

Although not all of the information that emerged from these data collection methods is explicitly used in this thesis, each method and the data generated by it, has contributed to my understanding and analysis of the politics of evidence and participation in environmental policy in Paraguay and beyond. The forthcoming work aims to combine different theoretical insights with empirical rigour to address the research question. As an iterative contribution to middle range theory, it aims to add to so-called 'grand theories' about deliberative governance, but also to understanding the politics of evidence in relation to the governance mechanisms studied. In line with these aims, Chapters 3 and 4 turn to an examination of deliberative theory and critical theories of

knowledge respectively, with the aim of improving the theoretical basis for inclusive environmental governance. Chapters 5, 6 and 6 analyze the three case studies to see why such theoretical development are necessary, and how they might be operationalized.

Chapter 3

Deliberating sustainability: Better environmental governance through deepening democracy?

3.1 Introduction

Chapter 1 looked at two proposals within contemporary policy studies, for addressing the problems of capture in environmental policy, to improve environmental and democratic outcomes. The first was to increase and improve public participation in decision-making. This would ensure that policy attends to the interests of the general population, rather than serving elite interests. The second was to increase the role of 'evidence' in decision-making. Chapters 3 and 4 will examine how combined, the critiques of each of these positions can provide insight into improving environmental governance through the framework I proposed at the end of Chapter 1, of critical deliberative governance. This framework will be elaborated in greater detail at the end of Chapter 4.

This chapter argues that contemporary deliberative theory improves upon the more conventional approaches that emphasize participation and evidence, but itself needs to be improved because of insufficient engagement with knowledge. This insufficient engagement leads to a potential for unexamined and uncritical acceptance of norms as legitimate and representative, and facts as authoritative and credible. Contemporary deliberative theory improves upon the more conventional approaches that emphasize participation and evidence in two ways. First, embedded in the deliberative call for 'democratizing democracy' is a profound critique of participation as it is often understood and implemented in environment and development interventions – a means toward efficiency and effectiveness in policy implementation. Deliberative theorists have made broad based inclusion in public policy *debate* (as opposed to solely implementation) a key principle, even pre-requisite for achieving 'good', 'fair' and 'effective' policy and environmental sustainability. In deliberative terms, inclusive, authentic debate and dialogue is essential to create the very basis of rational policy. Secondly, deliberative politics contains a cautionary critique of evidence-based policy, insofar as it entails the dominance of expertise and elitist knowledge in policy processes

and illegitimates explicitly normative bases for policy[3]. In particular deliberative theory takes aim at instrumental rationality, relegating it to a secondary concern, incidental, even antithetical to aspirations of democracy, and ultimately sustainability. Each of these two improvements has created a more critical intellectual environment for environmental policy by highlighting and legitimizing the role of normative debate to environmental sustainability.

Deliberative environmental governance, however, invites a new cautionary critique, if we are to make improvements over past iterations of deliberative theory and practice. Processes bearing the deliberative label have been co-opted by pre-determined facts and norms that have limited, rather than facilitated, dialogue and public inclusion in decision-making. Foremost, is that it leaves the factual basis of norms (i.e.: conservation *should* take priority because of the existence of a global environmental crisis), somewhat unexplored. While deliberative theorists reject the dominance of instrumental approaches to policy problems, they do not typically go far enough in the critique of the constituent knowledge claims. This has two implications for the ultimate potential for deliberation. The first is that this unexamined knowledge can invoke a preference for norms that are neither legitimate nor representative, but powerful and influential politically and socially. Secondly is that knowledge uncritically understood as authoritative and credible can eclipse debate altogether (resolving these problems is the main task of Chapter 4).

This chapter is organized into three sections. The first explores deliberation as a 'new' mode of environmental governance. Indeed, scholars have been talking about deliberation for four decades, and contemporary deliberation both continues with, and departs from this history. Therefore, section one will discuss what has changed, and what has stayed the same from past to present in deliberative theoretical debates. The second section analyzes the ways in which deliberation provides both a critique and improvement upon two orthodox approaches to policy. The pragmatic, logistic emphasis of participation and evidence-based policy are overridden by the deliberative argument for normative bases for policy. Section three tempers the optimism for deliberation by issuing yet another critique – that deliberation avoids more critical engagement with norms and facts. Without this critical engagement, so-called

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[3] In the next chapter we will look at how this reflects a misunderstanding regarding the (lack of) normative influence in the production of evidence.

deliberative processes can privilege norms that are not necessarily legitimate nor representative and facts that are assumed to be beyond contestation. This can mask non-deliberative effects within supposedly deliberative processes.

3.2 'New' modes of governance: Habermas to the deliberative turn

The deliberative turn in democratic theory gained ground in the 1990's (Dryzek 1990; Bohman and Rehg 1997; Elster 1998) and increasingly over the course of that decade and into the next, was passionately received in environmental politics. Here, deliberative theorists made significant contributions to thinking around public participation in environmental decision-making (Torgerson 1999; Smith 2003; Baber and Bartlett 2005; Dobson 2007) drawing largely from Habermasian ideals of deliberative democracy, highlighting the roles of communication and consensus. Deliberative democracy is set apart because of its commitment to deepening democracy beyond preference aggregation, by considering effective communication as key (Dryzek 1996), thereby 'democratizing democracy'. Deliberative democrats emphasize the policy importance of iterative and multi-lateral communicative and collaborative processes that address all stages of policy making: how issues should be framed; various ways of finding solutions; and who has the moral imperative and fundamental capability to take responsibility for action (Innes and Booher 2003). Deliberative approaches to democratic theory emphasize that, "Political decision-making is legitimate insofar as it follows upon a process of public discussion and debate in which citizens and their representatives, going beyond their mere self-interest and limited points of view, reflect on the public interest or common good" (Rehg and Bohman 2002:31).

Backstrand et al. argue that deliberative democratic theory serves as a conceptual cornerstone of 'new' modes of environmental governance:

> Linked to deliberative ideals of democracy articulated by democracy, governance and policy scholars, the deliberative turn thus denotes the range of more or less explicit attempts to democratize environmental politics and simultaneously foster more effective environmental policies. Although far from all new modes of environmental governance involve actual practices of deliberation, we suggest that they rest upon an underlying assumption that broad participation by public and private actors in collective decision-making will bring about both more legitimate and effective policy outcomes (2010:4).

The way in which deliberative politics insists on the involvement of various publics in environmental decision-making, addresses the conceptual difficulty, or more appropriately the impossibility, of pinning down what entails sustainable environmental governance from a technical perspective. Thus, the prospect of deliberative environmental governance means that what is sustainable, must be approached from a *normative* perspective: "deliberative models of democratic legitimacy are strongly normative, in the sense that they are supposed to go beyond utilitarian explanations of the rationality of collective decision-making and their instrumental view of politics" (Rehg and Bohman 2002:32). It means that normative positions should not only be included in environmental decision-making, but they should take precedence (Arias-Maldonado 2000)!

Despite this declared importance of norms, policy debates around sustainability are typically reduced to how to *do* sustainable development, rather than what is meant by it or upon which norms, values and perspectives it is based. Governance of sustainable development often problematically positions issues of *how* to do *what works* as the main conundrum; the "policy goal is a functional dependency on increased 'steering capacity'… It is vital, therefore, that one pursues a more fundamental discourse of instrumental effectiveness…" (Bressers 2004:286). According to these perspectives, achieving sustainable development is primarily a matter of formal politics and instrumental efficiency to orient and mobilize both political will and the technical way toward priorities that feature sustainability. Indeed, political will, conceptual consensus and clarity, robust knowledge about physical phenomena, and administrative capacity are each important elements of environmental policy. Yet these oft-conjured elements of sustainable development overlook a fundamental point: that there is virtually no consensus on what we even mean by sustainable development; there is no generalized understanding or universally held definition of sustainable development, and that the ambiguity of the term is its overwhelmingly strongest characteristic. Dryzek states not only that "sustainable development is nowhere an accomplished fact", but, more importantly that it is not "entirely clear how we would recognize it if it were" (Dryzek 2006:17). In fact, the past 30 years have been witness to divergence, rather than convergence, on issues of sustainability (Redclift 1992; Fergus and Rowney 2005).

The debate over environmental policy in Paraguay clearly illustrates this lack of consensus about what improved environmental governance might mean. Among Paraguayan stakeholders there is, perhaps predictably, a high level of agreement about the existence and unacceptability of environmental degradation. The notion of, and need for, sustainable development has been captured by many different and diverse representatives of Paraguayan society. Peasant groups talk about sustainable agriculture; environmental organizations talk about conservation and sustainable land-use planning; environmental and agricultural governmental entities talk about sustainable resource management. Yet, this broad, superficial agreement about sustainability breaks down easily once the meanings and implications of sustainability are mined to any depth. In fact, given the fundamental and deep divide between different Paraguayan social groups and interests, different perspectives of sustainability are astonishingly incompatible. This makes it clear that debates about sustainability treat issues far beyond some physical environment and its directly observable characteristics. Indeed, as Bebbington has argued: "Latin American environments are contested terrains, fought for by the poor and powerful alike. Any valid analysis of the relationship between environment and development must therefore begin by understanding struggles between these different interest groups" (1992:349). As a highly agricultural country with South America's highest level of inequality, this statement certainly applies to contemporary Paraguay.

The idea that each of these perspectives has potential relevance to environmental governance illustrates the importance of the growing discourse around environmental democratization, and increasingly, deliberative environmental governance (Bäckstrand, Khan et al. 2010). But deliberative governance has not always actively involved such a multiplicity of views. Indeed, the precursors to more progressive deliberation were based on normative commitments (and factual claims) that were scarcely up for debate. For example, pioneers of the green political movement spoke of deliberation in response to environmental degradation perpetuated by state led and corporate led environmental governance. Green politics emerged as a staunch critic of what was seen as technocratic and bureaucratic orientated thinking about environmental governance. Described by Torgerson as having "one foot in the green movement and the other in the domain of political theory" (1999:ix), green politics formalizes the consideration of questions of democracy in the realm of environmental decision-making.

But the commitment of green politics to the green movement, along with all of its precommitments and assumptions, meant that so-called green deliberation was curtailed by the pre-definition of norms as green norms, and as 'good' environmental outcomes as those defined within a limited (and privileged) purview. Despite claims that green politics was a movement that prioritized democratic inclusion in the environmental debate, little room was made for perspectives that did not conform with this narrow interpretation of environmentalism. As thinking around deliberative environmental politics moved beyond 'green politics', it was recognized that being against the dominant establishment (i.e.: state, capitalism) is not a sufficient condition for being a deliberative movement.

Within more progressive iterations of deliberative environmental governance, extensive and intensive debate exists as to how desirable environmental outcomes can be defined. This stands in contrast to the earlier green political schools, where environmental values and norms were (and continue to be) defined pre-emptively, precluding wider debate on the relationship between the environment and democracy, capitalism and the state. For example, green debates continue about whether democratizing environmental decision-making ultimately leads to improving environmental outcomes. Some authors see the two as oppositional arrangements, considering the concurrence of democratic and environmental outcomes as akin to "having one's cake and eating it too" (Baber 2004:331). Mitchell reminds us that although some authors do not argue that radical authoritarianism is the ecologically rational route, "Other theorists have considered whether participatory or deliberative democracy is indeed compatible with environmental values… although deliberation clearly helps in some areas (e.g., transformation, self development), uncertainty exists whether environmentally friendly outcomes can be secured" (Mitchell 2006:461). In fact, some point out that under the watch of radical forms of green thinking, democracy can be the first casualty, in favour of even 'outrageous authoritarianism' (Saward 1993). There is no shortage of green proposals for coercive and authoritarian strategies to solve environmental crises. These strategies are often posited as undemocratic, but necessary for the global environmental good, considering environmental collapse such an imminent and serious threat, that it could not possibly be left under democratic control (Ophuls 1977; 1997). Less radical proposals urge the adoption of sustainable development or ecological modernization as

a governance paradigm. But critics of these proposals have suggested that even though they often enlist the language of citizen participation as integral to environmental governance, these theories "simply prescribe business as usual with a green tint" (Mitchell 2006:460).

On the other hand, much contemporary green thought maintains the ecological importance of the advancement of democratic environmental governance (Smith 2003; Meadowcroft 2004). These scholars argue that environmental destruction has arisen because of the links between opportunistic and free-riding behaviour of economic and industrial interests on the one hand and the complacency, even cooperation of the administrative state on the other. Challenges to the malign environmental outcomes of this unholy union, had to challenge established power, thus originated from a radical social movement. This movement emerged as the green movement (Torgerson 1999). By this account, an emphasis on democracy is therefore crucial for green politics. As put by Mason: "the single greatest cause of ecological degradation remains private investment decision, structurally bound to externalize or socialize environmental costs unless reined in by democratic controls" (Mason 1999:9). In particular, the green *deliberative* democrats posit a distinct optimism about the ecological promise of democracy, considering deliberative democracy not merely compatible with ecological rationality, but a precursor to it (Baber and Bartlett 2005). Indeed, deliberative democracy represents a significant strand of green politics requiring both ecological deliberation and deliberative environmentalism; positing a distinct optimism about the ecological promise of democracy, considering deliberative democracy not merely compatible to ecological rationality, but a precursor to it (Baber and Bartlett 2005).

The problem with this brand of green political debate is that it essentializes stakeholders with diverse interests as well as divergent views of desirable environmental outcomes. For example, in more recent work the state becomes less antithetical to deliberation, and in fact, deliberative potential is found even within the state (Dryzek 1996). Moreover, claims that there is necessarily a link between capitalism and environmental degradation may work against poor people, dependent on natural resources, for whom engagement with market forces are likely to be of benefit (Forsyth 2003). Furthermore, land-use change that is conventionally defined as 'nature destroying' (i.e.: deforestation), may actually be more accurately described as redistributing environmental services,

rather than fundamentally degrading them. Indeed, "not all stakeholders or affected people may experience … supposed topics of degradation to be actually degrading to land-uses" (Forsyth 2003:118). Furthermore,

> Elites can manipulate public opinion using arguments that invoke 'symbolic' values and beliefs… The idea here is to associate one's preferred outcomes with popular symbols (such as freedom) and undesired outcomes with unpopular symbols (e.g., communism or terrorism). The effect is to privilege particular norms invoked by symbolic arguments over others, so that normative meta-consensus is manipulated (Dryzek 2010:111).

It was the Critical Theory school where scholars such as Habermas (1970; 1987) and Marcuse (1964) developed much of the theoretical basis that has intellectually fed green politics *and* more progressive deliberative approaches. Habermas saw deliberation as key to overcoming the problems of modernity, an overriding dependence on the technocratic management exercised by the state, and a problematic hyper-reliance on instrumental rationality – a product of modernity, but one that had to be overcome in order to finish the yet 'unfinished business' of the modernist project. His work addressed the potential for democracy in the policy sciences to summon the tensions between democracy and rationality. He, and others argue that these tensions should not be interpreted as inherent or 'natural'. In fact, these tensions are directly related to particular views of rationality, namely that "mainstream policy analysis can conceive of rationality only in instrumental technocratic terms" (Dryzek 1989:104).

But for Habermas salvaging the relationship between democracy and rationality depended on two assertions. First, that we can "still, in our time, provide a *rational* justification for universal normative standards" (Bernstein 1985:4, emphasis added). Secondly, that we are not uniquely "faced with relativism, decisionisms, or emotivism which hold that ultimate norms are *arbitrary and beyond rational warrantability*" (Bernstein 1985:4, emphasis added). In other words, that while drawing on contested and uncertain understandings of what is rational, it remains that rationality is a requirement for participation in policy debates and thus effective governance. Just because rationality can be based on more than instrumental reasoning, does not mean that any claim can be justified as valid – and we must explore a more expanded version of what this means. Communicative rationality is a product of such expansion.

Communicative rationality offers a basis for policy that sacrifices neither greater public inclusion, *nor* a rational basis. While instrumental action has become the protagonist in mainstream understandings of rationality, incarnations of Weberian 'ideal types' of rationality plainly reject the notion that the instrumental variety is dominant, much less unique, in guiding human sense making. For Habermas, rationality is determined by communication and the terms by which it creates an understanding *between* citizens. The intersubjective nature of rationality is emphasized: "the grounding of normative claims requires an actual dialogue rather than an argumentative process run hypothetically through a single mind" (Baber and Bartlett 2005:86). The dialectical must be developed through dialogue, between autonomous, free and equal participants (Habermas 1990), who are "required to take the perspective of everyone else (who becomes) capable of understandings of self and the world of all others" (Habermas 1995:117, found in Baber and Bartlett, 2005). Thus, following Habermas, deliberative democrats argue that in order to reconcile democracy with rationality, a more complete understanding of rationality is required (Benhabib 1996). This is communicative rationality.

While the system is seen as a necessary and positive force in the social world, Habermas argues that social upheaval occurs when the system is not controlled and is permitted to 'colonize' the lifeworld, resulting in disintegration of social bonds, human alienation, demoralization, social instability and a breakdown of common understandings (anomie) (Finlayson 2005:57). Habermas identifies the 'modernity' project, as a collection of processes by which the lifeworld, driven by religious traditions and tribal relationships are replaced by deepening and increasingly specialized knowledge within the three 'value spheres': scientific/ technological, moral/legal, and aesthetic/expressive. Ultimately, this results in alienation from the human world via a separation of 'what we know' from 'how we live', partially mediated through the mechanism of irrelevant and impotent public policy. In Habermas' words: "Modernity brings about a vast increase in the amount and depth of specialized knowledge, but this knowledge becomes, in the same process, detached from its moorings in everyday life, and floats free from 'the stream of tradition which naturally progresses in the hermeneutic of everyday life' (Habermas 1992:43). The increasing fetishization and idolization of that which is considered to be 'knowledge' and its increasing alienation from daily life and human experience is not only deeply troubling, but signifies a social problem writ large.

Habermas proposes that the expansion and advance of instrumental rationality has given way to a process of the 'scientization of politics' that ultimately gives rise to an interpretation of social and environmental problems as technical problems. This in turn leads to the dominance of expert administrators that devise and deploy technical solutions in making decisions for, and controlling society. Increasingly complex technologies and particularized knowledges are delineated as prerequisites to fulfilling the various functions of society. This ultimately takes the place of an informed, intelligent public, multi-laterally engaged in problem solving dialogue. As put by Habermas, modernity, epitomized by instrumental rationality, had come to dominate decision-making, and thus resulted anti-democratic tendencies in society and environmental degradation. It is in the public sphere, with the generation of high quality, participatory discourse, that the dominance of the lifeworld could be re-emphasized, and society could be salvaged from the colonization of the system.

Critical theory and green politics have provided a basis for more progressive deliberative theory. However, increasing attention is being paid to how these ideas were counterproductive deliberatively speaking, by predefining norms and precluding others. Thus, increasingly, deliberative theorists are surrendering any die hard, essentialist oppositions to instrumental rationality, capitalism, state led governance. Even Dryzek asks, "can we envisage a more ecologically benign modernity, or is modernity ecologically irredeemable?" (1995:231). Indeed, it seems that contemporary analyses are more willing to walk the line between deliberation and instrumentalism. For example, associated with less hierarchical and 'softer' forms of steering:

> …new modes of environmental governance also harbour a normative agenda to open up politics and make environmental decision-making more inclusive, transparent, accountable and reflexive, *while at the same time* effective and performance-oriented. (Bäckstrand, Khan et al. 2010:4, emphasis added).

Post-positivism represents a new deliberative turn with emphasis shifted away from flat out rejection of modern artefacts such as state bureaucracies and capitalism, toward a new emphasis on discourse, argumentation, interpretation and politics as policy inputs[4] (i.e.: Healey (1997), Paehlke and Torgerson (2005), Dryzek (2006), and Forester and Fischer (1993)). The rise of post-positivism has occurred as a response to the

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[4] The post-positivist turn in policy analysis was pioneered by diverse authors but many of these are intellectually located within deliberative politics.

inadequacies of more orthodox approaches in understanding policy issues (deLeon 1994) that have taken positivism, particularly the positivist emphasis on objectivity, as the gold standard in policy making. While representing many different approaches and even opposing views (some of which will be discussed in the next chapter), these works are characterized by an important thread. Post-positivists suggest that so-called 'strong' empiricism is rather 'naïve' empiricism for the understanding that observation is a sufficient foundation for understanding social or natural processes. Generally, post-positivists position knowledge as only one policy input (and not even the most important) alongside discourse, argumentation, interpretation and politics. Consequently, they reject the positivist implication that the most significant policy inputs are characterized by instrumental rationality. Beyond questioning the desirability of positivism in public policy, post-positivism has drawn increasing attention to the dubiousness of its possibility. Dryzek comments, "No policy analysis has ever actually measured up to the canons of the logical positivism as philosophy of science and practice" (2002:32). Thus, "Many (but not all) post-positivists are interested in a more authentic democratization of the policy process" (Dryzek 2002:32).

3.3 Deliberative critique of orthodox policy approaches: participation and evidence-based policy

While at first glance it might seem that deliberation advances an uncritical, wholehearted promotion of participation in development processes, closer inspection suggests that it actually provides a critique of participation. Deliberative democracy offers a departure from the way in which 'participation' is actually conceived of in many contexts – a fix for an inherently inefficient bureaucracy "due to the absence of the incentives and sanctions of the market and due to the self-interest of professionals, administrators and politicians" (Sanderson 1999:327). The virtues of participation are often cited as promoting public 'buy in' to policies, enlisting public support and assistance, rallying public resources, boosting public education and awareness, bypassing cumbersome bureaucracy, and other such advantages that merely expedite the policy process. Deliberative democracy goes beyond efficiency and effectiveness arguments for participation by offering a different rationale - a communicative rationale - that emphasizes the importance of a normative, yet rational basis for public decision-making. Communication as the basis for rationality provides substantive grounds for thinking that participation is essential for achieving rationality – the basic fundamental

of good policy! The notion that communication *generates* rationality, rather than being peripheral to it, puts diverse public subjectivities at the centre of governance. Where participation has failed to empower citizens with control over the policies by which they are governed (Cooke and Kothari 2001) deliberation, in particular the concept of communicative rationality, puts public, normative debate at the centre of defining rational policy (Baber and Bartlett 2005).

The deliberative critique of evidence is more explicit. The deliberative, normative approach to environmental governance stands in direct contrast with the more modernist governance ideal of a strong administrative state directed by instrumental know-how. For those who associate more authoritarian decision-making with better environmental outcomes, it follows that a sizeable bureaucracy is required to implement suitable environmental policy, which is achieved by applying established principles and reaping the corresponding 'good' outcomes. For example, Lafferty and the constituent authors of his 2004 edited volume, Governance for Sustainable Development, encourage policy makers to practice the idea of 'form following function'. This phrase is significant as the veritable doctrine of modernist architecture[5], stressing the relationship between the design of a given structure, and its intended purpose. Applied to policy, it surely means the same: the structure being administrative and the intended purpose, sustainable outcomes. A functional form houses a "process that can, to a reasonable degree, be 'steered' by governing procedures and institutions; and one must assume that governments committed to sustainable development are willing to alter existing governing systems in order to better achieve SD goals" (Lafferty 2004:4-5).

However, the powerful and able state bureaucracy that Lafferty implies is necessary for implementing environmental policy, is the same bureaucracy, that in Togerson and Paehlke's account, cannot be depended upon to know about, let alone act upon, society's best interests. This rejection is based on what these authors see as an inherently antagonistic relationship between evidence-based policy and democratization, particularly insofar as the relationship is mediated by the bureaucratic state. Indeed, evidence-based policy does not implement itself, but requires a sizeable and powerful bureaucracy dedicated to its generation and implementation. Hobbes described this bureaucracy as Leviathan - a necessarily strong and legitimate state, that would keep the

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[5] Ultimately, the idea that form should follow function in architecture came under criticism as an incomplete and inadequate design principle.

peace and serve the welfare of its citizens (Schmitt 1996). The Leviathan of more contemporary policy studies however, is less benign, and its existence is described by some as at once comforting and unsettling. It is comforting in that the increasing complexity of social problems is "deemed to require a concentration of knowledge and power in centralized hierarchies" (Torgerson and Paehlke 1990:7); unsettling in that this management "necessarily extracts sacrifices from democracy" (Torgerson and Paehlke 1990:7).

The state, however, is not necessarily a legitimate entity in and of itself, and must pursue strategies which the public can endorse. Legitimate decision-making entails taking action that effects the public good, and that is not politically committed. In other words, legitimacy is associated with neutrality. Thus, the increasing acceptance of the evidence-based paradigm which has led to a focus on policy processes based on ideas such as 'best practices' and 'results-based management'. These discourses became more pervasive as public scrutiny intensifies along with demands for transparency, accountability and efficiency. Rydin elaborates:

> The justification for public-sector activity is that outcomes should be better than in its absence. And a key element in producing better outcomes is having a better process for getting to those outcomes. Hence the rationality of the policy process itself is seen as legitimating the activities of the public sector. The belief in the ability of bureaucracies to pursue strategies and routines that are imbued with rationality, resulting in optimal outcomes, has its roots in the very establishment of bureaucracies as a superior form for the state (2003:78).

The evidential basis for policy (over which a normative basis is strongly favoured by deliberative democrats), is underpinned by a combination of positivism and instrumental rationality (Sanderson 1999; 2006). Positivism is the belief that, through objective observation and unbiased application of the scientific method, causal relationships in nature and society can be known. Positivism upholds the research ideal that because truth is contained in observable subjects and data, methodologies can be precise enough to be replicable and consistent. Through this strong empiricism, objective knowledge is established through strictly empirical means. Instrumental rationality in policy internalizes positivism, and embodies the belief that particular policy interventions (inputs) will consistently correspond with predictable social, economic and environmental outcomes (outputs).

A contemporary form of this rational policy process is evidence-based policy - largely seen as bringing instrumental rationality to bear on public matters (Sanderson 2002). Evidence-based policy is a way of making public policy more efficient and legitimate; driven by the facts, and not by human intervention. Employing the rationality of instrumentalism is a means of 'a-socializing' knowledge, thereby releasing it from its social moorings so that it can be applied in society without bias or pretension. Indeed, within the positivist penchant, scientific sophistication and technological advance are understood as allowing for greater understanding, with greater certainty and predictive capacity, the workings of the public, thus objective, natural world. Proponents of evidence-based policy advocate for decision-making based on instrumental rationality to project the most effective and efficient pathways of decision-making. Indeed, this push is typically embedded in utilitarian discourses of cost effectiveness, and improved research 'uptake' in practice, to streamline policy inputs and outcomes. A type of utopia, the high-modernist society exudes "… a strong, one might even say muscle-bound, version of the self confidence about scientific and technical progress… the rational design of social order commensurate with the scientific understanding of natural laws" (Scott 1998:4).

Deliberative theorists have typically had little patience for this brand of modernist hubris. This is made apparent by the indictment of instrumentalism into the green assessment of the democratic deficit and environmental degradation: "A diverse group of philosophers, who might agree on little else, have adopted the view that the Enlightenment has actually been too successful, often to the detriment of both democracy and the natural environment" (Baber and Bartlett 2005:225). Indeed, the enlightenment-inspired ways in which instrumentalism has been idealized in state led policy making, have been central to the concerns of green deliberative politics, in two main ways.

The first is a concern with recapturing the 'local' in policy making, in terms of knowledge, perspectives and politics. In contrast to those who celebrate the notion of a strong, capable state to implement environmental policy, the deliberative strand of green politics evokes a preference for a 'localist basis of organisation' (Sanderson 1999), and a normative rather than technocratic basis for decision-making . While this

evocation is perhaps best described in a general sense, rather than in terms of iron clad principles, these preferences are captured by well known green maxims such as 'think globally, act locally', or 'small is beautiful'. This localism is generally defined by its position well outside the state, and its conceptual, even philosophical opposition to the state. Indeed, as the issue of capture (discussed in Chapter 1) reminds, proximity to the state is feared to put at risk, the capacity for critical reflection.

The second is that in emphasizing the normative concerns of policy making, instrumental rationality must not be considered a main driver of policy, but relegated to a secondary concern. Part of what makes a governing philosophy based on instrumental rationality so appealing is not only the prospect of more efficient policy, based on the right kind and the right amount of knowledge, but its democratic promise. But arguments within deliberative politics fundamentally challenge the notion that policies based on instrumental rationality (i.e.: evidence-based policies) are inherently rational, unsullied by bias or agenda, and thus, politically neutral. So-called rational discourse, in an orthodox instrumental incarnation, is objectionable to those committed to wider participation in policy debates:

> Deliberative democratic theorists also often complain that the liberal emphasis on the authority of certain kinds of reason restricts the agenda of public discussion. Resting on an overly narrow conception of rationality, largely influenced by the dominance of scientific reason, what can count as legitimate political argumentation is problematically defined in advance. Often neglected are the distinctive viewpoints of groups at the margins of the dominant culture, in particular those who employ other modes of reason and expression. (Fischer 2009:79).

Fischer goes on to point out that the assumed neutrality of this 'overly narrow conception of rationality' quickly breaks down once exposed to different critiques. For the feminist, mainstream rationality is represented by patriarchy, for the indigenous by the colonizer and for the religious minority by secular society. Similarly, Backstrand illustrates how sub-movements within green politics critique the rise of "environmental governance is emerging as an increasingly scientised and technocratic domain":

> Eco-feminism links the rise of technocratic science to an overall critique of modernity, rationality and patriarchy. Eco-modernism aims at re-configuring scientific rationality in terms of reflexive modernisation, and a stronger participatory dimension of civil society. In the postmodern green critique, the ascendancy of

regulatory science marks the influence of biopower or green governmentality (Bäckstrand 2004:695).

An important criticism of the 'democratic potential' of instrumental rationality is represented by John Dryzek's 1990 project, "Discursive Democracy", which took aim squarely at instrumental rationality as a basis for governance. Among his complaints is that instrumental rationality is ineffective, inappropriate, and insufficient in dealing with policy problems, in addition to being inherently antidemocratic and repressive (See Box 3.1). Dryzek criticizes what he calls the "complete guide for the would-be rational individual": "Instrumental rationality and objectivism go hand in hand. The former governs rational behaviour, the latter rational belief and morality" (Dryzek 1990:4). He continues, "Together, instrumental rationality and objectivism conjure up a clean and orderly world where modern science, technology, and economics flourish"[6] (Dryzek 1990:4) .

Box 3.1. Six counts against instrumental rationality (Dryzek 1990):

Dryzek begins the 1990 work, 'Discursive Democracy' by taking aim squarely at instrumental rationalist, and calling for the democratization of rationality. This, he claims, is the cure for the world's present political ills which spring from "the decline of once confident and still pervasive forms of rationality" (p.3). The following are his 'six counts against this kind of rationality.

1. Instrumental rationality destroys more congenial spontaneous, egalitarian, and intrinsically meaningful aspects of human association.
2. Instrumental rationality is antidemocratic.
3. Instrumental rationality represses individuals.
4. Instrumental rationality – and the political institutions in which it is manifested – is ineffective when confronted with complex social problems.
5. Instrumental rationality makes effective and appropriate policy analysis impossible.
6. Instrumental rationality informs inappropriate and unfruitful social science instruments and methods.

Though the respective commentaries from Dryzek and Fischer above suggest that instrumental rationality itself is the mortal enemy of deliberation, this is not an altogether accurate description of the relationship. The contention, rather, is the role of instrumental rationality in policy debates and decision-making; the ways in which it is often awarded precedence over other dimensions of environmental problems. Fischer explains the deliberative perspective, that "There is, in short, no epistemological road

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[6] This clean and orderly world evokes the Scott's account of 'metis' and its demise by the hand of the state's legibility project.

over which expertise can directly travel from one domain to the other" (Fischer 2009:144):

> In the public realm the crucial questions are generally not about the technical findings. Rather they are about political policymaking which raises a different set of concerns. In the domain of public policy the issue is seldom about the technical characteristic of the phenomenon per se. Fundamentally, it is about the relations of technical phenomenon to society. It is the normative question of what should be done (Fischer 2009:145).

Fischer's complaint is not about the knowledge per se, nor the sources of knowledge, but with the way in which knowledge about physical phenomena plays into policy processes. In short, he claims, it does not play a very big role. This is because policy questions are focused less on changes that happen *in* society and more on changes that happen *to* society. His approach is a diversion from classic policy-related questions about the nature of knowledge and the cognitive quality of evidence. He divorces policy analysis from the necessity of commenting on the veracity of knowledge. He argues that to put technical knowledge at the centre of policy inquiry is to fundamentally misunderstand policy processes; "the consequence of an inappropriate overextension of scientific rationality in a realm governed by a different logic" (Fischer 2009:145).

Fischer's comment echoes Habermas' troubled observations of modernity. Habermas conceives of two main experiential realms, including the 'system' and the 'lifeworld'[7]. The system is composed of the mechanisms for the material reproduction of society including economic systems, power relations and state bureaucracies. Within this sphere, instrumental rationality[8] is applied in order to achieve material goals, in a de-politicized and a-ethical context. Thus, Habermas does not suggest that instrumental rationality be entirely abandoned in favour of moral and communicative rationality. To the contrary, he is in full favour of managing mundane, everyday material needs using instrumentally rational approaches. In the ideal Habermasian society, however, the authority of instrumental rationality is restricted to the system, and is subverted by the

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[7] Habermas' development of and (over)dependence on the lifeworld has been duly criticized by a number of authors (i.e.: Schnadelbach, H. (1991). The Transformation of Critical Theory. Communicative Action: Essays on Jurgen Habermas' *the Theory of Communicative Action*. Cambridge, UK, Polity Press: 7-22.). This is significant because the lifeworld is the basis for the normative premises of Habermas' social theory.

[8] Instrumental rationality is argued by Baber and Bartlett to encompass both narrow technical and wider economic forms of rationality Baber, W. and R. V. Bartlett (2005). Deliberative Environmental Politics: Democracy and Ecological Rationality. Cambridge and London, The MIT Press.

communicative rationality that mediates the lifeworld. Extra-instrumental forms of rationality – those that relate to the lifeworld - are indispensable, and ultimately supercede the importance of instrumental rationality:

> He (Habermas) claims that in terms of evolutionary theory the communicative action approach (as the complementary gestalt of the concept of lifeworld) must be granted an overriding validity *vis-à-vis* the systems-theoretic model of society… Only the systems-functional replacement also of communicative action, the medium adequate to modern symbolic reproduction, could be subjected to a realistic criticism (Kruger 1991:142).

The lifeworld, on the other hand, consists of the mechanisms that enable the symbolic and cultural reproduction of society via the creation of common understanding and agreed-upon terms for communication. The lifeworld includes the informal and unmarketized domains of life; it encapsulates the concepts of the everyday.

Scholars have used the concept of communicative rationality to highlight the importance of discourse and normativity in policy debates. The potential for, and promise of communicative rationality has enabled the issue of communication and deliberation as serious alternatives to technocratic environmental management or to democracy as an aggregation of interests, with several advantages. The first is that deliberation is associated with social learning in environmental policy; it is not simply a prescriptive exercise, but potentially transformative. As the debate proceeds, individuals come to know and understand the arguments of others, and thus are given opportunities to consider hitherto unknown positions and perspectives. Participants do not enter into debate simply to 'convert' others to their position; they also enter into debate to hear, consider, and be influenced by others. Thus, communication does not mechanically transmit knowledge or uncover some independent, existing rationality. Rather communication actually generates knowledge, and thus transforms reality rather than merely reflecting it. Secondly, with communication as a basis for rationality, assuming free and reasoned argument, not only will better decision-making ensue, but decisions will be more legitimate (Bäckstrand, Khan et al. 2010). The next section will explore these deliberative claims, and preview how Chapter 4 will deal with the critiques of these claims further.

3.4   Deliberation in developing world environmental politics: insufficient engagement with norms and facts

While deliberative green politics offers a critique of participation and evidence-based policy, it also extends some of their weaknesses, and introduces some new problems to debates about facts and norms in public policy. Deliberative democracy is about public engagement with policy decision-making and thus draws heavily on the differences in the ways that different people experience environmental problems. Though Habermas has been criticized for his focus on the 'bourgeois public', deliberation has come to be characterized by processes that reconcile difference, rather than overlooking difference. The public sphere is where this reconciliation happens through intersubjective, discursive interaction: where "the arguments of mixed companies could become authoritative bases for political action" (Calhoun 1992:1). Much of what has been considered green deliberative politics, however, is characterized by two main problems. First, it has not been sufficiently inclusive. Secondly, it has not been sufficiently empirical. These shortcomings have been particularly pronounced in the developing world, where green politics can often obscure both developmental aspirations and power relations AND different perceptions of environmental problems.

The first problem with green deliberation has been the acceptance of global environmental norms as legitimate and representative, in the absence of a careful and critical examination of the social and political forces that have influenced them. As with the public-private partnerships that Forsyth writes about, the various emergent arrangements designed to facilitate deliberation often,

> … do not stand alone as new discursive arenas (or public spheres) to formulate new and locally representative norms about environmental protection and governance. Instead, they replicate and – to some extent – co-opt existing norms, which are frequently communicated by networks of actors who are not local, such as national and international NGOs (Forsyth 2005:437-438).

This co-option brings to bear the way in which green deliberation has largely under-theorized the effects of power relations on how assumedly collective norms are established.

> Open access to political debates by different social groups is not always possible, and hence partnerships may not easily be called forms of political pluralism. Poor sectors of society… were often co-opted (as predicted by

Hajer, 1995) to support wider political arguments from more powerful
actors… (Forsyth 2005:437).

The dubious possibility of open access to debates applies not only in international contexts where deliberations are attempted between the poor and multi-national firms or international NGOs. Naïve understandings of communities as homogenous, can mask that open access does not apply at the local level either. Indeed "'local knowledge' reflects local power" (Mosse 2001:19).

Another example of how an understanding of 'local' 'traditional' or 'indigenous' knowledge and norms can be naïve, is how they can be shaped by environment and development encounters. The identification of local knowledge is often framed as an attempt to create space for local people to contribute to, and ideally exert more control over projects and interventions (Berkes 1999). Sometimes this means illustrating that local, indigenous knowledge was indeed compatible, even complimentary, to expert diagnoses and prescriptions. But authors have shown that rather than impacting *on* development discourse and practice – as is the intent of deliberative practices – often what is understood as 'local' knowledge is actually shaped *by* these discourses and practices. This can happen as a result of strategic action, as is the case when subjects of interventions learn how to manage perceptions of what are local norms in order to maximize their benefits in light of what an agency is seen to be able to deliver (Mosse 2001). Similarly, it can also happen when people are eager to adopt knowledge and norms that seemingly represent modernity and progress.

Despite the deliberative emphasis on difference (and thus, the need for deliberation), green politics has been slow to account for difference with sophistication, rather relying on essentialist categories of stakeholders in environmental governance. Green thinking that links democracy with ecological rationality is borne out in feminist, indigenous and development studies literatures. Feminist researchers have drawn direct links between the marginalization of groups such as women from decision-making, and environmental degradation (Agarwal 1992). Likewise, environmental degradation has been attributed to the lack of consideration of the traditional knowledge of indigenous people (Berkes 1999). The environmental justice movement is concerned with the relationship between poverty and racism and environmental degradation in (mostly) urban environments (Brown 1995). Much of the early work in these areas has been criticized

for oversimplifying and romanticizing the relationships between different groups to nature, and for imposing essentialist categories on groups of people and overstating or mis-stating the separation of interests and understandings between groups such as men/ women and indigenous/non-indigenous. Being critical of this essentialism, however, is not to disregard that much of this work brought/brings to light the political dimension of environmental issues, highlighting ethnic, gendered and class-based stratification, pertaining to control over governing the environment, and access to resources.

The second problem of green politics is an insufficient attention to empiricism. At first glance this criticism does not hold up, because it is precisely the caution about empirically based policy that gives much of deliberative politics its drive. In fact, more than caution, some authors doubt that strong empiricism has much to do with policy analysis at all: "more than just an epistemological alternative, the post-empiricist approach is offered as a better description of what social scientists actually do in practice" (Fischer 2003:209). However, despite a fervent opposition to dependence (at least overdependence) on environmental facts as cues for policy, norms (in this case green norms) are established on the basis of truth claims – often unexamined truth claims. For example, much of the green political movement revolves around the assertion of a global environmental crisis based on notions of equilibrium ecology and balance of nature. While these notions are compelling, they have been criticized for not accounting for ecosystem variance over time and space (Forsyth 2003). Furthermore, simplistic assumptions about global ecological crisis often overlook the ways in which degradation is assessed and understood in different societies and cultures (Adger, Benjaminsen et al. 2001), or ways in which science and globalization have been contested as frameworks for interpreting environmental problems (Taylor and Buttel 1992). Furthermore, as has been pointed out previously in this chapter, the truth claims involved in the establishment of these relationships is often unhelpful to poor people who are trying to maintain or expand livelihoods through access to resources.

3.5   Conclusion

This chapter has argued that deliberative political theory goes some distance in addressing the shortcomings of orthodox approaches to both participation and evidence-based policy. First, while maintaining that deeper participation is vital for good policy, deliberative theory provides a critique of how participation is actually

implemented or initiated. It does this by emphasizing environmental policy making and analysis as a *normative* undertaking based on *communication*, rather than a means of implementation or local 'buy in' to pre-designed policies. Secondly, deliberative theory contains a critique of modernist confidence in evidence-based policy insofar as it is a practical, policy-based manifestation of instrumental rationality. The evidence-based perspective argues that good decision-making is based on sound knowledge about causal processes. In other words, particular outcomes can be expected to flow from particular inputs. But this causal explanation for policy making explains nothing of the ways in which society's actual decisions are the products of argumentation, discourse and politics. Deliberative theorists charge that these influences have little to do with instrumental rationality. Rather, the minutiae of instrumental rationality, if given priority in decision-making, comes to obscure, or colonize the human sphere in which meaning is created and solidarities are established.

But, the theoretical assessment of environmental governance cannot end with the discussion of deliberation in this chapter. This is because critiques of deliberative democracy as an emergent policy framework, have in turn, raised several important concerns. These concerns have two main centres of gravity. The first is a staple critique of Habermasian deliberative approaches: how relations of power remain, if not unrecognized, largely unaddressed. The assumption that politics can become explicit and transparent for the purposes of sincere and open debate, that under conditions of deliberation discourse is unconstrained, non-coerced, sincere and legitimate, has been branded as naïve by some and 'dangerously utopian' by others. Indeed, these critiques need to be taken seriously, particularly in the developing world, where inequalities in the developed world are often dwarfed in comparison.

The second extends the first in that power relations exist beyond the contextual interactions of the debate, and are contained in the knowledge claims that are used in debate. Indeed, deliberative norms emerge in the context of knowledge claims – but these claims remain largely unexamined. As we have seen, corporatism, capitalism and an overconfident and excessively bureaucratic state are seen within green politics to have given rise to a global environmental crisis. But the causal relationships here remain somewhat over-simplified and stereotypical. Furthermore, the crisis itself is seen as a generalized problem based on consensus, rather than a phenomenon

perceived and experienced to different extents and in different ways. However, "Habermas's critique cannot go beyond a policy of containment. It protects politics from the presumed rationalizing and dehumanizing forces of science and technology, but it never engages the creation of scientific knowledge or technical artifacts themselves" (Brown 2009:87).

So-called 'new modes of governance' that highlight deliberation are not that theoretically new. Deliberative democracy represents an oeuvre established over the last 3 decades or more; participation has been a key theme in development planning and policy since the 1980's. There has been a recent upsurge, however, in interest in deliberation as an environmental policy input, illustrated by contemporary work such as Fischer's Democracy and Expertise (2009), and Backstrand et al.'s Environmental Politics and Deliberative Democracy (2010). Earlier approaches to deliberative governance of and governance by norms gave rise to a decidedly limited idea of what it is to be an environmentalist; to be 'green'. In contrast, progressive approaches seek to reestablish the spirit of deliberation through which the normative framework for environmental governance is debated, not predetermined. But of course, this is not as straightforward as it might first seem. It requires more than just a commitment to a normative basis for policy. It also requires conceptual tools to analyze the factual basis of emergent norms.

Chapter 4 argues that a theory of democratic engagement with citizens, on issues of public concern, is incomplete without reflexive analyses of knowledge. These analyses will address how and why knowledge becomes expertise: how it gains authority and legitimacy among policy makers and the public; and, how it is deployed in policy debates and ultimately in governance. It will provide insight into why citizens should be able to, and how they may have access to, the critical understanding to allow them to assess and judge the factual and normative basis of relevant scientific and technical arguments.

Chapter 4

Expanding deliberative limits: Politics of evidence in sustainable development policy

4.1 Introduction

Chapter 3 examined the deliberative response to the tensions between different mainstream proposals of participation and evidence for improving environmental governance. In response to calls for more participation, deliberative theory points the importance of deepening of democratic decision-making about the environment. In response to calls for more evidence-based policy, it cautions against policies that depend on instrumentalism and the corresponding claims to neutrality and non-partisanship. Deliberative processes, it is asserted, should centre around normativity in debate, rather than be sidetracked or colonized by technical issues of science and expertise. Experts participate in policy debates, but their contributions are not privileged over any contribution, and remain subject to the same scrutiny as any other submission.

But experts wielding evidence in policy debates are not on equal footing with other participants. They often enjoy privileged access to credibility and authority through mechanisms that delineate expert knowledge apart from lay knowledge. Appropriate and rigorous method (such as the scientific method) is such a mechanism, often depicted as reflecting rather than interpreting nature, through which the expert has special access to knowledge about natural processes. However, substantial scholarly effort has shown that indeed, these mechanisms do not simply reflect nature, but that they are also subject to socially embedded endorsement. Thus, it is increasingly accepted in the social and policy sciences, that expert knowledge itself must become central to the work of analysts. It suffices neither to treat expertise with blind acceptance or with exclusionary disdain; nor will it do to treat experts as 'just another participant' in policy deliberations. Rather full engagement with knowledge, including its social and political commitments, must be the policy order of the day.

Approaches to environmental governance that take deliberation as a fulcrum, have largely avoided critical engagement with expert policy advice (Brown 2009). This critique has come from Foucauldian-influenced approaches to knowledge and governance, found within the diverse thinking loosely regarded as Science and

Technology Studies (STS). Like deliberative green politics, much support for the democratization of environmental governance can be found within STS. However, the reasons for the importance of this democratization, and means to achieve greater citizen participation in environmental decision-making, take a radical departure from the Habermasian inspired green politics. This departure (or more aptly these departures) is the subject of this chapter.

This chapter argues for a framework to improve deliberation in environmental governance by addressing its weaknesses while building on its strengths. As I proposed in Chapter 1, this framework, which I call *critical deliberative governance,* satisfies two criteria. The first is that it provides a critical perspective on policy relevant knowledge, to make more explicit the politics that lie under the surface of technocratic ways of 'solving' environmental problems. Secondly, it aims to retain that which imbues green deliberative politics with developmental promise - the legitimation of normative rationality in approaches to environmental governance.

This two-tier task begins by examining debates about what kinds of information can be trusted as evidence. Realism embodies a commitment to the methods and Mertonian norms of science to produce objective knowledge. But this has been challenged by more recent thinking on the social and political norms that influence the production of knowledge, not least of all knowledge subject to the rigors of science and quantification, and the acceptance of its authority and credibility in public decision-making. It proceeds by analyzing different approaches to *using* evidence in policy. Here we look at the 'information model' of policy – an orthodox assumption that more knowledge is better for reducing uncertainty and improving consensus around decision-making. This model has been challenged, for example, by work on scientific controversies. Thirdly this chapter argues that despite the common presentation of evidence as an instrument of neutrality and objectivity in policy, evidence – in a variety of discursive forms - is often deployed as a part of wider power relationships within governance structures. Fourthly, I present co-production as a conceptual and practical framework for improving the use of facts in policy. Within this framework, facts are considered to be coproduced with norms; discourse allows analysts to view these facts and norms as essentially political and contestable. Finally, I present my argument for critical

deliberative governance framework as an improvement over existing ways of conceptualizing environmental governance.

4.2   Evidence and expertise: from natural facts to social influence

Questions regarding the relationship between nature, and human knowledge of it, have given rise to rich intellectual debate over the past decades and have been central to debates within science studies and engagements with its critics. At the heart of this debate, is what counts as trusted information, and why it should count as such. What is the position of evidence among knowledge and why evidence has such a unique status among ways of understanding the world? What is it, in conventional understanding, that separates evidence from the epistemological masses? Indeed, the concept of evidence evokes a kind of intellectual reverence owing to that which separates it from anecdote, opinion or emotion.

Much of what this separation has conventionally come down to are issues of method and culture. First, achieving objective evidence is understood to be made possible through the application of a *positivist methodology*. This class of methodology is understood as specific and precise enough to be replicable and consistent, and rigorous enough to yield accurate, true findings, above all, producing objectivity.

Objective knowledge, or fact, is widely understood as being independent of human interpretation and perception. Taken as self-evident and apparent, an objective fact is not open to interpretation because it autonomously speaks for itself. Indeed the litmus test for objectivity is the techniques and methods through which it was achieved – and in particular, the particular sets of rules that govern these techniques and methods.

Second, it is the culture of science that enables objectivity and transparency. Robert Merton, widely considered the father of modern sociology of science, believed knowledge to be deeply influenced by the social context from which it emerges, and thus articulated four institutional principles to characterize the context of scientific practice (Merton and Zuckerman 1973). These 'Mertonian norms' include: universalism (that scientific findings should indicate universal truths); communism (whereby researchers freely share their findings and thus gain the recognition and approval of

their peers); disinterestedness (the commitment to leaving the burden of proof to evidence); and organized scepticism (realized by the questioning and challenging that are meant to cleanse science of personal opinion and vested interests). These norms, claimed Merton, could ensure the production of truth, as opposed to "partial or distorted knowledge" (David 2005:12), and thus, imbue it with credibility. Preoccupied by what he saw as a 'dangerous' attack on the credibility of science, Merton believed that these principles reinforced its claims – those claims that were considered to make it valuable and unique among different forms of knowledge.

Because of these methodological and social contextual/cultural requirements for generating evidence, the task is predominantly managed by experts. In this respect, experts are certified members of scientific communities who both receive and grant credibility to established and agreed upon methods for achieving facts and separating those facts from perception. Experts are unique, because "… expert knowledge is almost by definition possessed by only a few, and no such art is ever reduced to a handful of rules that can be looked up and mastered by anyone with a textbook. Thus, the intuition or judgment of specialists continues to command a degree of respect" (Porter 1995:7). Yet, evidence is not judgement. Trust in this kind of assessment is fickle – open to potential criticisms of arbitrariness and bias (Porter 1995:8). It remains "Better to apply an instrument, to take a culture, to produce some evidence" (Porter 1995:7). Thus, when the stakes are high, even the expert is not valued for her ability to make an informed judgement; but for her ability to command the methodology required to collect and amass evidence. Indeed, individuals endowed with the correct training and the correct tools, come to know the secrets of the objective world. "Ideally, expertise should be mechanized and objectified. It should be grounded in specific techniques sanctioned by a body of specialists. Then mere judgment, with all its gaps and idiosyncrasies, seems almost to disappear" (Porter 1995:7).

Questioning evidence rings of ignorance at best, or heresy at worst – or perhaps, worse yet, relativism. In all but the most radical of circles, however, the realist-relativist divide as a mutually exclusive, discrete dichotomy is largely rejected and at least some credence is granted to both the realist and constructivist perspectives. Furthermore, constructivist perspectives in no sense represent some unified view or agreement. They exist, rather, on a continuum between this dichotomy. The manners and extents to

which authors have characterized the divide between physical and social realities reflect a "range of possible 'commitments' to the constructivist position…" (Robbins 2004:113). The ends of this range are referred to as 'soft' and 'hard' (or 'radical) respectively, and despite being both considered constructivist, embody very different epistemological and ontological understandings of reality.

Many of the representatives of the 'softer side' of this middle ground argue for nature as ontologically real but *epistemologically* constructed (Castree 1995). This means that knowledge represents objects and underlies the structures that give rise to what we experience as objects, but is not to be conflated with the objects themselves. Physical 'things' exist independently of society, but carry different meanings and implications *in* society. Searle recognizes this differentiation as the implication of brute and institutional facts (Searle 1995). Take a forest: "A forest, for example, is an assembly of brute facts which can be variously described down to the molecular level, but the very notion of a forest is a social construct and the same physical collection of molecules can be construed in a variety of ways" (Vogler 2003:28). This classification of facts as brute or institutional accounts for the ways in which physical phenomena are socially constructed, while avoiding " the postmodern trap of claiming that 'everything is socially constructed' and that the physical world is essentially unknowable or distorted by partisan science" (Vogler 2003:29).

Proponents of this realist-constructivist middle-ground recognize social influences in the ways in which the physical world takes on social meaning, and the ways that this meaning comes to be conflated with exclusive and immutable reflections of reality itself. For example, Berger and Luckmann suggest that it is the habitualization and, ultimately the institutionalization of actions, performed by actors in society (Berger and Luckmann 1972; Berger and Luckmann 2002). Over time, regularized patterns of actions emerge and enlist particular individuals in roles that correspond to different aspects of these actions. These become so familiar that they acquire the appearance of always having been that way, and thus, natural and inherent – their origin in social processes becomes buried and forgotten. In other words, "because social constructs are so much a part of our way of life, it is often difficult to recognize them as constructions" (Fischer 2003:53).

Each of these approaches leaves the realist-constructivist dichotomy in tact. Facts remain facts, uninhibited and uncoloured by social influences, rooted unshakeably in the natural world. Human interpretation and institutionalisation convert these facts into usable, understandable, and meaningful knowledge, imbued with societal norms and values. In stark contrast, the notion of *symmetry* embodies a more complete rejection of the realist-relativist divide, not to mention a more profound understanding of the politics of knowledge. Contemporary symmetrists reject the realist-constructivist dichotomy altogether, dismissing the idea that epistemological and ontological questions need be limited to some sliding scale representing the extent to which one believes in a naturally existing reality outside of social construction. Politics, they say, is not pitted against knowledge, but coproduced with knowledge! Values do not exist in spite of facts, they are coproduced with them!

The concept of symmetry was developed within science studies by the Strong Programme. The Strong Programme concerned itself with illustrating the social basis for all scientific claims, both those rejected and accepted. Prior, social explanations were given for why those theories of science that were ultimately shown to be false, were nonetheless adopted by scientists. Explanations for the success of scientific theories, were rooted in the natural world. The Strong Programme:

> … showed how interest, ideology, and other factors apparently external to science play a role in both the acceptance and rejection of scientific claims. If one wants to explain how something becomes accepted as true, the strong program argued, its truth cannot figure as part of the explanation. Truth is no less social, and no more natural than falsity. (Brown 2009:164).

The symmetry of the Strong Programme reflects a strong constructivist approach, which views reality as human creation, rejecting any role for non-humans. The Strong Programme thus elicited a strong reaction, in particular from followers of Bruno Latour and actor network theory, who indeed, accord no small role for non-humans in shaping knowledge. The Strong Programme, Latour claims, subscribes to what is simply a mirror image of the realism which it criticizes. Far from being a radical departure from realism, it simply replaces scientific realism with social realism (Brown 2009).

Latour sees the compartmentalization of the objective and social worlds (as apparent in the separation of brute from institutional facts, for example) as a misnomer. Far from

being ideal, he considers impossible, the separation of life into the natural, objective on the one hand and the subjective, political, on the other. The call for the 'end of nature' is a staunch but eloquent criticism of society's obsession with the separation of public life into 'two houses': the house of science, and the house of politics. The tension, even conundrum, that is evoked by the debate between universalism of nature and relativism of culture is characterized beautifully by Latour:

> The solution of mononaturalism stabilizes nature at the risk of emptying the notion of culture of all substance and reducing it to mere representations; the solution of multiculturalism stabilizes the notion of culture at the risk of endangering the universality of nature and reducing it to an illusion. And it is this cockeyed arrangement that passes for good sense! (2004:48).

This work builds on important earlier writings by Latour, in particular We Have Never Been Modern (1993) where he explores and critiques the modernist assumption of a clear separation between the human sphere (culture, society, politics) and the sphere of non-humans (the natural world: physical, asocial and apolitical). Rejecting the notion that this separation is based on anything inherent in either sphere, he explains the separation as a process rather than a property. This process is purification, and it creates "two entirely distinct ontological zones" (Latour 1993:10), resulting in an overly simplistic, inaccurate dualism.

But Latour also talks about another process, through which *hybrids* of the purified duality emerge. This process is translation and involves analyzing "the creation of networks between social and natural objects – as the means to identify how we have experienced "nature" in specific ways" (Forsyth 2003:87). While translation and purification are two separate undertakings, they are fundamentally connected: "Without the first set, the practices of purification would be fruitless or pointless. Without the second, the work of translation would be slowed down, limited, or even ruled out" (Latour 1993:10-11). The preoccupation with translation and purification implies a diminished importance of *what* nature is or means, and instead, an emphasis on *how* it means (Wagner 1981; Sykes 2005).

It is in his 1987 work, Science in Action, that Latour introduced the term co-production (Lynch 2004). It has since become an idiom for work spanning disciplines and subject matters, and linking this work to science studies (Jasanoff 2004). Jasanoff describes the

symmetry of co-production: "the production of order in nature and society has to be discussed in an idiom that does not, even accidentally and without intent, give primacy to either. The term co-production reflects this self-conscious desire to avoid both social and technoscientific determinism in S&TS accounts of the world" (Jasanoff 2004:20). Rejecting both scientific and social realism: "Co-production can therefore be seen as a critique of the realist ideology that persistently separates the domains of nature, facts, objectivity, reason and policy from those of culture, values, subjectivity, emotion and politics" (Jasanoff 2004:3).

Despite this challenge to the dominant role of knowledge in policy, analysts must still contend with the fact that "the strategy of presenting oneself, or one's expertise, as purely instrumental can be an effective one" (Turner 2003:38). However, much attention has shifted away from how it objectively and neutrally reflects reality, towards "how scientific knowledge assumes authority in the public domain" (Jasanoff and Wynne 1998:5). If claims of veracity and accuracy are not adequate to explain the acceptance of evidence, how is it that knowledge assumes authority? What kinds of social processes are involved in differentiating between credible and non-credible work, and purifying categories to dispose of ambiguity? Important mechanisms for these claims to credibility and authority are *boundaries* that enable the establishment, maintenance and ongoing differentiation of expert knowledge from other forms of knowledge (Gieryn 1999)[9]. Managing these boundaries, or undertaking boundary work, is the means by which individuals demarcate what does and does not comprise a certain entity or phenomenon, what fits within given conceptual parameters. Boundaries establish authentic sources of knowledge as distinct in particular ways from 'poachers and imposters' (Gieryn 1999).

Developed primarily around scientific knowledge, Gieryn's work shows that the definition of what constitutes science are socially constructed. This, despite that "essentialism as a theory of scientific authority would argue that the conditions *necessary* for the production of valid and reliable knowledge are *sufficient* to explain why science

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[9] While Gieryn comments little on governance and democracy per se – his analysis clearly relates to power and the role of knowledge in power relationships. Power is contended for, and won, in veritable 'credibility contests', whereby knowledge goes head to head against knowledge and whomsoever should come out on top is determined not so much by the measure of their truths as by the skill with which they perform boundary work and the permeability of the boundaries in question.

has emerged historically as the so often preferred chronicler of nature" (Gieryn 1999:26-27, italics original). In other words, that science is revered and accepted because positivist inquiry unlocks the secrets of nature. Rather, he claims, that "To miss the interpretative work that creates contexts for decisions about who to trust with reality is to lose the sociological handle on what is happening" (1999:27). The aim of Gieryn's work is not to dismiss the findings and evidence established by science or other privileged forms of knowledge. Rather it is to show that they enjoy epistemic authority because of close attention to the boundaries by which they are demarcated, not because they necessarily unleash greater truths than other forms of knowing.

Boundary work is used to make conceptual distinctions, such as those used to separate science from non-science; science from politics; or scientists from non-scientists (Funtowicz and Ravetz 2001). Indeed, the information model takes as its departure the assumption that science and policy belong to separate spheres, occupying respective domains. STS scholars (particularly Latour), however, problematize the differentiation and characterization of each sphere, and examine the separation as an outcome of social processes and dynamics rather than of their inherent differences. The consideration of boundary work reveals that far from being hermetically sealed from the world of policy and politics, science is contingent, contested and context-dependent. The rather exclusive authority of scientists to maintain exclusive rights to examine knowledge by posting 'keep out signs', is a social reality, not a natural reality.

Turnhout et al. illustrate how boundary work impacted on the development and use of ecological indicators to monitor ecological quality of water systems in the Netherlands (Turnhout, Hisschemöller et al. 2007; Turnhout 2009). The use of indicators was expected to help policy makers "make rational choices concerning sustainable development" (Turnhout, Hisschemöller et al. 2007:219). Ultimately, the indicators came under fire, because of disagreement about "the choice of the ecological reference and the fixed quantitative reference values, the selection and limited number of parameters and the use of biotic parameters on the impact level…" (2007:219)219. The study concludes that "scientific arguments about uncertainties and complexity of ecosystems and arguments about what nature is and/or should be are used to criticize ecological indicators" (2007:219).

Gieryn´s account of how boundary work is purposefully engaged by actors, to specific and predetermined ends, suggests a high level of agency; it is a strategic tool, kept sharpened and poised, ready for the moment that it will be called to action. Boundary work is configured as 'strategic, practical action' calculatedly devised and enlisted in the pursuit of 'immediate goals and interests' (Gieryn 1999) and to manipulate credibility vis-à-vis specific situations. Others, in contrast, view boundary work as an outcome of a structured establishment. Knorr-Cetina (1981) speaks of the 'habitual selection of a strategy' to indicate the lack of calculation and reflection involved in establishing and maintaining boundaries. Kinchy and Kleinman speak of 'historically resonant discourses' (2003) which refer to those which have been in use so long, they become taken for granted, and become part of 'routine boundary work' rather than of some novel or unique form of boundary work. These discourses can be both enabling and constraining in that they enable the harnessing of powerful arguments as means to an end, but also that because they are widely 'taken for granted' to simply reflect the nature of things or how things are, they restrict or constrain alternative argumentation. According to these authors, boundary work is a product of embedded and habitual ways of understanding the world:

> Scientists and others who construct boundaries between science and values may not calculate the risks and benefits of that boundary-work and decide on the best strategy to suit their interests. Instead, they may, relatively unreflectively, adopt widely used models of behaviour and organization… understanding boundary-work as self-conscious and strategic often does not provide an adequate understanding of how the credibility of science is maintained (Kinchy and Kleinman 2003:871).

Thus, under mundane circumstances, boundary work often goes unrecognized and the boundaries themselves go unnoticed., along with the social and political forces at work in the demarcation and articulation of knowledge about the natural world. Thus, expertise is *tacitly* authoritative, in a goes-without-saying kind of way.

This section has illustrated very different modes of thinking around the extent to which, and way in which, social and political influences are manifest in the production of evidence. Mertonian norms suggest that the social context of science ensure honesty, rigor and universalism. But the increasing recognition that social norms not only affect the methodology by which evidence is gathered, but also the content of evidence changes the approach for handling evidence within policy circles. Indeed, that

knowledge creation involves both factual *and* normative social and political influence, and that these are inseparable because they are coproduced, suggests that what is classically understood as evidence is insufficient. The next section will continue this analysis by looking at the role of knowledge in policy processes.

4.3 Using evidence in policy

In the case of disagreement or ambiguity, such as is to be expected in debates around so-called 'ill-formed' problems, conventional wisdom promotes the use of more and better information (Turner 2003). On this basis, which conforms to the 'information model' of public decision-making, evidence-based policy is often heralded as the gold standard in public decision-making. The information model "treats all factual assertions as bits of data, and all disagreements as resolvable on the basis of more information" (Turner 2003:48). This particular brand of policy problem is characterized by an elusive and complex solution to an even more elusive and complex problem, where there may be little agreement even on the very facts that are of relevance (Turner 2003:54). In contemporary policy making, "ill-formedness is the norm… Problems of this sort typically involve different kinds of expertise, with different standard, and different controlling considerations" (Turner 2003:54). Sustainable development, with its varied interpretations, priorities and normal frames, is a clear example of an 'ill-formed' policy problem, or what some call a 'wicked' policy problem.

The evidence-based policy framework uses the structured information which arises out of positivist research as evidence, to determine the pathways of decision-making. This responds to pragmatic concerns of policy, which centre around effectiveness and efficiency. Indeed, the push for evidence-based policy is typically embedded in utilitarian discourses of cost effectiveness, research 'uptake' in practice. These discourses became more pervasive as public scrutiny intensifies along with demands for transparency, and budget cuts:

> The justification for public-sector activity is that outcomes should be better than in its absence. And a key element in producing better outcomes is having a better process for getting to those outcomes. Hence the rationality of the policy process itself is seen as legitimating the activities of the public sector. The belief in the ability of bureaucracies to pursue strategies and routines that are imbued with rationality, resulting in optimal outcomes, has its roots in the very establishment of bureaucracies as a superior form for the state (Rydin 2003:78).

Several authors rule out even the *possibility* of an administration that acts in the interests of pure instrumental pragmatism (Turner 2003:38). Fischer for example challenges that, "in the 'real world' of public policy there is no such thing as a purely technical decision" (2000:43). He adds, "…there is, in fact, no linear bridge which connects the hard sciences to the public domain sciences. There is, in short, no epistemological road over which expertise can directly travel from one domain to the other" (Fischer 2009:144). More and assumedly better information does not increase levels of consensus or provide more effective pathways to problem solving. And in fact, often 'races to the truth' are headed down completely separate pathways. I argued in Chapter 3, that this is because policy making is principally a normative exercise (Fischer 2009). But it is also because "it often does not work to add more information. Sometimes, when new facts are introduced, instead of resolving disagreements, the new facts become subject to divergent interpretations, often of more or less the same kind as the divergence that the new information was supposed to resolve" (Turner 2003:48).

It very often turns out to be the case, that rather than contributing to reduced uncertainty and improved consensus, science is wracked with lack of closure, by controversy and a distinct shortfall in terms of consensus among experts. Disagreement (or more simply lack of agreement) and uncertainty can be powerful mechanisms for influencing policy as they challenge the evidence in which evidence-based policies are supposedly rooted. Edwards reminds us that this uncertainty can be used for different means:

> Policy makers who want to delay precautionary action ally with high-proof scientists, holding out for very high degrees of empirical confirmation. Proponents of near-term action can … argue that precisely because uncertainties can never be entirely eliminated, the choice of how much empirical confirmation is enough is ultimately a value choice most appropriately decided in the political arena (1999).

Jasanoff notes that it is because "Objective scientific expertise is generally valued more highly than other grounds for decision-making… (that) attacks on the scientific competence of regulatory agencies is a standard device for undermining their political legitimacy" (2000:73). Similarly, Taylor and Buttel observe that "people trying to make or influence policy often find the lack of scientific closure a potent weapon" (Taylor and Buttel 1992:406, quoting Jasanoff, 1992).

Indeed, this has scarcely been so clearly illustrated as in the 2009 scandal surrounding leaked details of the scientific evidence behind climate change at the renowned University of East Anglia's Climatic Research Unit. Dubbed 'climategate' the scandal raised questions about whether research data had been manipulated to serve the purposes of opposing views in the climate change debate. It has thus fuelled the fire of non-cooperation in climate change negotiations. Beyond the climate change debate, however, it is raising further questions about the role of science in public policy (Hulme and Ravetz 2009). On the heels of 'climategate' came 'glaciergate' (admittedly, an overuse of the historical reference). This incident involved an IPCC claim that 'Himalayan glaciers could melt by 2035'. It was admitted in January, 2010 that the claim, stated in "one paragraph, buried in 3,000 pages of reports and published almost three years (prior)" (Pearce 2010) was unsubstantiated. The seemingly minor detail however, has in some respects cast doubt on the overall trustworthiness of the IPCC. To add insult to injury, the IPCC head found himself apologizing to the Environment Minister of India, for his accusations that the Minister was relying on 'voodoo science' when suggesting that the Himalayan claim was somewhat 'alarmist' (Pearce 2010).

The notion that 'bad science' is rejected while 'good science' is accepted is at best an oversimplification and at worst a misnomer in terms of how truth claims come to be validated within professional and popular realms (the main tenet of the Strong Program). Using the scientific debate about the effectiveness of vitamin C in fighting cancer, the subject of Richard's classic account of the political dimensions of scientific controversy (Richards 1991), Martin and Richards (1995) suggest four 'ideal types' of approaches to analysing scientific controversy. These include three in addition to the positivist orthodoxy, which evaluates controversy through the availability of scientific evidence. First, is the group politics approach, within which science is considered part of a 'resource mobilization' strategy used by contending political groups. Secondly, the constructivist approach which treats scientific knowledge as an outcome of the interpretations and practices of the scientist rather than as a reflection of reality. Finally, the social structural approach treats scientific knowledge as a tool of oppression by maintaining hegemonic authority. The main point here is that in three of the four approaches to controversy analysis, the main reason for closure of debate around

scientific controversies has nothing to do with scientific knowledge as 'superior' (Martin and Richards 1995).

While a rather voracious acceptance of the usefulness of science to policy is clearly the orthodoxy, some claim that this usefulness is based solely on a 'myth' (Collingridge and Reeve 1986). They claim that rather than contributing to the creation of consensus, by narrowing the debate through presenting scientific evidence, the use of science actually expands debate by continuously adding to the number of technical matters under question. Collingridge and Reeve (1986) suggest that regardless of whether analyses are overly or under critical, acceptance of scientific knowledge only occurs when it is congruent with the subjects' opinions and interests. Others support this skepticism of the importance of the link between science and policy, reiterating that "truth or falsity of the science is rarely sufficient to account for its acceptance" (Taylor and Buttel 1992:406). These perspectives explicitly reject the 'information model'.

4.4   Evidence as a part of wider power relations in governance structures

What makes evidence-based policy so appealing is not only the prospect of more efficient policy, based on the right kind and the right amount of knowledge, but its *democratic promise*: the escape from politics is arguably the most grandiose promise of evidence-based policy, though many observers propose this is based more on 'illusion' than reality (Ezrahi 1994). Just as evidence itself is assumed to be objective and unbiased knowledge about the state of things, the application of that knowledge to public issues is expected to produce the same unbiased and objective results in society. Objectivity is not only a technical matter, but also a deeply political matter. "Objectivity means the rule of law, not of men. It implies the subordination of personal interests and prejudice to public standards" (Porter 1995:74). That which is ultimately considered evidence is assumed to harbour no social or political commitments.

However, as the first section argued that the creation of expertise is imbued with social and political influence, here I argue that the deployment of expertise within governance regimes is also thus influenced. This despite the 'technical rendering' of 'benevolent and stubborn' attempts to engineer human improvement; the translation of what Li calls 'the will to improve', into practice (Li 2007:7). This engineering is made possible, "by inscribing a boundary that separates those who claim to know how others should

live from those whose conduct is to be conducted" (Li 2007:281-282). Thus, another problem that expertise poses to democracy, is that expertise bestows the right to make decisions, to call the shots, or more simply, *to govern*. This is particularly problematic in conjunction with the view that making decisions about how society *should* be run, making decisions about the ends and not just the means (though the next section questions the viability of separating the means from the ends at all), is a deeply normative endeavour. This decision-making sometimes comes in the form of grand hubristic plans for the good of society, carried out in the name of principles such as 'modernity' (Scott 1998; Mitchell 2002), development (Ferguson 1990), improvement (Li 2007) or sustainability (Brosius 1999; Summerville, Adkins et al. 2008).

Governing is not just about changing conditions in society, but also manipulating and shaping citizen behaviour through the conduct of conduct, or governmentality (Foucault 1991). This definition draws on two meanings of 'conduct' (Dean 1999): the first is the verb to conduct, to actively drive, guide or propel; the second is the noun conduct, meaning actions or more generally behaviour. Thus, governmentality, or the conduct of conduct, refers to the way in which behaviour is guided (gently put) or (more aggressively) driven; "human conduct is conceived as something that can be regulated, controlled, shaped and turned to specific ends" (Dean 1999:18). Enacting governmentality, however, is not simply to "order people about or to move things around" (Dean 1999:18). Rather, it involves, as a chief mechanism, self-regulation on behalf of the subject of governmentality. Corbridge et al. see this self-regulation as emerging from "the internalization of norms" (2005:16). Rose puts it more strongly by suggesting that self regulation is owed to "the emergence of particular 'regimes of truth' concerning the conduct of conduct, ways of speaking truth, persons authorized to speak truths, ways of enacting truths and the costs of doing so" (2009:19). He continues:

> How did it become possible to make truths about persons, their conduct, the means of action upon this and the reasons for such action? How did it become possible to make these truths in these ways and in this geographical, temporal and existential space? How were these truths enacted and by whom, in what torsions and tensions with other truths, through what contests, struggles, alliances, briberies, blackmails, promises and threats? What relations of seduction, domination, subordination, allegiance and distinction were thus made possible? (Rose 2009).

The practice of government, explicit in expertise, has also been used to explain the more covert outcomes of public participation in decision-making. Fischer, for one, asks whether the contemporary tolerance, even encouragement, of participatory methodologies in policy development is a state strategy of achieving pre-established interests and goals (Fischer 2009:2). Even though devolution of decision-making is typically understood as a way of inviting more participation and thus, including more diversity into governance, the concept of governmentality prompts questions about the extent to which citizen participation and 'partnerships' in governance is more a "technology of rule" than a technology of inclusion. It is often charged, that even when decision-making and policy debate is extended more generally in society, power (and particularly state power) persists through these technologies (Taylor 2007). For example, Agrawal explains the creation of environmental 'subjects' as the outcome of changing approaches to conservation efforts in Kumaon and elsewhere (Agrawal 2005). He argues that increasing the role of local leaders in forest management through decentralization efforts, actually manifests as effective technologies of rule. In the Kumaon example the state faced the dilemma of how to control rampant forest fires – set in protest against the colonial management and control of forests. The moves toward decentralization transformed popular protest, and engendered forest conservation and protection, thereby implementing the will of the state to halt the fires.

Summerville et al. (2008) analyze the governmentality prospects of sustainable development policy in its global, national and regional incarnations. Globally represented by Agenda 21, they illustrate how the participatory discourse of inclusion, local knowledge, and empowerment and capacity building translate into community 'rights and responsibilities' and how these notions "work in concert as techniques of government" (Summerville, Adkins et al. 2008:5). They explain:

> In this case, community's right to participate, no doubt understood as inherently positive, is moderated by the ultimate responsibility to participate in a manner that contributes to achieving predefined sustainability objectives such as environmental conservation, water-use efficiency, behaviour change, and sustainable farming… the right of groups (at risk of exclusion) to be included in decision-making processes translates into a responsibility to become active agents in the pursuit for sustainability" (2008:6).

The effects of governmentality are evident in the way that local participation in decision-making is often utterly shaped by discourses of rationality and ultimately, by

power within assymetrical power relationships. This is illustrated by Brosius' coverage of sustainable development discourse in Malaysia (Brosius 1999). He offers an account of how Malaysia's forestry industry came under threat once international ENGOs established rapid deforestation as reaching critical levels in Sarawak. As a result international corporations threatened to levy sanctions against Malaysian timber. In response to these threats, officials began using rhetoric of sustainable forest management, resulting in the substitution of an economic focus on timber yields with "the softer, greener discursive contours of post-Brundtland 'sustainability'" (Brosius 1999:45).

From a distance, this discourse seemed unproblematic, and was more or less accepted as proof that Malaysia had always operated according to the principles of 'sustainability'. From within the country, however, the meaning of sustainability remained deeply contested; there was certainly no consensus on how it might be achieved. While for some sustainability implied the long-term viability of the forest industry in Malaysia, for others environmental quality was the fulcrum. Others yet viewed indigenous land rights and culture as prominent themes in sustainability. Despite the deeply political nature of sustainable forest management in Malaysia, to observers worldwide, the government promoted a delineated set of 'sustainable' forestry practices. Clearly a limited and shallow interpretation of sustainable, it was indeed sufficiently accepted to avoid sanctions that would compromise the performance of the timber industry. Brosius concludes:

> The issue, then, is not whether sustainable forest management or timber certification is desirable. Rather, it is the potential for such efforts to become part of an elaborate public relations scheme, designed to obscure a highly destructive system of resource extraction and to assuage consumer and government concerns, that makes them problematic. The larger message being conveyed is that the problems of rain forest destruction and indigenous rights can be solved by some combination of technically grounded institutional interventions (1999:49).

It is the focus on technical interventions that is key in shaping the ways in which environmental problems are governed – not only by the actions of the state – but by the conditioned actions of the citizenry. Brosius calls 'projects of domestication', attempts to "seduce or to compel… actors to participate in statist projects of environmental governmentality" (1999:50). He explains the *not* unintended consequence of this:

"often today we see environmental institutions describe sites of struggle in terms of (or rather reduced to) the affectless, faux-inclusive language of "participation," in which a range of "stakeholders" are brought together to work toward the resolution of some environmental concern" (Brosius 1999:50).

In studies of governmentality, one of the key criticisms of so-called 'technical' policy solutions, is that "Questions that are rendered technical are simultaneously rendered non-political. For the most part, experts tasked with improvement exclude the structure of political-economic relations from their diagnoses and prescriptions" (Li 2007:7). This antipolitics, even if exercised with the benign intention of improvement, as Li calls the development interventions, provides an insidious mask for the fact that often technical problems turn out to be intensely political. For example, in Ferguson's famous account of the anti-politics machine at work in the construction of Lesotho as an object of development intervention, the country becomes, "a nation of farmers, not wage laborers; a country with a geography, but no history; with people, but no classes; values, but no structures; administrators, but no rulers; bureaucracy, but not politics" (Ferguson 1990:66). Thus, technical expertise enables the creation of the problem (lack of roads, training, knowledge, etc.) in the image of the apolitical solution (technical expertise and intervention) (Ferguson 1990). However, antipolitical discourses – aimed at justifying technical, pragmatic, outcome-related strategies – are not chance happenings, nor are they the results of the most progressive research and thinking. Furthermore, in no way do they reflect general consensus about how problems should be addressed. Rather, they become powerful because they both are embedded in, and embed, powerful social regimes. They reinforce and are reinforced by the structures of power in society.

The focus on discourse in environmental governance has been considered by some a distraction from important, material issues (Bryant and Bailey 1997). Others argue, however, that the dismissal of language as an important site of research "overlook(s) the relationship between discourse, and the cogeneration of so-called 'facts' and 'norms,' which underlies much philosophical analysis of political and scientific debate" (Forsyth 2003:14). Discourse is not some inconsequential system of beliefs, divorced from physical, political and material outcomes. Rather, how discourse takes shape is a key determinant in how knowledge, power and thus material consequence is manifest.

In his seminal work, Hajer examines how discourses come to be dominant through their association with power (1995). He shows how and why the discourse of ecological modernization became, and failed to become dominant in the acid rain politics in the Netherlands and Britain respectively during the 1980's and 1990's. In the Netherlands, proponents managed to frame the policy debate in the terms of ecological modernization. In Britain however, there was little success in efforts to replace a traditional-pragmatic discourse - supported by the existing political order with its knowledge, experts and institutions - with ecological modernization. This study showed that language and politics are central to environmental debates, as opposed to the physical state of the environment.

Litfin's study of the processes which gave rise to the international ozone regime emphasizes the role of 'ozone discourses' (1994), rather than the role of scientific knowledge and consensus about the need to reduce emissions of ozone-depleting substances. She argues that scientific claims in the negotiations were mediated in two ways. The first was through 'knowledge brokers', who, "due to their ability to structure and interpret scientific knowledge… are particularly influential where there is considerable scientific uncertainty, as is often true for environmental problems" (Michaels 2009:996). Consequently, Litfin's usage of the term 'knowledge broker' emphasizes the political and discursive qualities of their contributions to policy processes. The second way in which scientific claims were mediated was the 'rendering' of questions of value as questions of fact: "with exogenous factors shaping the political salience of various modes of interpreting that knowledge" (Litfin 1994:46) notably, "the discovery of an ozone hole over the Antarctic that helped to empower the subordinate regulatory discourse" (Fischer 2003:82).

Litfin's critics argue the establishment of international agreement around the ozone problem was simply a case of political action responding to the reality of ozone depletion. For example, Wirtz, Professor of Strategic Studies contends that the 'clear and pervasive threat' of the ozone hole to humanity was sufficient to spur on the international (re)actions deemed necessary by the scientific community. In fact, Wirtz claims, "Ozone depletion might constitute a 'least critical test' for any theory of international cooperation" (1995:626). This critique suggests that knowledge is the

means of achieving power in policy negotiations. In striking contrast to this interpretation, Litfin illustrates a distinct lack of scientific consensus created by computer models and assessments. The analysis illustrates how "knowledge can only be used by those who have the ability – technical and political – to use it" (Harrison 1996:146).

The discourse coalition framework, however, illustrates how power is also maintained through association with discourse. Discourse coalitions are positioned in stark contrast with more orthodox paradigms within which to imagine policy networks. These more orthodox paradigms, namely the Advocacy Coalition Framework (Sabatier 1987) depend too heavily on the role of cognitive beliefs and knowledge in policy debates. Furthermore, they overemphasize the stability and static nature of policy actors in terms of their knowledge, their alliances and their policy positions. In contrast, Hajer suggests that the most significant tie that binds policy coalitions is not knowledge and belief systems, but rather overarching storylines, or discourses, that are simplified and appealing for different reasons to different actors. Storylines are the "discursive cement that keeps a discourse-coalition together" (Hajer 1995:65). The discourse coalition framework avoids the conflation of knowledge and power into a one dimensional, uni-directional relationship (i.e.: knowledge leading to power, as in the evidence-based policy framework). Rather the relationship between discourse and power is coproduced.

The discourse coalition framework urges the study of overarching policy processes, rather than of the micro-relationship between policy input and outcome. "Focusing on the intersubjective moment might… obscure the understanding of the real power relationships" (Hajer 1995:58). The desirability of a broader approach to policy processes is elaborated by Fischer:

> What people in an environmental discourse coalition support is an interpretation of threat or crisis, not a core set of facts and values that can be teased out through content or factor analysis. Rather than a stable core of cognitive commitments and beliefs, they share storylines that often tend to be vague on particular points and, at times, contradictory on others (2003:103).

Discourse coalitions create conditions under which even unlikely alliances can be formed, imbuing particular ways of framing problems, and their solutions, with greater

(and potentially increasing) power and resilience vis-à-vis alternatives. This is because while, "the search for policy relevant facts is not unimportant… it takes a back seat to storylines that offer social orientation, reassurance, or guidance" (Fischer 2003:103). Storylines are compelling, but often vague. They are created through interaction, interpretation, and are therefore products of broader processes of social learning as opposed to comparatively narrow processes of cognitive learning (Hajer 1995). Thus, diverse political actors, characterised by different interests and belief in different sets of 'facts' related to public matters, can come together in discourse coalitions to influence decision-making around policy. Notwithstanding this potential for common ground, there typically exist some "everlasting controversies" (Bostrom 2003:174 endnote 12). Furthermore, that 'facts' are a secondary concern, implies a much broader potential for challenges to policy ideas. As Fischer comments, while "different groups seek first to protect the core components of their belief systems by deflecting challenges to argumentation at peripheral levels, it is not the case that such challenges, or even effective challenges, occur only at this level" (2003:99). However, the disagreements to which these controversies give rise do not necessitate the rupture of a discourse coalition so long as the overarching narrative remains permissible. Without this common language or agreement on the overarching narrative – such as those provided by the sustainable development discourse - there is no possibility for negotiation.

Sustainable development is a prominent example of how a discursive shift has enabled such an unlikely alliance between those espousing the 'limits to growth' philosophy on the one hand and corporate and environmental interests on the other. The emergence of sustainable development discourse not only enabled, but necessitated the cooperation of these conventionally antagonistic positions by introducing, legitimizing and institutionalizing the language of environmentalism into existing administrative structures (Torgerson 1999). The case studies analyzed in later chapters illustrate how the discourse of 'sustainable agriculture' has brought divergent interests, namely environmental NGOs and international agribusiness, to work together, even when cooperation would have been previously unthinkable. However, the merger of environmentalism and developmentalism did not leave the respective discourses unchanged: "the institutionalization of environmental concern meant an entry of environmentalism into the world of administration, but entry into this world also meant adaptation to it" (1999:54). More explicitly, "the advent of sustainable development has

heralded the ascent of a reform strategy involving deliberate accommodation with established institutions… the concern (of radical environmentalists) is that sustainable development may end up as little more than a dishonest platitude" (Torgerson 1999:63). The language of sustainable development made environmentalism tolerable and even palatable within conservative structures and institutions, but ultimately, environmental agendas were seen by many to have been profoundly compromised while the agendas of more powerful interests were accommodated.

Recognizing the role of norms in the production of facts and evidence, scholars in science studies have questioned the possibility of objectivity, positivism and neutrality in knowledge creation. This challenge is particularly important in the creation of knowledge pertaining to ill-formed policy problems. At the same time, the ways in which expert-driven evidence poses a problem for democracy is a longstanding concern in policy studies (Dewey 1927; Lasswell 1941; Laswell 1951); one increasingly addressed by scholars in public policy (Fischer 2005; Fischer 2009) and science and technology studies (Jasanoff 1990; Jasanoff 1992; Turner 2003). Albeit through different means, these authors have all questioned and problematized the increasing acceptance and dominance of expert and professional approaches to public policy analysis. Each, in some way, have asked: In societies where increasingly specialized knowledge is understood as necessary for addressing growing complexity in policy problems, what becomes of disparate public understandings of the 'good society', of popular perspectives on policy debates and so-called 'lay' knowledge about problem solving? This issue is further pronounced as globalized expertise eclipses the even greater diversity of perspectives in developing countries.

4.5   Challenging boundaries in environmental governance: The co-production of rational policy

The 'add knowledge and stir' approach to policy, is not bound to lead to better policy, more consensus, or less controversy about policy. There is more to evidence than facts (i.e.: norms); despite claims to the contrary, evidence doesn't easily translate into universally acceptable and appropriate policy implications; and, even attempts to develop benign public policy with evidence, may serve as a handmaiden (willing or otherwise) to maintaining power relations (be they just or unjust). Despite these critical perspectives on evidence-based policy, it is widely understood as a credible and

authoritative policy input. Thus, policy analysts can't (and shouldn't necessarily aim to) eliminate expertise from policy debates. Based on these considerations, we must incorporate into policy analysis: a better understanding of the social and political commitments of this evidence; and, the origins of this credibility and authority. The framework of co-production can provide a powerful means of analyzing the production and deployment of facts and norms in decision-making, thereby basing policy analysis on improved deliberation *and* evidence.

To say that environmental knowledge is co-produced means that particular ways of knowing about and understanding environmental problems are inseparable from the way in which individuals and organizations attempt to order and control environmental problems. This is because "knowledge and its material embodiments are at once products of social work and constitutive of forms of social life; society cannot function without knowledge any more than knowledge can exist without appropriate social supports" (Jasanoff 2004:2-3). Put another way, "society is an organized embodiment of knowledge; science, in turn, works with the support of societal institutions" (Fischer 2009:183). Drawing from earlier work by Jasanoff, Forsyth adds, "Social order" does not necessarily refer to a state of apparent political stability, but can also describe the struggle for order, or conditions of enforced order" (2003:104).

If knowledge is coproduced with the social world, then it cannot *but* reflect the characteristics of the social world. This includes ways in which structural power is manifest in differential access to resources and decision-making authority. Indeed, co-production can explain why certain ways of reading and relating environmental problems (and solutions) gain authority and credibility, while others are marginalized or even silenced altogether. Jasanoff indicates the relevance of this co-production to issues of governance: "co-production offers new ways of thinking about power, highlighting the often invisible role of knowledges, expertise, technical practices and material objects in shaping, sustaining, subverting or transforming relations of authority" (Jasanoff 2004:4).

If politics can be likened to a game (Antoniades 2003), then the dominant players both create the rules and benefit from them. Once particular actors have widely recognized and supported claims to a supremely legitimate understanding of environmental

problems (the rules), then they are able to legitimately claim the right and responsibility to take control of the problems according to the rules dictated by this understanding. Once particular ways have been branded as logical, natural, unbiased, and above all, rational, even alternatives that are considered reasonable in their own right, are not likely to be prioritized within a wider policy context. There are political implications of what is considered rational: "The question that is raised is how the burdens and benefits of environmental planning fall on different groups within society and how such legitimation may hide the distributive pattern" (Rydin 2003:3). Citing Flyvberg (1998) Rydin continues with a response to this question: "The rationality of the policy process is shown to be an illusion, a cloak for the operation of power" (2003:4).

Co-production, however, casts light on the ways that power relations are embedded in ways of knowing how sustainability is defined and achieved. Power relations thus illuminated, there is the potential to redress the distributions of power over decision-making that are enabled by the dominance of certain ways of knowing.

> Latour abandons both the notion of nature as an independent entity obeying its own laws and the privileged authority of scientists and experts to represent this entity. He claims that the presentation of nature as an external object, understandable only for the experts, has served as a dogma, thereby limiting the options for human action. In the new postmodern metaphysics that Latour pleads for, facts and values, morality and reality, science and politics should be seen as inseparable. Nature would then become an essentially negotiable concept, that can be represented not only by scientists, but also by poets, architects, farmers and laymen (Hajer and Versteeg 2005:178).

Miller illustrates the role of co-production in the emergence of the global environmental political order, in particular, the Intergovernmental Panel on Climate Change (IPCC) (Miller 2004). He shows how the emergence of the global environmental political order, in the form of the IPCC has been made possible, even conceivable, by the shift in understanding of the climate problematic. This shift was the recasting of once 'localized' weather patterns, as 'global climate'. This shift is a part of the way science and technology, in the form of formal modelling, etc. have been applied to climate. Furthermore, and illustrating the symmetry between knowledge and power within the IPCC, Miller points out how there has been a heavy dependence on political institutions to develop credibility and legitimacy around climate science. Notwithstanding challenges, this co-production of the IPCC has been sufficiently

successful as to give rise to the 'greening' of sovereignty – a substantial decline in national sovereignty in matters of environmental governance (Litfin 1998, in Miller, 2004). This shows clearly, "how science and politics co-evolve dynamically, in order to understand how… political factors lead to the evolution of hegemonic environmental explanations" (Forsyth 2003:104).

All this being said, co-production must not be mistaken as a project that inherently or "necessarily strengthens the weaker party, 'the side with less scientific credibility or cognitive authority" (Jasanoff 1996:398). Co-productionist research is not naturally drawn to support the 'losers' as opposed to the 'winners'; which party is defined as which is contingent on factors such as timing and the wider socio-political context of the research vis-à-vis the issues under study (Jasanoff 1996). The objective of co-production is not to 'defame' those that use evidence to support their policy positions; to "resist an adversary's claims to scientific credibility"… (or to) deprive them of 'science' itself as a political resource" (Jasanoff 1996:399). But often, co-production "facilitate(s) not only interpretation but also critique" (Jasanoff 2004:278). In this sense, in addition to being relativist, co-productionist research is also deeply normative. Jasanoff elaborates:

> By adopting a relativizing pose with respect to particular claims of scientific knowledge, science studies does not abandon the commitment to be explanatory and normative; instead, it adds to the repertoire of possible explanations, and illuminates new pathways for intervening in the production of both knowledge and power. SSK's relativistic position cannot be neutral if only because it is always oppositional to other accounts that exist in parallel, often in widely accepted versions, in the academic literature or in life (Jasanoff 1996:412)

So how can the co-production framework help to improve deliberation in environmental governance? Revealing the role of political factors, can 'destabilize' these hegemonic explanations: "To destabilize the dominant stories, as science studies often does, is a political enterprise, whether or not the new account is designed explicitly to advance a well-defined political agenda or set of interests" (Jasanoff 1996:412). Illustrating that the factual basis of policy is inseparable from norms, puts alternative facts and norms in better stead to compete, or at least challenge what would otherwise be seen as uncontestable. Analyzing evidence for its normative commitments at once challenges the ultimate Mertonian authority of the facts, and legitimizes a normative

basis for policy. This destabilization of evidence-based policy opens the floor to all kinds of potentially new contributions to policy debate!

4.6   Critical Deliberative Governance: Examining knowledge and improving deliberative approaches to environmental governance

Critical deliberative governance is the name I have given to the environmental governance framework that Chapters 2 and 3 have worked toward developing. There are certain tensions between Habermasian-inspired deliberative approaches to environmental governance and a more Foucauldian co-productionist basis for understanding the knowledge-governance nexus. These tensions have been made famous by debates (or perhaps lack of debate)[10] between Habermas and Foucault themselves, despite the fact that the production of a 'counter-modernity' was at the heart of the work of these two prolific social critics. Within these sometimes fierce and cutting debates, however, there were threads of commonality – a common ground that would lead even the famous protagonists to acquiesce that there appeared to be a "strange case of non-penetration between two very similar types of thinking" (Foucault 1983:200, found in Love, 1983) that grounded their basic, driving questions. Indeed, the characteristic tensions between these two types of thinking do not automatically make them irreconcilable, but together paint a more complete picture of issues that present themselves to environmental governance. It is useful to view each position as an ideal type with ample terrain between for the intellectual and practical imagination.

Several authors have suggested moderating the approaches of the critical theorists and the post-structuralists, respectively, and a handful have suggested reconciling the two in order to produce some form of middle ground to guide social theory. Connolly for example, rejects that "we must either give up any aspiration to a society in which democracy flourishes or reject this entire archaeology of disciplinary society" (Connolly 1983:333), or that we are limited to being "democrats or nihilists; we can criticize the present from the perspective of alternative ideals or join Foucault in repudiating every ideal imaginable today as the tyrannical extension of "our participation in the present system" (Foucault cited in Connolly 1983:333). On its own, each theory of discourse

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[10] Love suggests that many of their comments show that Habermas and Foucault tended to 'talk past each other', and thus frequently missed opportunities to create more meaningful dialogue between critical theory and post structuralism. Love, N. S. (1989). "Foucault and Habermas on Discourse and Democracy." Polity 22(2): 269-293.

and society is insufficient to improve environmental governance. A framework representing elements of both theories, however, can accomplish both the tasks of explanation and prescription for improvement.

Foucault concludes that a society without power-relations can exist only as an abstraction (Foucault 1982; Love 1989:287), and that these power relations that are inherent to society are embodied by discourse[11]. On the other hand, Habermas believes that the lifeworld is virtually sustained by communication between free and equal participants (Habermas, 1995). Taking these divergent political perspectives into consideration, Habermas can be criticized for divorcing knowledge and discourse from interests (for example, Giddens 1985). Foucault can be criticized for not acknowledging human capacity for critical reflection and the potential this holds for at once exposing and challenging power: "Foucault's genealogies embody a critique of the ideal of self-consciousness or reflexivity that had governed critical thought in the modern age… it is sometimes claimed against Foucault that his opposition to reflexivity at one level is contradicted by his contribution to it at another" (Connolly 1983:334)

Communication is a key feature of both deliberative and deconstructionist theories. Deliberation demands undistorted, non-coercive communication between relatively equal actors in the public sphere. If power differentials exist between actors, they need to be minimized, at best muted, in order for meaningful pragamatic, symbolic, political exchange to occur. This is the essence of deliberative governance, where communication is limited by reason rather than power, and where participants in dialogue must be able and willing to (temporarily) take up the positions of others. All positions are subjected to criticism, with no position ever achieving the status of being unquestionable or taken for granted. Habermas himself says that, "the more cultural traditions predecide which validity claims, when, where, for what, from whom, and to whom must be accepted, the less the participants themselves have the possibility of making explicit and examining the potential grounds on which their yes/no positions are based" (Habermas 1987 Vol 1: 70).

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[11] Love suggests that the assertions of Foucault's analysis of power relations, despite his objections, "makes power relations… virtually synonymous with social relations" ibid., pg 289-290.

Through deliberation, under conditions free of distortion and coercion, novel perspectives can emerge. That is, novel in the sense that they represent new ideas that are not lodged in old conceptual orders or repackaged versions of them; new ideas can be the product of agency. These emergent perspectives can issue challenges to power and introduce radically new policy positions into debates. Torgerson suggests that the emergence of 'green discourse' is an example:

> What environmentalism has most significantly created in the prevailing political context is a manner of speaking about the environment that was not previously possible – a range of discursive practices, expressive of green concerns, that allows environmental problems to be recognized, defined, and discussed in meaningful ways. The green movement continues to construct a green discourse and to shape a forum for communication, a green public sphere. Even with its many internal differences and disagreements, the emerging green public sphere poses a challenge to the once comfortable framework of industrialist discourse (1999:xi).

In contrast, the post-structuralist tradition approaches communication in a different way. As opposed to ridding language and sources of language of distortion and coercion as the ideal goal for communication, language is understood as inherently biased and *ideally* coercive! Communication does not convey some naturally apparent meaning of things, but rather, historically and politically situated meanings. Perspectives might be mistaken for novel when these historical and political roots go unrecognized and unidentified. Rather than as a product of agency, communication takes place in organized and strategic ways; positions are defined and delimited. Most importantly, relations of power are ultimately expressed (albeit covertly) in discourse, and determine which discourses are given prominence in policy debates.

Within a *critical deliberative governance framework*, reflection is a possible, but not an automatic feature of public engagement with discourse. This is because discourse is a manifestation of, a product of, and a producer of power. 'Expert' discourses are treated as political mechanisms, that even when used with benign intentions, have the potential to curtail the possibility of dialogue in some strategic conceptual arenas, and to (inadvertently or not) maintain power relations in society. The main objective of discourse analysis is to make explicit, the co-production of policy-relevant knowledge and power, thus providing greater potential for a redress of these power relations. A discourse analysis which exposes embedded power relations and political interests

(Foucauldian style) may be just what is required to bring deliberation to bear in debates and increase society's potential to engage in communicative action (á la Habermas). This is a necessary (while not sufficient) step towards improving governance over resources. Perhaps this amounts to advocating for the use of a "loosely Foucauldian conception of discourses, while recognizing that reflective choice across discourses is indeed possible" (Dryzek 2001:658).

This framework is useful to examine environmental governance for two overarching reasons that can be generally characterized as *explanatory* and *prescriptive*. First, this framework can help us to understand how expertise, based on certain forms of rationality, is used to develop environmental policy, in ways that severely limit prospects for a more broadly-based, participatory, deliberative governance. There are several dimensions of expert discourses that do not conform to the conditions under which deliberation can be achieved. They are not open to the scrutiny of non-experts. They often position themselves as being an exclusive source of information about an objective reality that is non-reliant on social forces. They often eschew complex political factors for behavioural and bio-physical factors. The latter may not be simplistic, but expert knowledge attempts to explain them in relatively straightforward causal factors.

Secondly, this framework can help inform analyses of this expertise that can ultimately chart out distinct perspectives on how governance can be improved and why improved governance is a desirable political outcome. Deconstructing expert discourses can allow alternative discourses, and particularly *normative discourses*, once inadmissible because of their incompatibility with expert knowledge, to enter debates about what comprises sustainability and how it might be achieved. This can be understood as enhancing 'communicative power' (Fischer, 2003:42) and thus 'capacity-giving' (Litfin, 1994:15-23, found in Fischer, 2003) for marginalized people.

Habermas explored, as vital to the concept of rationality, how different claims *come to be recognized* as rational within society. The ultimate content of communicative rationality, is secondary to the procedure by which it is established[12]. The grounding of validity

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[12] This principle of procedure over content is revisited in relation to critical theory, where once again, the ways in which positions are debated and decisions are reached are of greater concern than the content of the outcomes.

claims happens through dialogue, or public discourse. These claims are never fixed but always subject to scrutiny: "communicative rationality implies a conception of communication that does not allow for any validity claims to be exempt in principle from possible critical examination" (Baber and Bartlett 2005:87-88). Thus, the establishment of communicative rationality depends on the 'democratization of public discourse', through which individuals have access to, are able to contribute to, and able to challenge validity claims. It is this dialectical (intersubjective; between individuals and not in the mind of one) and participatory nature, that makes communicative rationality "not a technical discourse based in specific expertise, but a politico-legal discourse based in the philosophy of rights" (Rydin 2003:109).

In practice, communicative rationality is embodied in what Innes and Booher call 'authentic dialogue' (2003). Working towards greater deliberation in policy governance necessarily brings together high levels of both diversity and interdependence of stakeholder interests and ultimately replaces rhetoric and ritual with 'authentic dialogue' (Innes and Booher 2003). Ideally, authentic dialogue is one in which each 'speaker' truly represents the interests of which she speaks, and in which arguments are articulated in a manner that is comprehensible by all participants. Furthermore, authentic dialogue is not "artificially constrained by rules about what can be discussed or what cannot be changed" (Innes and Booher 2003:38). Creating an environment for authentic dialogue, and thus for deliberative governance, involves challenging assumptions and engaging explicitly in policy discourse (as opposed to policy analysis), "clearly locating both analysts and citizens in a communicative context… not to eliminate important differences – even divergent understandings – but… to abandon sterile abstractions and invidious distinctions" (Torgerson 2003:120).

4.7   Conclusion

Often developed through positivist science and corresponding technological applications, policy preferences invoke references to 'evidence' rather than 'politics', tending to leave expertise, and thus power relations, intact. These preferences tend to avoid difficult, often dangerous issues of overt political nature. Often that which is presented as a reflection rather than an interpretation of reality, is a result of discursively creating, maintaining and defending boundaries between expertise and non-expertise. Through increasingly powerful coalitions, discourse and social order are co-produced to

the exclusion of outsiders for whom the stakes of policy outcomes are high. This chapter argues for a more realistic view of how politics is an inextricable part of evidence-making, by advancing a reorientation of environmental policy, away from ´evidence´ towards discourse.

This insight has led to not only a critique of knowledge itself, but also of how it is unleashed in society with varied implications. Transforming the status of such knowledge from ultimate and unquestioned truth to socially constructed interpretations of reality, does two things. First, it opens such knowledge and its ramifications for policy, to debate and critique. Secondly, it creates an epistemological basis for the serious consideration of alternative perspectives, that are more openly and explicitly accepted as socially and political grounded. Policy ceases to be the exclusive domain of expert-managed evidence or of instrumentally rational logic. Access to policy formation, analysis and critique is opened to knowledge based on experience, history, and context that come to be potentially credible and authoritative ways of knowing. Further supporting a greater range of participation in policy debates is a closer look at how knowledge is linked to policy. Some post-positivist analysts see knowledge as ultimately having little role in policy outcomes. Knowledge, rather, is an accessory to normative concerns, which ultimately guide policy making.

While communicative action depicts a potential model for the realization of deliberative democracy, many discourses that circulate among policy makers are not accounted for by the rules of communicative rationality. For example, some are elevated beyond debate, not only because they may be enacted by powerful actors, but because they replicate the very power structures of society through processes of co-production. Such discourses can manifest themselves as serious obstacles to deliberative governance, by limiting the possibilities of challenging particular, and often particularly powerful, perspectives.

The convergence of these frameworks is necessary because without communicative action, a participatory or deliberative governance is not possible: the governance game is over before it even begins. However, without the notion of co-production the role of power in deciding which discourses dominate policy and why, is seriously underrepresented. While evidence-based decision-making is still taken as the 'gold

standard' of policy making by many, Chapter 3 discusses the existence of legitimate discourses outside of those found to be dominant; implicating the need for expanded participation and deliberation. This, as we will see in forthcoming chapters, has been acknowledged and even put into practice within the interventions under study. However, constructivism also illustrates the need for a critical analysis of dominant discourses. This critical analysis or deconstruction, makes way for alternatives that, while potentially legitimate in their own right, are not congruent with dominant ways of seeing the world. Without critical analysis, participation remains tenuous and authentic meaningful deliberation is not achieved.

Chapter 5:

Constructing conservation landscapes: The politics of land classification in the Mbaracayú Biosphere Reserve

In Chapters 3 & 4 of this thesis I developed a theoretical framework that facilitates two shifts away from conventional approaches to evidence and participation in environmental governance. The first is a shift from participation to deliberation, necessary in order to recognize the legitimacy of normative bases for rational decision-making, and thus to harness the developmental potential of inclusive decision-making arrangements. The second shift involves a critical approach to evidence and expertise. This critical approach is one that questions the objective authority of evidence by analyzing policy-relevant knowledge claims, for their factual and normative content. This is not about proving science wrong, but rather it is about recognizing that often factual claims are contingent upon social and political influences. These influences must be made explicit if the democratization of public decision-making is to be deepened. The emergent policy framework that these two shifts give rise to, is critical deliberative governance. It is a framework that takes as its starting point, the strengths of both orthodox, evidence-based approaches and post-positivist, participatory approaches, while accounting for and addressing the important criticisms of each.

After this rather intensive exercise in building the theoretical framework for critical deliberative governance, the second half of this thesis tests the potential of this framework to improve environmental governance, returning to the principal research questions. Again, these questions are:

- How and why might public participation challenge evidence-based policy implications for environmental policy?
- What is considered to be evidence in environmental policy and why is it often privileged in policy debates?
- To what extent is evidence influenced by social and political factors?

The next three chapters explore these questions through three empirical cases of the politics of evidence: the politics of land classification; the politics of land-use modelling; and the politics of developing certification standards. Each case is a governance

mechanism that generates evidence for decision-making support, and promotes public participation in policy debates. The following empirical chapters interrogate the three governance mechanisms in question for their hidden politics and examine the implications for participation.

The present chapter begins the empirical voyage by looking at the first of three interventions aimed at improving the environmental and democratic outcomes of environmental governance. This intervention is land classification and the implementation of conservation-with-development in the Mbaracayú[13] Biosphere Reserve, an area of declared 'high ecological importance'. Conservation with development approaches have been held up as an example of how environmental decision-making can be subject to both: the conservationist concern about declining forest cover and the need for restricted access forests; and, local livelihoods and participation in sustainable development. The design of conservation with development approaches, however, is often based on global, standardized interventions rather than explicitly on localized versions of participation and sustainability. Such approaches, and the rationales that support them, are co-produced with the conservation values of international environmental organizations that have pioneered and continue to promote them.

This chapter argues two things. First, landscapes requiring such intervention ('intervention landscapes') are often presented as matter of fact given a high degree of environmental value – based on characteristics such as biodiversity and carbon storage, combined with a population that is poor in both access to resources and environmental education. On closer inspection, however, the creation of conservation landscapes based on the 'fact' of ecological significance, disregards other contextual factors that may make conservation problematic in social and political terms. Secondly, many conservation with development approaches emphasize participation only after decisions have been made regarding protection such as the creation of delineated parks. Participation is often considered a practical step towards logistical support, fostering public support and compliant attitudes, and generalized 'buy in' for forest protection. However, more deliberative ideals about how and why participation is an important policy input are overlooked, or more actively rejected. As a result, intervention

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[13] My field site, introduced and described in Chapter 1.

landscapes are constructed in a way that is compatible with a familiar set of interventions, rather than in a locally inclusive, or contextually appropriate way.

5.1   Introduction

Help us save the last piece of forest. This is the plea of a short video produced by the Fundación Moises Bertoni (FMB), a Paraguayan environmental NGO. The forest they are talking about is the Upper Parana Atlantic Forest and the piece is the Mbaracayú Forest Nature Reserve (RNBM) in northeastern Paraguay. The RNBM is one of the largest of the few remaining remnants of the Atlantic Forest, which as recently as sixty years ago, is shown by satellite imagery to have covered most of Eastern Paraguay. The 64,500 hectare RNBM, along with the inhabited surroundings make up the Upper Jejui River Watershed[14] (CARJ) spanning 340,000 hectares in total.   The CARJ, declared in 2000 as a UNESCO Man and Biosphere (MAB) Reserve, has been described as representing "some of the highest opportunity in Paraguay to conserve Atlantic Forest" (Di Bitetti, Placci et al. 2003; Carlson 2006:1). USAID's Environment program has identified the conservation of "remaining 'core' forest fragments" of the Atlantic Forest as the "highest priority" (Aggarwal, Bullen et al. 2004:8).

The Mbaracayú region is too easily and too simply described and classified in the familiar physical and social terms of a developing world conservation landscape. Thus, people who participate in the FMB conservation and rural development programs, do so in the context of standardized and, following Robbins, (2003) the *portable* terms of the landscape. Despite the promotion of participatory governance in the watershed, participation is highly structured by the FMB approaches to sustainability; protection through ownership on the one hand, and development through sustainable agriculture and alternative crops on the other. Yet, several issues suggest that a more nuanced approach to classifying the landscape, one that allows for a more pluralistic understanding, may question the appropriateness and sufficiency of these sustainability interventions.

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[14] The FMB follows a "watershed approach", which means their interventions and administrative role corresponds to a geographical space delineated by hydro-resources, rather than political boundaries (Ebrahim, 2005:23).

For example, land owned by the FMB provides opportunities for conservation and ecological research in the Mbaracayú. However at the same time, this ownership underlines the dramatic inequality in land distribution and exacerbates longstanding tensions around foreign ownership in Paraguay. Likewise, extension activities carried out by the FMB's rural development team disseminate 'sustainable agricultural practices' (for example, the use of organic compost, crop rotation and crop association) and promote the adoption of alternative crops that require fewer pesticides, have better yields, and attract higher market prices, than conventional crops. But new agricultural techniques require time and resources to master, and unfamiliar crops introduce new dimensions of risk to the peasant livelihood. A closer examination of these approaches to sustainability suggests that they may better serve the purposes of the NGO than the recipients of their services in the watershed.

I begin with a general discussion about the ways in which despite increasing demands for both evidence and participation in environmental management, conservation landscapes don't exist a priori, but are constructed, standardized and mobilized. Next, I provide a detailed account of how conservation and rural development have been operationalized in the practices of the FMB in the Mbaracayú. In the third section, I analyze the ways in which these approaches have been appropriate given the portable conservation landscape classifications presented widely in the literature, and by the UNESCO MAB program itself. Once a more contextualized and historically informed picture of the Mbaracayú region is presented, however, a much more critical version of the FMB practices emerges. This chapter concludes with a discussion of how this analysis can improve prospects for critical deliberative governance in the Mbaracayú.

In sum, this chapter makes the following arguments in turn:

- Classification of conservation landscapes often reflect NGO norms, priorities and standardized interventions rather than the objectively defined 'best' approach to environmental and human needs.
- Conservation-with-development approaches emphasize evidence and participation, but participation is encouraged only within the parameters set by standardized landscape classification. Key interventions are not subject to inclusive debate, shutting down deliberation.

- Conservation and rural development fall short of making contributions to environmental and human outcomes because of contextual factors overlooked by portable landscape classifications.

- The range of environmental values, judgements and preferences is not fully captured by landscape classification because of different livelihood patterns, resource dependencies and social identities.

5.2   Social and political influences in the construction of conservation landscapes

The idea that nature speaks for itself, and that conservation aims only to preserve its voice is highly contested. Contexutalized research repeatedly illustrates that political and social factors are built into the very landscapes where conservation and development take place (Brown 1998; Robbins and Fraser 2003), but these influences often become hidden, and mistaken for 'natural' landscape characteristics. Sluyter notes that this sometimes results in clashes between modernist conservation and landscapes in developing countries,: "they are premodern, habitually get nature and society mixed up, and thus remain locked in the grip of myths that naturalize social processes and socialize natural processes" (Sluyter 2003:221, drawing on Latour, 1993). Much of what is modern conservation and development practice seeks to straighten this out by perceiving and analyzing society and nature as separate entities. However, a growing body of research in the domain of political ecology has pointed out ways in which this separation is problematic (West 2006; West and Brockington 2006). These authors show how conservation and development landscapes are shaped, even constructed, by the social and political commitments of interventionists.

The separation of nature and society remains clear today, in what Zimmerer calls the "growing prevalence of nature-society couplings that characterize the new conservation areas" (2000:356). Management schemes, he adds, are increasingly labelled to clearly indicate such couplings: parks-with-people, man-and-biosphere, conservation-with-development and sustainable development, for example (Zimmerer 2000). The two part nature of these 'hybrids', as Zimmerer calls them, indicates a union of sorts, but with an emphasis on the continued separation of nature and society, and the need to deal with each in a separate, but ideally complimentary manner. The Man and Biosphere reserve model, for example, clearly delineates a core

area at the centre (where nature is tended and monitored) and the transition and buffer zones, where controlled human settlements are permitted and education, training and tourism are undertaken (where the social and economic are tended to) (see Figure 5.1). Such maps, and the classifications they embody, become 'portable landscapes' (Robbins 2003) or 'immutable mobiles' (Latour 1987), meaning they are "socially identified objects, representations, or processes that are considered the same in different locations or cultural settings" (Forsyth 2003:177). These classifications matter because they determine rights and control; a change in classification can mean a major shift in access to resources (Tsing 2005). Imposing typology means new inclusions and exclusions (Tsing 2005; Epstein 2007) that are likely to be incompatible and conflictive with pre-existing or alternative classifications (Wong, Delang et al. 2007).

Figure 5.1: MAB landscape classification (Source: UNESCO, at: http://portal.unesco.org/geography/en/files/8763/1210238795131MAB.jpg/31MAB.jpg, retrieved January 30, 2011.)
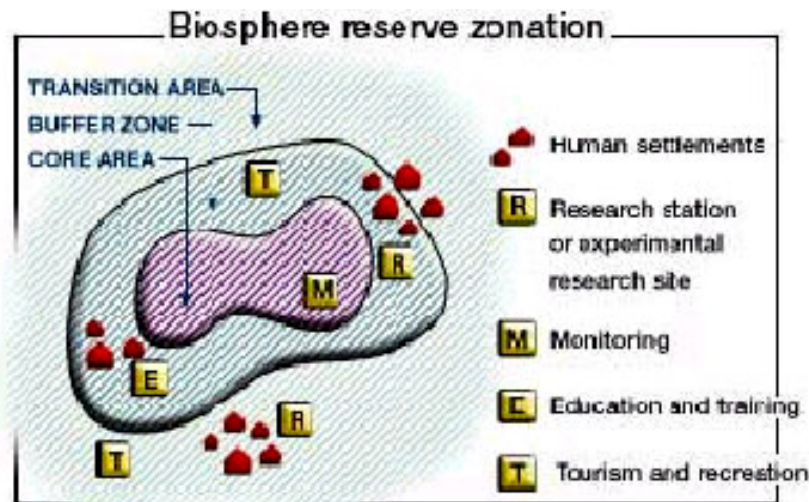
In contrast with the natural-social hybrid depicted by conservation-with-development models such as the MAB model above, authors have shown how so-called natural landscapes are very much constructed artefacts in a material, physical sense, laden with social and political influence. In this sense, conservation landscapes do not only have implications for social and political outcomes, but socio-political influences have implications for landscapes: "the imagined forest becomes the real one and vice versa" (Robbins 2004:110). Perhaps colonialism is one of the most obvious and, over time

most resilient pathways for the embedding of socio-political forces into physical landscapes. The geopolitics and ethnocentrism of colonialism in Africa and Latin America provide poignant examples of how the imagination, manifest in assumptions, stereotypes and visions, often serves as the inspiration for conservation and can shape physical landscapes. In his discussion of the making of the Serengeti National Park, Neumann illustrates how "The idea of nature as a pristine empty African wilderness was largely mythical and was made concrete only by relocating thousands of Africans and denying millennia of human agency in shaping the landscape" (Neumann 2003:240).

Analyses of more recent interventions have also shown how social and political influences can create so-called 'natural' landscapes. In her work on the Maya Biosphere Reserve in Guatemala, Sundberg describes how the landscape has become 'balkanized' by the unique and sometimes conflicting agendas of the NGOs working in it. The resultant landscape was not just an outcome of lazy misinterpretations or chance misunderstandings of local ways on behalf of donors. Rather it was an *active* construction, reflecting the interests and approaches of various NGOs: "This territorialism molds space and society according to distinct development philosophies, management techniques, and priorities" (Sundberg 1998:404). NGO tastes, priorities and preferences, rather than local realities, determine conservation landscapes:

> Projects are driven by the desires of each NGO's constituency, which comprises donors and members, not local people. As a result, projects are designed before they reach local communities, satisfying donor requirements and/or membership tastes. Although NGOs claim to engage the most current theories on community participation in their relationships with people, most projects are announced to, not negotiated with "target" populations (Sundberg 1998:404).

Science itself, which has been understood in an orthodox sense as a means of 'reading' and 'decoding' the environment is often understood in the political ecology literature as a means of constructing the environment. Science does not reflect nature. But nor does it merely provide one interpretation of nature. Authors such as Sivaramakrishnan (1999) and Scott (1998) have shown how science has created new landscapes that would be scarcely recognizable as their former selves . Furthermore, constructions of the environment are rarely neutral. Rather they are tied to the world orders of their creators: "the failure (of conservation professionals) to recognize that their apparently

neutral and science-based vision of conservation is a culturally embedded one, and that they are 'power actors' in the international system lies at the heart of the problem" (Duffy 2010:8).

5.3   Conservation and rural development in the Mbaracayú: Evidence and participation

Conservation-with-development approaches emphasize evidence and participation, but participation is encouraged only within the parameters set by the evidence about protected areas and sustainable agriculture. The key interventions, such as the creation and maintenance of a protected park area and the promotion of sustainable agriculture, are not subject to inclusive debate.

Like many environmental NGOs working in conservation landscapes, the FMB pursues sustainability in the Mbaracayú region through a combination of approaches. First, the FMB administers the privately owned reserve, purchased with the help of Conservation International, an international organization widely known for its practice of purchasing and protecting land for the purposes of nature conservation. The FMB itself was formed for the purpose of creating and managing the RNBM (this will be described in greater detail in the next subsection). Foreign ownership has been a controversial approach to conservation, but is often promoted, particularly in locations where the national and subnational impetus for conservation is perceived to be low, due either to lack of resources or lack of interest. Secondly, the FMB promotes local participation in sustainability governance through a rural development program that compliments their protected areas programme. Rural development aims to skew land-use toward sustainability to reduce pressure on the protected area, and to improve environmental outcomes outside the reserve.

5.3.1   First intervention: ownership of protected areas

Protection features most prominently in the FMB's repertoire of approaches to addressing deforestation and sustainability. In 1988 the organization was formed for the purpose of raising funds to purchase what is now known as the RNBM. The story of how this happened has become an important institutional historical narrative, widely recounted and reflected upon with a degree of reverence within the FMB. Most FMB documents begin with at least an abridged version of it; it is told and retold at FMB

meetings and functions; its characters have nearly become folk heroes at the FMB. It goes like this:

In the late 1970's, the World Bank's International Finance Corporation (IFC) lent money to a Paraguayan plywood mill operator who subsequently went bankrupt. The land that is today the Mbaracayú Forest Reserve was seized as collateral. In 1987 Kim Hill, an American Anthropologist, had been working in the area; his focus was a group of hunter gatherers called the Ache, and he was becoming increasingly concerned by the appropriation and clearing of the forest land they depended on for subsistence. As recently as 40 years prior, the region was virtually uninhabited by large-scale agriculturalists, and its vast forests had been exploited primarily through the hunting and gathering of the Ache.

Now up for sale, Hill wanted to purchase the land to ensure the continuation of the Ache livelihood. To this end he approached Raul Gauto of Paraguay's Conservation Data Centre and Alan Randall of The Nature Conservancy in the USA, to see how they might work together towards this objective. Gauto and Randall approached the IFC to see whether or not they might be in a position to donate the land as a private reserve. When this request was denied an appeal was made to the Paraguayan government to contribute funds to the purchase. The appeal was also made in hopes that the government could help lobby the IFC for a reduction of the sale price. They too, denied help. Through the profiles and networks of Gauto and Randall, however, international support began to build for the idea of forming a reserve of the land. These early days are recounted by Alan Randall:

> As higher authorities became involved in the purchase of the land, it became more powerful, such as, the new president, the American Ambassador, so the environment became much more favourable. I remember that the Ambassador said: 'I can't talk about civil rights, I cant talk about … but what I can talk about is the beauty of nature and how it's important to protect it.' This was during the Stroessner years, you know, so he was effective. And he had very good contacts in Washington because his job was to host senators that came over here to learn about foreign relations and what not. So he put us in touch with senators and what not that started writing letters to the World Bank, saying 'wouldn't it be nice if we could protect this land'. So the head of the IFC, Sir William Ridery called me up to say come over here and resolve this issue. So that was a lot of lobbying there… And we also had the Ambassador here pushing for it locally. And the president of the republic at the time, he finally came around… Rodriguez… of course he

thought we wanted to keep it as a place to hunt jaguars, haha, but…
(personal communication).

In 1988 the FMB was formed to coordinate and 'localize' fund raising efforts to buy the land. On December 6, 1991, The Nature Conservancy and the FMB struck a deal with the energy and infrastructure giant AES Corporation[15] who donated US$500,000 for the purchase of the RNBM land and an additional US$1.5 million to the FMB to provide for an endowment fund, for a total of 2 million dollars, to the Mbaracayú cause. The investment served to offset emissions at the company's Oahu power plant: "An agreement that "AES will invest $2 million in the Mbaracayú project to capture a total of 13.1 million metric tons of carbon" in the forest and soil's biomass was made. The stipulated amount was of $0.153/metric ton of carbon" (Yanosky 2000:15).

> And then we were able to get into this carbon offset business… are you familiar with that. There was an experimental program in the 1990's, the AES corp. was working with WRI, and I saw this as a potential way of funding the Mbaracayú. It just so happened that the head of the Nature Conservancy was a very good friend of the president and founder of the AES corporation. So we were able to put a proposal before them, they gave us 2 million dollars, by saying look, if we can buy this property and protect it, we can keep the forest, keep the carbon sequestered in it, and it won't be all cleared for soy beans. That was the pitch we made, we had a job convincing people of it, but we got the money, which has been a real strength in our financing. That was in 1991 or 1992. (Randall, personal communication).

This is not the first time the AES Corporation paid for environmental services by using conservation to offset their carbon emissions. Trexler, a well known dealer in offsets, documented the first practical application of carbon offsets as the voluntary investment by the same AES Corporation, in tropical conservation projects in Guatemala. This time, the investment offset emissions from a coal fired power plant in Conneticut (1995). While this offset scheme has paid off in the Mbaracayú, and ultimately for the FMB (Yanosky 2000), critics say that "The project was extremely attractive as a less costly alternative to the clean air regulations in the US, and furthermore it allowed them to improve their public image" (Lovera, Avendaño et al. 2005)[16].

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[15] The AES Corporation claims to "continue to expand into new energy and infrastructure markets worldwide" based on "significant global reach (and) deep local knowledge" (http://www.aes.com/aes/index?page=history))

[16] El proyecto era demasiado atractivo como alternativa menos costosa que las normas sobre aire limpio de EE.UU., y además le permitía mejorar su imagen pública" (Lovera, 1995).

So, in 1991, the land was purchased from the IFC by the FMB (with the considerable assistance of TNC) for two million dollars, discounted from the original five million dollar asking price. The surface area of the land purchased was around 60,000 hectares. Further fundraising and subsequent availability of adjoining lands, enabled the expansion of the reserve to the present day total of 64,405.76 hectares. Furthermore, the FMB is in a privileged position in that while most NGOs in Paraguay depend on their reputations and ability to solicit funds year to year, having little long term financial security, the FMB is the beneficiary of a large trust that generates interest and provides operating funds annually. This trust was secured early in the life of the Mbaracayú Reserve, and is explained by Alan Randall:

> The money was being lined up just as we were signing the agreement with IFC to buy the property. With this money and an additional $2,000,000 we set up a trust fund for the FMB, now worth 5 million, and it supports the FMB. Around 60% of their funding comes from that trust fund (personal communication).

Currently, the FMB undertakes protection of the RNBM through employing a force of armed park guards to maintain observations from 10 posts around the periphery of the reserve. Furthermore, teams of the guards conduct frequent *patrullajes* (patrols) through the reserve, for three or four days at a time, to monitor activities taking place within its borders. Such outright land ownership and protection as means of conservation have been strongly supported by some agencies. For example, a report detailing recommendations for USAID's environmental program in Paraguay, suggested that USAID

> "Consider support to NGOs as they seek funding for land purchases in the Atlantic Forest region, alongside other activities that partners are already engaged in. Given the high deforestation rate in the region, land purchase provides the most immediate protection from land degradation due to expanding soy cultivation and poor farming practices" (Aggarwal, Bullen et al. 2004:10).

Such aggressive approaches to protection, however, have also come under fire. While conservation (and more pointedly, conservation through ownership and protection) remains a significant component of the work of many environmental NGOs, it is no longer widely considered to be a sufficient nor ethical practice on its own. The FMB has attempted to make park protection more participatory, for example, by hiring local

people as park guards. Despite this, protected areas remain a classically 'unparticipatory' strategy. Rural development is seen as a way of addressing this need for participation in sustainability: involving people in agricultural strategies can improve livelihoods, reduce environmental impact and perhaps most importantly for the FMB, garner support for the existence of the RNBM. Importantly, it can also be an important pre-requisite for continued support from international donors.

5.3.2   Second intervention: rural development

The second FMB intervention in the Mbaracayú, is the promotion of sustainable agriculture[17]. Beyond protecting the reserve in an immediate and literal sense, it is understood by the FMB that the reserve cannot and should not remain an 'island'. Environmental issues need to be addressed beyond its borders, if the FMB's goals, and the reserve itself, are to be ensured propagation. Poverty and resource degradation in the zones outside of the reserve, the FMB maintains, will drive people to seek to enter the reserve to exploit protected resources. As elsewhere, poverty and campesino agriculture are often singled out as the main causes of environmental degradation in Paraguay, though blame is not always expressed in unsympathetic ways. For example, one author notes, in his writings entitled, The Importance of our National Parks:

> One of the major conservation problems faced by Paraguay is probably its insufficient rural development. In their struggle to obtain food and fuel, many campesinos find no alternative to clearing the vegetation from immense surfaces, until the soil itself leaves with the waters and the winds. What the people require is training that promotes the sustainable use of natural resources (Clark 2005:38).

The implementation of rural development in the Mbaracayú conformed with the more generalized response to criticisms that the engagement of environmental NGOs in conservation initiatives led to disregard, disadvantage and even abuse of local people. Initiatives focused on sustainable production (rather than conservation) involve people in a more broadly defined vision of sustainability, but still serve environmental purposes.

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[17] At the time of my fieldwork, ARC/CIDA funding supported the continuation of an intervention that had already been initiated with funds from the French Development Agency. I was not involved in designing the intervention, and I had no principal role in carrying out the intervention. My research, however, involved 'go-alongs' and participant observation with the FMB's rural development team which was responsible for implementing the sustainable agriculture project.

To address these issues, the FMB has a Rural Development program through which agricultural extension activities are implemented, with aims of improving productivity (and thus incomes) and improving the adoption of sustainable agriculture. The program coordinator of the FMB has emphasized that "rural development is not the desired end itself. Rather, it is used as a means to ensure protection of the RNBM" (personal communication). The FMB website explains that improving the quality of life for hundreds in the Reserve, reduces the likelihood of 'illicit activities' (one of these being marijuana cultivation) and at the same time promotes conservation in the RNBM:

> The actions implemented in this component (Rural Development) offer integrated production alternatives to hundreds of inhabitants of the communities that surround the Reserve in order to improve their quality of life. This focus seeks to eliminate illicit activities and at the same time promote the protection of the Nature Reserve[18].

Thus, while conservation aims to protect some of the last remaining 'intact' forests of the Interior Atlantic Forest, rural development aims to alleviate external pressures on the RNBM. This is done by improving the standard of living in surrounding communities (so the perceived need to impose on forest resources is decreased) and by improving environmental conditions so as not to leave the RNBM an isolated, forest 'island'. Also, rural development helps to foster a sense of loyalty to the FMB and the reserve itself: "the people will know that it is because the reserve exists that they receive development assistance – if the reserve disappears, then the assistance disappears" (Palacios, personal communication, 2006). Furthermore, in line with the participatory discourse of sustainability, rural development is seen as a way of involving people in natural resource management, and ultimately, environmental protection.

A second rationale for the FMB's engagement in rural development is forging and maintaining good relations with communities surrounding the RNBM. Good relations are important in different ways, not least of all because they can facilitate understanding and important support on behalf of local people for the objectives and

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[18] http://www.mbertoni.org.py/donde_trabajamos/MbaracayúMbaracayú/desarrollo_rural.php, retrieved June, 2008. Las acciones implementadas en este componente ofrecen alternativas de producción integral a cientos de habitantes de las comunidades que rodean la Reserva para mejorar su calidad de vida. Este enfoque busca evitar que desarrollen actividades ilícitas, y a la vez promueve la protección de la Reserva Natural

strategies of the FMB. But good relations are also important in the matter of obtaining funding from outside donors. International donors from whom FMB seeks donations are increasingly interested in how FMB works in the field. Site visits by prospective donors are a principal tool for FMB fundraising. If FMB programs are unsuccessful in local communities, and if relations with those communities sour it is unlikely that FMB will be able to attract future donors to its cause (Padwe 2001:131).

The FMB rural development program counts eight rural extension workers among its staff (this was during my fieldwork in 2006, but this number fluctuates with project funding). Each of these extension workers is responsible for a cluster of communities in one geographical area within the Biosphere Reserve. Together, the team works with over five hundred producers. The objectives of the rural development team include 'the technical advancement and modernization of production' and 'promoting environmental sustainability' (Fundación Moises Bertoni 2002). Working toward these objectives, the rural development team pursues the following:

- improving systems of production, incorporating agroforestry and/or pastures (using the same land for multiple uses);
- improving techniques for the management of residual agricultural matter (the organic matter remaining after harvest);
- improving techniques for water resources management;
- improving levels of production through better agricultural practices; and,
- promoting the uptake of new crops that require more sustainable techniques.

Methods for doing this work include:

- creating training modules to be used by producers; and,
- disseminating information on the above themes through written materials and radio

This work plan emphasizes educational materials, and one-on-one training. The focus is on improving local awareness and knowledge of sustainable agricultural practices and techniques to maintain or raise the productivity of their land, and the integrity of resources including forest, water and soil. This includes the promotion of new crops

that require less intensive cultivation practices and require fewer agricultural inputs than are currently used with some crops.

5.4   Selective evidence and limited participation: the importance of context for conservation with development approaches

The interventions described above, conservation and sustainable agriculture are, in a standardized universal sense, appropriate measures to both conserve biodiversity and promote sustainable resource use in the Mbaracyau.   Once contextual factors are accounted for, however, the suitability and appropriateness of these sustainable development interventions becomes considerably more dubious suggesting that they may better serve the purposes of the NGO than the recipients of their services in the watershed.   For example, land owned by the FMB provides opportunities for conservation and ecological research in the Mbaracayú.   However at the same time, this ownership underlines the dramatic inequality in land distribution and exacerbates longstanding tensions around foreign ownership in Paraguay.   Extension activities promote the adoption of alternative crops that require fewer pesticides, have better yields, and attract higher market prices, than conventional crops.   But new agricultural techniques require time and resources to master, and unfamiliar crops introduce new dimension of risk to the peasant livelihood.   This section will analyze the suitability of the interventions in light of three such contextual characteristics: land inequality and foreign ownership; the risky business of experimenting with new crops; and the pragmatic considerations around implementing so-called 'sustainable techniques'.

5.4.1 Land inequality and foreign ownership

If conservation can be understood as a straightforward strategy for environmental protection anywhere, it certainly cannot be considered as such in Paraguay.   This is because of the historically embedded politics of inequality which centres on land ownership, and particularly foreign ownership in the country.   Indeed, the narrative of how the Mbaracayú Forest Reserve came into being, underlines the role of foreign ownership, and why many stakeholders in the Mbaracayú region, consider its existence problematic.

The FMB has under its control, the largest tract of land by far in the Biosphere Reserve. This is particularly significant in Paraguay, with one of the most inequitable

distributions of wealth of South American countries, "where the wealthiest 20% of the population accounts for 62.4% of incomes, and the 10% poorest just 0.7%" (Benegas 1999:278-279). Much of this inequality is manifest in control over land – a key issue in rural politics and conflict. Research has shown that "poverty among farm households in Paraguay is closely related to lack of access to land by many farmers" (López and Thomas 2000:257; see also, López and Valdés 2000).

Land inequality, characteristic of Paraguay, is sometimes veiled as land 'shortage', as more land comes under cultivation to support a growing population. In fact, the push westward of forces of land colonization toward the department of Canindeyu, is conventionally held as a product of land shortages in the well-established settlements of Paraguay's eastern region. High population densities and the 'shortage' of land in the east prompted the movement of people towards the uncultivated, forested and 'available' areas of Canindeyu. In charge of this movement was the Rural Welfare Institute (Instituto de Bienestar - IBR)[19], the government department created and mandated to orchestrate mass migrations, and serve the needs of the rural people. However, as Arnold points out, data from the 1956 Agricultural Census show that this 'land shortage', blamed for the tensions and conflict in the area during the 1960's, appears to be much less a case of 'lack of land' itself, but a dramatically inequitable distribution of land (Arnold 1971, found in Nickson, 1981). This inequality, and a growing identification of the historical forces that had led to such patterns of land distribution were key to the growth of the Ligas Agrarias, church led grassroots organizations dedicated to the social organization and political mobilization of campesinos, in the Eastern and Central Zones (Nickson 1981). In fact, the IBR was established with the full support and encouragement of the large landholders, and eventually at their demand, who were looking to mitigate the threat posed by increasingly dissatisfied and organized (via the Ligas Agrarias) peasant population.

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[19] The IBR was a government office that was created by Law No 852/63 in … to "promote the harmonious integration of the campesino population with the social and economic development of the country". One of the primary functions of the IBR was to deal with land distribution and the wider issue of agrarian reform. The office was disbanded in … and The Institute for Rural Development and Land (Indert) was created. Because at this time, there remained very few public lands for distribution, Indert's main functions were to (and continue to be) expropriate large 'unproductive' estates and monitor irregular land transfers. Javiera Rulli, a noted Biologist, Ecologist and Activist has recently accused Indert of being "more like a real estate agent inserted in the speculation of the land attractive to the soy producers. And they increase their salaries with the commissions received from the soy producers" http://www.organicconsumers.org/btc/paraguay020606.cfm, July 10, 2007.

Despite these high levels of inequality, many observers note a distinct lack of emergence of a class consciousness. It is commonly noted that the concerns of the poor are more typically articulated in terms of nationalist-oriented rather than class-oriented ideals (Nagel 1999). In explaining this phenomenon, author and journalist Roberto Paredes proposes a variety of national and international forces that have incubated a distinct sense of individualism into the development of the Paraguayan consciousness (2002).[20] He suggests that a significant share of these forces were directed by longstanding dictator, Alfredo Stroessner and his regime, under which, "a persuasive mix of paternalism and 'the club' were employed: 'manus militarus' for all, in appropriate doses… the rules were clear and simple: rewards to those who cooperate, tolerance for those who don't argue, and punishment for those who rebel" (Paredes 2002:30).

Even in the public interpretation and understanding of peasant land occupations, discourses about class struggle were virtually absent (Nagel 1999). Rather, landless campesinos relied heavily on Colorado and nationalist rhetoric to make their actions understood. She explains that this comes as no surprise in light of the link between the concentration of land holdings and the Stroessner regime (most of the non-foreign large landholders being personal associates of Stroessner) and the severe repression that a direct attack on the Stroessner regime would incur (Nagel 1999). Populist policies of land redistribution, were poised to improve equity in landholdings and serve the purposes of justice and social welfare (Nagel 1999). However, existing processes for the actualization of these policies were incongruent with this philosophy, being largely ineffective and cumbersome. Consistent with other accounts, Nagel argues that these policies were largely a façade; rhetorical political tools with few economic and redistributive effects.

With a heavy handed government, unsympathetic towards public dissent, much of the aggravation caused by unequal land distribution was expressed through a focus on nationalism and foreign ownership. This continues today. Foreign ownership is not a new issue in the hearts of the Paraguayan public. The "opening" of markets to foreign "investment" has a history that dates back to the 19th century and has never been seen

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[20] In addition he goes on to discuss international forces that have further stifled the advance of a class consciousness, including the rise of a neo-liberalist hegemonic discourse, and globalization.

as a policy aimed at offering widespread opportunities, but rather as a policy co-opted by an elite few.

The story of foreign ownership of Paraguayan lands continues today, albeit with a different face (Nickson 2004). Since the 1960's, tens of thousands of Brazilians have emigrated to Paraguay, amounting to what some estimate to be a staggering 10% of Paraguay's total population (Zibechi 2009). They came and continue to come to Paraguay, attracted by the 'availability' of land, cheap in comparison with Brazil, and skyrocketing soy prices. Tensions between Paraguayans and Brazilians that centre around land ownership have been epitomized over the past few years by reactions to the election of Fernando Lugo in August, 2008. Lugo's election platform placed heavy emphasis on land reform, raising peasants' expectations that historic inequalities and injustices in land distribution would be redressed. These expectations culminated in the stepping up of demands in the months following Lugo's election. These demands were manifest in the peasant occupation of large land holdings, the burning of soy fields, and the burning of Brazilian flags (Painter 2008). "These rich lands now covered with soybeans were once a center of family agriculture, and strong peasant tradition, which was a base of support for the Lugo presidential campaign. Today, these lands are Brazilian property" (Zibechi 2009:4).

The prominence of anti-Brazilian sentiment in Paraguay can be traced in part back to the War of the Triple Alliance in 1864-1870. This war is widely viewed as a turning point in Paraguay's history. Despite what is widely celebrated as a noble and strong effort on behalf of Paraguay in the face of the formidable challenge posed by the Triple Alliance (Brazil, Argentina and Uruguay) the war threw Paraguay into economic ruin and worse, population of the country was decimated. Estimates of this decimation are to the tune of 90% of the country's entire male population as a direct result of battle, and indirectly by hunger and disease.

Box 5.1: Paraguayan Grievance on Film (Source: Author)

Paraguay's utter defeat in The War of the Triple Alliance, fought between 1864 and 1870, transformed Paraguay, South America's first republic, from a relatively rich country, highly independent of Europe to a country in financial ruins. Industrial collapse and high levels of post-war debt (primarily to Britain) led to the selling off of lands to foreign interests. Furthermore, as an outcome of the war, Argentina and Brazil divvied up 140,000 squared kilometres of Paraguay's pre-war territory.

A film released in 2005 that was highly popular in Paraguay retraced the events of the War of the Triple Alliance, and reignited some of the controversies which surrounded it. The movie was titled Candido Lopez: The Battlefields, and Director José Luis García says this about his film and the themes of dependence, independence and nationalism:

"Most people think that Solano López, Paraguay's president at the time, was a great menace that had to be stopped and it wasn't exactly like that. No one remembers that Paraguay had the first metal foundry in Latin America and that Solano López had developed an economic policy that was not dependent on Europe. That is why he was seen by the European bourgeouise as someone that needed to be stopped… Solano López's principal motive was to be economically independent from England, which bought Paraguayan leather at a very low price and then made things from it and sold them back to Latin Americans at an exorbitant price. He was the only Latin American president of the 19th century who dared to challenge European power. That is why there was a triple alliance to overthrow his government" (Lopes 2005).

Another outcome of the War of the Triple Alliance is perhaps more emphasized and lamented in Paraguay, where the War remains a controversial and hotly debated topic (See Box 5.1). This outcome is the ensuing dependence on foreign political and economic interests. As the War put Paraguay into financial ruins, and for the first time in its history, the country was forced to open its markets (mainly to Britain) and had to seek outside loans in order to attempt to repay its war debts and rebuild itself. Before this, Paraguay "since its birth as a Republic, was the only Latin American country that articulated an independent economic policy" (Laino 1989:37). "The destructive economic and political impacts of the 1865 War of the Triple Alliance in Paraguay can still be seen today. After the war, large transnational companies took hold, setting cycles of underdevelopment into motion through their rampant use of public lands and extraction of natural resources" (Cartes and Yanosky 2003:267).

Ultimately this selling off of the country's land to foreign interests, or the "new economic policy inaugurated after the war" (Laino 1989:133) is seen as a significant, if not *the* significant outcome of the war. Whether these foreign interests were more or less powerful or rich is not the issue. The important fact is that they were foreign. Laino emphasizes this point: "Foreigners were made owners of the Paraguayan Chaco, which covers a bit more than 60% of the total national area. These lands fell into the

hands of large and small landowners, speculators and industry. All the same, they represented foreign capital" (Laino 1989:133).

Thus, it is apparent that the differences between large and small landholders are about much more than size of landholdings! While the material repercussions of unequal land distribution are certainly vital to campesino grievance, at its heart this inequality embodies issues of national identity and resentment towards the strong foreign presence in large landownership and foreign domination that make it even more contentious. This point is extremely pertinent to the context of the CARJ, as the majority of large land ownership, and the largest of landholdings, are in the hands of ambiguously Paraguayan, or non-Paraguayan interests. The RNBM itself, by far the largest single landholding in the CARJ, is technically controlled by Paraguayans, but historically and currently, strongly linked to the interests of international conservation organizations.

Indeed, based on global environmental rationales including biodiversity conservation and carbon sequestration, a kind of 'ethical ownership' of large amounts of land exists, despite acute socioeconomic inequality. The FMB's control over a large property is not considered by most FMB staff as orthodox ownership, nor as cause for controversy. Privately owned conservation is not the exception in Paraguay – in fact private reserves account for the overwhelming majority of protected areas (Yanosky and Cabrera 2003). Rather, conservationists consider this brand of ownership as a public service, because under alternative circumstances, it is most likely that the conservation area would be cleared for agriculture. I once posed the question to an FMB specialist in geographical information systems (GIS), charged with developing maps conveying specialized spatial information about ownership, land-use and land cover in the Mbaracayú: who was the largest landowner in the CARJ? After thinking a moment, he named a Brazilian soy producer. Initially slightly dismayed, he ultimately conceded to my suggestion that the FMB could be considered the largest landowner, with 64,500 hectares under its control. In contrast with other land-uses, however, conservation and protection are considered acts of environmental altruism, mitigating global crises associated with deforestation, and are not associated with ownership for other ends such as cattle or soy production.

This section has shown that even *if* conservation can be understood as a straightforward strategy for environmental protection anywhere, it certainly cannot be considered as such in Paraguay. Land ownership, and particularly foreign ownership, is pivotal in the historically embedded politics of inequality in Paraguay. This casts new light and understanding on the sensitivity around the role of foreign ownership in the narrative of how the Mbaracayú Forest Reserve came into being. Understanding the context of foreign domination and land inquality in Paraguay makes much less surprising, why many stakeholders in the Mbaracayú region, consider the existence of privately owned conservation areas problematic.

5.4.1 New Crops: Risky Business

The introduction of new crops, though seemingly promising is also a questionable practice in light of the Mbaracayú context. The introduction of alternative crops in small scale cultivation gained importance as a development strategy in Bolivia, Peru and Colombia, largely as a substitute for illicit crops such as coca and marijuana (United Nations General Assembly 1998). It has more recently, gained popularity as a strategy that can have significant economic and environmental benefits by replacing selected existing species with alternatives that can be produced organically, without the use of pesticides and fertilizers, and that have higher yields and market prices. This is expected to raise incomes and reduce dependence on ecologically harmful and costly agricultural inputs (Fundación Moises Bertoni 2005).

While new crops hold the promise of safer cultivation and greater incomes, the dedication of land base, labour and other resources to experimenting with new crops is risky business for small producers. The risks associated with trying new crops are serious and diverse but can be essentially divided into those affecting the production of new crops, and those affecting the selling of new crops. The first reason for this riskiness has to do with experience, and the fact that each new crop comes with its own vulnerabilities and cultivation strategies. Many producers feel that they lack the knowledge of, and to some extent, a limited capacity to learn, new methods of crop management. This results in a very real fear of losing produce to disease and/or pests, underproduction due to mismanagement and the inability to produce and collect seeds.

Market security is the number one reason that producers choose to plant a crop, and new crops do not typically have established, tried and true markets. People generally have few contacts and influence for seeking out and establishing new markets for their produce. Furthermore, there is virtually no access to transportation, private or public, for the large majority of producers in the watershed. This leaves people with little possibility to sell goods that are not characterized by the system of intermediaries, credit and transportation, as are conventional crops. Thus, when considering new crops, people are very sensitive to running the risk of being stuck with quantities of produce that cannot be used in the household nor sold for cash income.

Past experience with development NGOs, have deepened concerns about the risks associated with experimenting with new crops . While at one time, people were more willing to take greater risks with the support of an NGO, this support has been proven unreliable. In many cases the result has been wasted labour and loss of income, deeply felt by producers throughout the watershed. NGOs, for the most part, introduce new crops with a commitment to provide ongoing technical assistance at each stage of production, including planting, growing and harvesting. This technical assistance is meant to mitigate at least some of the risks involved with trying new crops; it is aimed at helping people to deal with pests, disease, and other setbacks that might arise during the growing season. Furthermore, it is unlikely that a producer will try new crops unless markets for that crop are guaranteed at the time of initiation. Thus, NGOs are often involved in seeking out new markets for alternative crops, and will provide some form of backing or guarantee that the market will be available at harvest times. Ultimately, however, it is not uncommon for NGOs to find themselves overextended and under-resourced when it comes to their commitments regarding technical assistance and market provision, and campesino accounts of being let down by NGOs abound. Far from being simply a gesture of goodwill, this support is vital in the transition to alternative crops and whether or not one can depend so heavily on tenuous support is a lesson learned quickly.

Elements of this risk are clearly illustrated by one case that I became familiar with while visiting a family in a campesino community. The family had been encouraged by an NGO to plant a promising new crop, and their efforts, they were assured, would be fully supported by the NGO. The crop is burrito, a plant native to Paraguay, and used

for teas and medicinal purposes. The NGO had discovered new markets for burrito in Europe, and were therefore interested in helping local farmers to start production. The plant grows in bushes, with a thin stalk that can sprout around 50 leaves. The NGOs commitment was to supply the seeds for planting, technical assistance for the growing and harvesting, and finally, to purchase the harvest for a set price per kilogram. The dried produce was to be purchased including the stalks and the leaves, and the families were shown how the harvest should be completed. The agreement was verbal; no signed contract was established. After harvest time came and went, the family waited for the sale. An intermediary came to buy the produce, but was surprised to see that the stalks had been dried and crushed in with the leaves, rather than being separated out. He stated that he was only willing to buy the leaves, and for only half of the originally stated price. The family soon found that to clean the stalks out of the produce, required an additional day's work per sack of 5 kilos[21]. The reduced price per kilogram of produce (reduced further because now a kilogram was reduced by half, due to the extraction of the stalks) was due to a market demand that was less than expected. After this, the intermediary never returned and, the family is unsure if they should continue to work on separating out the burrito leaves from the stalks. The producer told me, *'I think that I should just burn the burrito, now, It's worth more to me for firewood than it is to try to sell now. They probably won't be back for it anyway'.*

In another, similar instance, a producer was convinced to grow onions as a cash crop. According to the NGO personnel that brought him this idea, he could anticipate the support and assistance of the NGO in troubleshooting any problems that might arise in the growth cycle, and in finding a market for the product. The seeds for the crop were given to him by the NGO, and he planted one third of his land using these seeds. Thankfully, this producer did not run into any unanticipated problems during the season, because the technicians did not return. However, no one returned at harvest either, and the mountain of onions rotted for lack of markets and transportation. This producer told me, *"I am finished with trusting anyone who promises support or technical assistance. I know how to grow mandioca and cotton – and I know there will be a market. There are never any surprises. From now on, I will plant mandioca and cotton"*. Another producer put it this way:

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[21] This recalls Scott's discussion of the development of standardized weights and measures by the European State (1998). Here, the way in which 'one kilogram' of burrito changes over time, is reminiscent of Scott's assertion that "(E)very act of measurement was an act marked by the play of power relations," (1998:27).

"If we just plant cotton and mandioca, we will never lack the markets, knowledge or technical assistance to make a living".

The majority of the small producers in the CARJ have long been engaged in cotton production as a primary cash crop, and for the large part, it is this crop for which NGOs are focused on finding a substitute. For decades the Paraguayan government has been relentless in its promotion of cotton production and has established a multi-faceted system, exclusively associated with cotton, that have historical significance and political influence. As Turner notes: "(T)he Paraguayan state has taken on the task of ensuring the accumulation of capital from the production of cotton and ensuring the continued survival of the peasant household as the basis for cotton production in Paraguay" (Turner 1993:184). This system includes credit, market security, and transportation assurances. Furthermore, after generations of cotton production, technical knowledge is widespread and entrenched. The national government also sets a base price for cotton; the minimum price at which the producer is (theoretically) guaranteed to be able to sell his cotton. Finally, it is a system that is deeply embedded in the psyche of the campesino, as a nationalist crop, the cultivation of which has almost become considered a civic responsibility. As one technician told me, *'the government puts out advertisements, they send out representatives to promote the crop face to face, and somehow, these manage to convince producers that cotton is a good choice this year'.*

So, why not proceed with cotton and avoid these risks altogether? The Guarani word for cotton is mande' ju. When I learned what the word meant, I was told, "Que feo, tu primera palabra en Gurarani es mande' ju" (How awful, your first word in Guarani is cotton). For the campesinos, cotton production is a necessary evil that keeps them afloat, but trapped in a cycle of poverty and a dependency relationship. This relationship is such that the campesinos receive seeds from the intermediary (also called the patron, which signals the nature of an unequal relationship) as well as the necessary implements such as chemical pesticides and fertilizers. The cost of these inputs is recorded. Thus, producers are able to plant regardless of whether or not they have the cash to invest in these inputs. The intermediary (or *acopiador*) comes to visit throughout the season to check up on the crop and if everything is proceeding as expected, to hand out a bit of cash, and perhaps some food that may be desired or required in the interim to keep the producers afloat. The inflated cost of any of these

handouts is recorded. On special occasions such as Christmas and birthdays cash may be dispersed for special meals and gifts. This is also recorded. When the cotton is finally harvested, the intermediary comes to the producer to buy the produce. While the price of cotton is fixed in Paraguay, the acopiador holds the power to pay a much lower price, as low as half as much, because of his investment and the debts owed him. After calculating this low price, he deducts the total of the year's outputs, and the producer receives little or nothing at harvest time. However, with little capital, the producer is forced to take, once again, the advance of seeds and implements to replant the crop.

Overall, a system is in place to make cotton a necessary evil. The popularity and pervasiveness of cotton production in the watershed is propagated because of the system, and not because cotton is an inherently good or profitable crop. The system involves:

1. guaranteed purchase – producers are assured that they will not be stuck with unmarketable produce at harvest time;
2. cash throughout the year, when it is needed, rather than a lump sum at harvest time; and,
3. transportation – the intermediaries come to load up the produce and transport it. There is no need to worry about securing a truck, rain and bad roads.

These benefits are inextricably connected with the profound disadvantages of the system which propagate poverty and dependence through the following influences:

1. undervaluing and underpayment for the produce;
2. lack of capital to reinvest in the crop after harvest time; and,
3. the creation of dependence on the patron for cash disbursements over the year and for capital investment to keep the crop going between years.

The result is essentially a debt peonage system where the producer becomes dependent and trapped in a system where they are paying too much and earning too little. Cotton production forms dependence on exploitative credit systems, expensive and damaging

agricultural implements and opportunistic intermediaries.   Although it is not particularly economically satisfying, cotton is well established with a system that serves needs, albeit on a short-term basis and at a minimum level.

5.4.2   Sustainable Agriculture: Feasible? Sustainable?

The promotion of 'sustainable agriculture' also becomes questionable in light of conditions in the Mbaracayú.   Despite the distinctly unparticipatory nature of conservation in the Mbaracayú, the FMB view their rural development and educational programs as the participatory leg of their efforts.   However, when the context to which these participatory interventions are applied is examined more closely, they seem to be woefully inadequate, and even inappropriate.   Rather than being designed with local people and reflecting local needs and priorities, rural development interventions such as the introduction of new crops and sustainable agricultural techniques, are instead standardized embodiments of global norms and understandings of sustainability.

Shifting cultivation is presented as an unsustainable land-use option because it degrades soils, necessitates expansion of agricultural lands, and thus, culminates in accelerated deforestation rates[22].   This relationship between shifting cultivation and deforestation, and a resultant assessment of shifting cultivation as one of the most, if not the most, potent causes of deforestation, has been recognized and reinforced by many observers (Fischer and Vasseur 2000; Rasul, Thapa et al. 2004; Prasad and Badarinath 2005).   Conventional wisdom implicates population growth, diminishing fallow periods, and soil degradation as mediating factors in this relationship.   "These land-use systems are becoming increasingly unsustainable as populations increase and the amount of agricultural land available declines, and are often associated with low crop productivity, and reduced fertility" (Fischer and Vasseur 2000:739).

As a response to the crisis of unsustainable agriculture and corresponding deforestation, many have prescribed alternative cultivation practices that, as opposed

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[22] The relationship between shifting cultivation and deforestation is a subject of fierce debate among researchers.   Many challenge the pre-eminence of shifting cultivation as a cause of deforestation, suggesting that it is not as significant a cause as is often assumed, but often draws attention away from other significant causes of deforestation (Lawrence et al. 1998).   Others invoke even more controversy, by questioning the validity of mediating factors that are regularly used to make establish the relationship, such as decreased fallow periods (Ickowitz 2006).   Others still have provided evidence that deforestation is a complete 'misreading' of the landscape within the context of some small scale production (Fairhead and Leach 1996).

to shifting cultivation, would be described as 'sustainable'. Such prescriptions have included agroforestry (Fischer and Vasseur 2000), horticulture (Rasul, Thapa et al. 2004), and no-tillage cultivation (Derpsch and Moriya 1998). No-tillage cultivation, or no-till is particularly relevant to Paraguay, because of the level of research that has been conducted on the practice in-country, and the large extent to which the Ministry of Agriculture has supported its promotion. However, the recognition of no-tillage goes well beyond Paraguay and even South America, as the World Development Report claims that, "one of agriculture's major success stories in the past two decades is conservation (or zero) tillage" (World Bank 2008:16), noting particularly that it "has worked in commercial agriculture in Latin America" (World Bank 2007:16).

Tillage is typically used by farmers for purposes such as removing weeds, mixing agricultural inputs with the soil, and forming the earth into rows that facilitates irrigation and management. Preparing the soil for planting by tilling causes soil erosion, reduced water infiltration, reductions in the soil quality (via chemical, physical and biological degradation) and thus, reduced productivity over time (Derpsch 1999). Based on these detrimental effects, international organizations such as the International Food Policy Research Institute (IFPRI), the International Water Management Institute, and the Consultative Group on International Agricultural Research (CGIAR) have vigorously promoted the use of a no-tillage system and have published research on its benefits (for example, Erenstein, Farooq et al. 2007; Trigo, Cap et al. 2009). No-till involves green cover and direct seeding and is promoted as a 'sustainable' agricultural practice reducing soil erosion, increasing water infiltration and enhancing soil quality, maintaining and even enhancing productivity (Riezebos and Loerts 1998; Derpsch 1999; Pieri, Evers et al. 2002; Erenstein, Farooq et al. 2007). Ultimately, this would eliminate the need for land abandonment, expansion of agricultural lands and continued deforestation.

The Adoption of No-Till Cultivation sounds like a panacea for the impacts of shifting cultivation, particularly soil degradation and ultimately deforestation. Derpsch, a GTZ researcher and advocate for no-till in Brazil and Paraguay, recognizes however, that changing cultivation methods is no easy process, but requires profound shifts in thinking:

> A mental change of farmers, technicians, extensionists and
> researchers away from soil degrading tillage operations towards
> sustainable production systems like no-tillage was necessary to
> obtain changes in attitudes of farmers. *As long as the head stays
> conventional it will be difficult to implement successful no-tillage in practical
> farming.* Through time we have learned, that if the farmer does not
> make a radical change in his head and mind, he will never bring
> the technology to work adequately. We found that this is not only
> true for farmers but for technicians, extensionists and scientists as
> well. No-tillage is so different from conventional tillage and puts
> everything upside down, that anybody that wants to have success
> with the technology has to forget most everything he learned
> about conventional tillage systems and be prepared to learn all the
> new aspects of this new production system. We believe that a
> farmer first has to change his mind before changing his
> planter (Derpsch 1999; Derpsch 2001:250, emphasis original).

Beyond the necessary 'attitudinal' change required by small producers to put no-till cultivation into action, there are also the investments of time, labor, land base and new inputs that are required to make this shift. First, the land needs to be prepared for no-till by the planting of a crop that will ultimately serve as the green cover. A common example of a crop used for this purpose is avena negra (black wheat), which is selected because of its relatively low cost, the ease with which it is planted and managed, its provision of blight control and soil shade, and its fertilizing residual effect (Derpsch 1999). Despite these benefits, avena negra can take more than 6 months to mature, before it can be cut to use for green abono verde (green cover or green manure), which can then be seeded directly without tillage. Thus, not only do the avena negra seeds need to be purchased, but production of cash or subsistence crops must be forgone while it is left to grow. The Regional Manager of the Agricultural Extension Department of the Ministry of Agriculture considers this to be a significant obstacle to many people who are interested in trying new techniques, including no-till and direct seeding:

> The problem is, that the producer will tell you, yes, I want to
> practice direct seeding and no-till, but how am I going to eat for
> the coming months, if my land is being prepared for direct seeding
> – that will take time away from planting a different crop. Direct
> seeding, unfortunately, takes time to get going, there are these
> investments that need to be made (Maximo Heyn, personal
> communication, 2006).

Another investment that needs to be made in order to get no-till production off the ground, is in purchasing pesticides. Because with no-till cultivation weeding is not

permitted, pesticides are not optional. In fact, "(T)he first possibility of cultivating crops without tillage on large scale farms occurred when 2,4-D, a broadleaf weed killer, was made available to farmers in the 1940s… As more, better and cheaper herbicides appeared on the market in the 1990s, no- tillage became easier to manage…" (Derpsch 1998:3). Even "Monsanto has invested more in the diffusion of no- tillage, because of its interest in marketing the herbicide Glyphosate" (Derpsch 1998:3). While the financial investments required are one barrier to herbicide use for small producers, there is a less pragmatic, more symbolic and political issue at stake. Pesticide use by large landowners in the CARJ are a point of contention with small producers. Some insight into this discord is offered by a project field report:

> A major concern expressed in community meetings and interviews was the widespread and irresponsible use of agrochemicals such as pesticides and fertilizers. This concern was particularly prominent in those communities that border on large landholdings (Carupera I and Carupera II). These are landholdings, largely foreign owned, where soy is grown using intensive chemical applications. There are two main issues with the chemicals used in soy farming: they are varied and abundant, and because of the large scale of soy farming, they are spread carelessly and irresponsibly (by airplane) and trespass into communities, causing health problems directly (skin and respiratory problems) and more indirectly by contaminating food and water sources. There is also some concern that the use of chemicals may affect production over the long term by producing resistant strains of pests. A very pertinent production concern in Carupera I is that no producer can be certified organic because of the infiltration of chemical agro-inputs into campesino land from large landholdings (Elgert 2004).

Most of the large holdings in the CARJ administer Matatodo (Round-Up is the commercial name in English North America), a non-selective herbicide – "meaning it kills anything green", says the commercial website - to prepare the land for planting soy, and after planting to maintain 'Round-Up Ready Soy'. This is done by airplane, and thus, its application often extends beyond the borders of the property. There have been cases where small producers with adjacent landholdings, have lost hectares of crops. It is this heavy dependence of soy producers, and more importantly large producers, on pesticides, and the severe consequences that this can have on local communities, that led one small producer to declare that, "*Soja es completamente contra al Campesino*" (Soy is completely against the Campesino). Thus, regardless of the potential benefits for soil quality, there are several reasons why no-till cultivation, with

its dependence on pesticides, might be a tough sell as a 'sustainable' practice in the CARJ.

Similar to the way in which the social and political context of Paraguay puts into question the wisdom of enclosure-styled conservation, it also causes concern about the appropriateness of rural development that focuses on new crops and 'sustainable agriculture'. To open the door for environmental education, and to improve environmental outcomes of agriculture in the region surrounding the Mbaracayú Forest Reserve, sustainable crops and techniques are introduced. The participation of small producers is a prerequisite for the success of these programs. However, when the context to which these participatory interventions are applied is examined more closely, they seem to be woefully inadequate, and even inappropriate. Rather than being designed with local people and reflecting local needs and priorities, rural development interventions such as the introduction of new crops and sustainable agricultural techniques, are instead standardized embodiments of global norms and understandings of sustainability.

5.5 The shaping of things: Facts, norms and the co-production of conservation landscapes

The conservation and sustainable agriculture interventions that have been implemented in the Mbaracayú are problematic because they have been co-produced with a narrow conception of sustainability and a limited understanding of what comprises knowledge relevant to environmental governance. Descriptive simplicity and aggregation fulfil the requirements of the classification system used in the biosphere reserve model, drawing on familiar descriptions and categories, and sharpening the focus on the factual conservation landscape. This focus makes the landscape 'legible': understandable, calculable, and predictable, particularly for outsiders.

The disjuncture between the standardized, portable landscape classification and that which is more contextualized, is not a matter of a 'lack of understanding' or misinterpretation on the part of the NGO. Indeed, many of the extension workers for the rural development program grew up and live in the rural villages where they work. Rather, it is a matter of the familiar landscape being such a powerful discourse, that

those characteristics that it underlines are simply seen as more 'relevant' than more nuanced views. To improve policy approaches to conservation landscapes (and consequently, intervention landscapes) experts must make explicit how knowledge about these landscapes, and the way they are categorized, is shaped by socially influenced decisions such as: why and for whom is biodiversity important; which information is considered as evidence and which is superfluous; how important and significant are the challenges faced by local people to implement standardized policy recommendations?

5.5.1   *Limiting participation: Facts shaping norms*

The promotion of participation has been a part of the FMB's programmatic priority. This is in part due to the demands of funders but also the viability of the FMB to work in the area with at least some degree of local consent[23]. However, despite the emphasis on local participation in sustainable development, the parameters of any potential participation are already set by the conservation landscape imposed on the Mbaracayú. This is because participation and evidence are seen to contribute to the normative and factual basis of policy *respectively*. Thus, participation is often regarded as supplementary to evidence in policy making. Consequently, while conservation-with-development approaches emphasize evidence and participation, participation is encouraged only within the confines set by the evidence about protected areas and sustainable agriculture, only *after* decisions have been made regarding protection. Key interventions are not subject to inclusive debate, shutting down deliberation. Moreover, by delineating unsustainable agricultural practices as firstly, a significant part of the environmental problematic, and secondly as widespread due to lack of environmental understanding, appropriate and effective interventions are further determined. Thus, more deliberative ideals about how and why participation is an important policy input are overlooked, or more actively rejected.

There are two main problems with the idea of environmental knowledge shaping – or limiting – the normative arguments put forth in debate. The first is that environmental knowledge is often not sufficiently interrogated empirically. For example, biodiversity

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[23] Indeed, authors remind us that while local 'buy in' for conservation projects may facilitate easier park protection, there are plenty of examples of highly successful park protection where local cooperation is not forthcoming Brockington, D. (2004). "Community Conservation, Inequality and Injustice: Myths of Power in Protected Area Management." Conservation & Society **2**(2): 411-431..

as a basis for conservation is often based on a handful of charismatic species that may have little importance to local livelihoods. Furthermore, land-use changes (including deforestation) do not so much eliminate environmental services, as redistribute them. These examples bring us to the second (related) point: that facts, too, bear normative influences, and cannot be considered apart from the context, assumptions and perspectives that gave rise to them. Each of these problems indicates, and responds to, the need for better accounting for the shaping of facts.

5.5.2 Better accounting for the shaping of facts

Assessments of the Mbaracayú as an international 'hotspot' for biodiversity, is taken as evidence of the need for conservation with development interventions. However, this chapter has illustrated how the process of establishing the Mbaracayú has been much more complex than a response to the need to protect biodiversity: catalyzed by the loss of Ache hunting grounds; enabled by high powered diplomatic networks and the need of the World Bank to counteract its 'anti-environment' reputation; funded by an offsets agreement with a large American corporation. But these details are reserved for the historical narrative of *how* (as opposed to why) the reserve came into being, and figure little into explanations about *why* conservation persists today. Likewise, sustainable development is viewed in conjunction with conservation, largely because of its supposed contributions *to* conservation.

The need for conservation and development today is explained by how these approaches can preserve the biological diversity found in the Interior Atlantic Forest. However, other 'facts' are not considered in decision-making about the appropriateness of conservation – particularly that which is undertaken through purchase and ownership. Examples of these unconsidered facts, that are also integral to the Paraguayan landscape, are the extremely unequal distribution of land and the problem of landlessness. However, these highly contextual facts are overridden by a more standardized, global understanding of the role of conservation and sustainable development in addressing the global biodiversity crisis, with which the creation of the Mbaracayú is aligned. This alignment has shaped the Mbaracayú, and the people who live around it, in a way that makes classical conservation and development interventions *seem* appropriate and effective.

For example, techniques of farm management vary wildly among campesinos, and so-called 'sustainable agricultural techniques' are indeed used by many. Crop rotation, crop association and lengthy fallow periods are widely implemented. Composting and fertilizers are used by some, and some farmers even practice agro-forestry on their land. Furthermore, practices are not stable and static over time. Farmers experiment with different techniques, disseminate techniques among neighbours and learn new ways from the FMB. Yet, campesinos are homogenized in their use of 'unsustainable practices'. Administering technical assistance has been driven by agrarian expertise regarding, for the most part, environmental impacts of agricultural techniques. An example of such techniques is no-till cultivation, which is shown in various environments to have beneficial effects on soil quality, eliminating the need for shifting cultivation. However, a shift to no-till cultivation entails more than meets the eye, including culture change and financial commitment. Even these conditions withstanding, the pesticide dependence that comes with much of no-till cultivation confounds further, the possibility of promoting its use by campesinos.

Introducing alternatives to conventional crops, such as cotton, initially seems like a practical strategy for improving livelihoods and reducing environmental impact. But this type of intervention too, turns out to be problematic in light of a more nuanced understanding of context. For example, the disadvantages of growing cotton as a cash crop are severe. Conventional cultivation requires expensive pesticides, whose use is damaging to health and water supplies. Slumping market prices along with an opportunistic system of intermediaries have dramatically suppressed the profits of cotton production. The logical, even intuitive response, based on this evidence is to promote the cultivation of crops with higher market values and perhaps organic alternatives to cotton, among producers. Growing these alternatives, producers could earn higher incomes and reduce their dependence on expensive and health-threatening pesticides – policy making made easy!

However, if we also consider the local significance of the physical, financial and cultural infrastructure built around cotton, combined with guaranteed markets and technical experience, it becomes easier to understand why alternative crops may bear more risks than benefits, and why policies to promote crop substitution may not be effective. Furthermore, the risks involved with new techniques and crop alternatives

are significant from a local perspective, and may even dwarf the risks of not adopting these strategies in scope, severity and immediacy. This has little to do with some inherent or universal perception of risk which often leads to a view of non-conforming campesinos as traditional, change-averse and backwards. Rather, the risk is contextual, dependent upon factors such as local capacities to invest and adapt, and institutional factors that enable campesinos to access markets from remote locations.

5.6   Conclusion

This chapter has shown how conservation landscapes provide a fruitful context to examine the (anti) politics of using evidence and participation as the basis for sustainable development policy. The standardized vision of the conservation landscape has positioned sustainable development as achievable through a familiar set of interventions. Conservation interventions aim to protect biodiversity and environmental services. Sustainable agriculture is promoted as a means of supporting, and initiating public participation in conservation. Improving livelihoods, it is reasoned, takes pressure off of protected areas and improves environmental outcomes in surrounding areas. Conventional understanding of such landscapes makes these policy implications clear and logical. But as we descend on this vision, and interrogate it further, it becomes apparent that the familiar set of interventions is neither appropriate, nor best positioned for effectiveness. The evidence-based rationale for conservation with development is confounded by a deeper analysis of the context upon which it has been imposed.

The conventional role of participation in policy debates, as the normative contribution that is shaped by environmental facts, is based on an understanding of conservation landscapes as objective, uncontested spaces where universal environmental values are enacted. But an understanding of conservation landscapes as imbued with social and political influence, rather than as objectively defined biodiversity 'hotspots', at risk from unsustainable practices, provides a theoretical basis for deliberation in decision-making. Further, within such an epistemological framework, participation would not seem incompatible with, or supplementary to, an evidence-based approach, but complimentary.

Chapter 6

Hard facts and software: The politics of computer-based land-use planning in the Cuenca Alta del Rio Jejui

In Chapter 5, we looked at the invocation of evidence and participation in the governance of conservation landscapes, particularly where land classifications are used as supposedly neutral frames for organizing evidence and participation. I argued that overestimating the power of evidence as the factual basis for environmental decision-making is problematic because:

- often how and what evidence is used is more of a normative decision than meets the eye; and,
- using evidence often closes down or severely limits participation in policy debate, thus pre-emptively delineating its normative commitments.

I argued this using two main points. The first was that the evidence for establishing land classifications that restrict access is partial and selective, based on such things as biodiversity inventories without consideration for the wider socio-political environment. Accounting for a history of inequality and foreign ownership may indeed make the appropriateness of a protected areas approach doubtful. The second point was that participation, widely touted as a vital component of conservation-with-development initiatives, is encouraged within the strict confines of evidence-based conservation. The public is expected to buy into the need for sustainable agriculture, and provide the logistical and operational support, but is not given the discursive space to challenge the programmatic basis. Meanwhile, the generalized notion of sustainable agriculture itself was shown to be problematic in the Mbaracayú. Sustainable agricultural techniques require an investment of capital that small producers don't have, and judgements about what qualifies as sustainable (i.e.: intensive pesticide use, for example) are highly varied.

This chapter extends this argument with the case of another approach to environmental governance - the use of models to facilitate participatory land-use planning. Using modelling exercises in participatory planning has been held up as an example of how environmental decision-making can be subject to both: 1) expertise about natural processes that lead to environmental degradation; and, 2) local perspectives on how

planning processes can incorporate normative concerns about land-use and land-use outcomes. Moreover, like land classifications, models also 'travel' as terms of reference. This chapter, however, shows that planners and policy makers should not be so quick to see models as first providing the evidence for what *then* becomes normative decision-making. This is because the evidence portrays not the objective assessment of land-uses and their outcomes, but a highly particular assessment, deeply influenced by social factors and political choices and limitations. Thus, while models are often taken as immutable fact, they are more rightly taken as contestable and contingent. This revised understanding does not invalidate the use of models in participatory planning. But it does open up considerable space for stakeholders in deliberative contexts to question and challenge the evidence-based policy implications of modelling exercises.

6.1   Introduction

Computer modelling programs have been used in environmental planning for a number of years, and are favoured for what some understand as their ability to objectively incorporate multiple variables into land-use planning (Randolph 2004). This, some claim, enables decision-making to overcome bias and more closely reflect the complexity of environmental problems than decision-making without models. Furthermore, models are increasingly seen as a viable tool for more participatory forms of planning. Models can incorporate public values by setting the stage for debates about planning goals and objectives, and stakeholders can use models as bases for debate around more normative aspects of land-use. However, despite increasing recognition that the evidence presented in models is shaped by the priorities and preferences of those creating the model, simulations and predictions continue to be presented as a matter of fact. As fact, the analyses of simulations and the policy recommendations that these analyses support, are effectively cut off from normative appraisal and human judgement.

This chapter examines a model developed for use in participatory planning in the Mbaracayú, and argues that the simulations of future land-uses and respective outcomes are in fact, much less factual than is suggested by modellers. The simulations provided evidence that campesinos' failure to adopt 'sustainable agricultural practices' would mean ecological and social ruin. Soils would become fruitless forcing producers into new frontiers with forested land and ultimately, land scarcity would cause deepening poverty, irreparable environmental degradation, conflict and upheaval. Averting

ecological and social disaster in the Mbaracayú Biosphere Reserve over the 50 years to come, would require the adoption of 'sustainable agriculture'. However, the modelling exercise has failed to fully inform a widely acceptable version of sustainable land-use planning for those living in the CARJ.

I begin with a general discussion about the social influences evident within models. Recognition of these social influences promote an understanding of models as an interpretation, rather than a reflection of planning reality. Next, I provide a detailed account of how the model in the case is used to develop simulations of outcomes of future land-use choices. This process integrates participatory planning, in terms of defining objectives and establishing community-based indicators, with evidence such as causal links between unsustainable agriculture and loss of forest. Analyzing the simulations led to clear and strong evidence-based policy implications: only sustainable agriculture can save the Mbaracayú region from destruction and destitution. In the third section, I analyze the culmination of the collection of so-called hard facts (or, the model inputs) that contribute to the factual outcomes (the simulations) and ultimately, the evidence-based policy implications. The discussion draws implications of this case for creating a more deliberative land-use planning context, by suggesting that evidence (in this case the model inputs and the simulations that predict future outcomes based on land-use choices) needs to be more critically engaged than is typically done.

In sum, this chapter makes the following arguments in turn:

- models are representations, not reflections, of real-life systems and circumstances;
- participatory modelling approaches often falsely compartmentalize contributions to developing models: participation as contributing norms; and, evidence as contributing facts;
- indicators and outcomes – commonly understood as factual inputs and outputs – emerge in conjunction with world view, social and political preference, convenience and technical necessity; and,
- environmental values, judgements and preferences are not universal but emerge differently in relation to livelihood pattern, resource dependence, and social identity.

6.2   Social influence in factual models

Models are conventionally understood as a means of 'letting the data speak for itself', by presenting relevant and integrated facts for environmental decision-making. At the same time, there is increasing insistence that modelling become a participatory policy strategy, rather than one managed exclusively by experts and received by other stakeholders (Cinderby 1999; Craig, Harris et al. 2002; van der Sluijs 2002; Yearley, Cinderby et al. 2003). These calls often focus on how the public can become involved in decision-making based on models, rather than on the modelling process itself, thereby separating the work of experts from the work of other participants. In other words, they focus on how to *add* 'culture' to the 'science' and stir: "local systems of meaning, informed by *culture*, are posited to in contradistinction to those of state experts, informed by positivist *science*" (Robbins 2003:234, emphasis original). This suggests that cultural, subjective decision-making revolves around a stable set of objective, universal facts.

The commonplace delineation of culture from science in computer simulations and modelling leads analysts to a primary concern with how the findings of the computer analyses inform management options, rather than with aspects of the technology itself (Liu and Ashton 1999, for example). For example, authors suggest that models can be useful in the role of the 'eye opener', to support arguments in the face of dissent, and in creating consensus among policy stakeholders (van Daalen, Dresen et al. 2002). Others address various technical aspects of the applications such as user friendliness, portability, appropriate spatial and temporal scales and affordably measurable input and output variables (Turner, Arthaud et al. 1995). Parallel to arguments for public participation in more general decision-making, arguments for participation in modelling have several bases (Korfmacher 2001): that local knowledge makes a unique and valuable contribution to environmental management (substantive basis); that people are more likely to support decisions that they have been involved in making (pragmatic basis); and finally, that there is inherent value in public participation in decision-making that directly affects the public (democratic basis). The latter is the focus of many proponents of participatory modelling; authors stress the potential of participation to address undemocratic 'top down' decision-making and planning and to increase the scope of

representation in the model outputs beyond "single agency solutions" (Cinderby 1999:310).

However, these calls for 'participatory modelling', have been largely insufficient to bring greater deliberative stamina to debates about environmental policy and planning. Furthermore, there is a growing recognition that modelling activities are not simply, nor best described as technical activities (that albeit need to be supplemented by social concerns), but that their very construction goes beyond the technical, fundamentally embodying social and political influences. Indeed, the assumed objectivity and neutrality of modelling in land-use came under closer scrutiny in the mid-late 1990's with publications such as the 1995 edited volume Ground Truth (Pickles 1995). The works in this volume highlighted the role of social and political inquiry into the development and use of models for decision-making support, in particular GIS.

Subsequent work examined the politics of computer simulations in relation to climate change modelling (Demeritt 2001), and the related technologies of remote sensing and satellite imagery (Litfin 1999) . These authors argue that these 'tools' are hardly the neutral mechanisms for increasing knowledge and thus, making more informed decisions, that they are often said to be. Furthermore, the social and political influence in technical applications does not only appear 'downstream'- the point at which science is applied to policy problems – but also 'upstream' – the point at which knowledge itself is created (Demeritt 2001). Often the development of models is based on partial or simplistic assumptions, working from a 'naïve sociology' (Wynne 1989; Yearley 1999). For example, Peter Taylor (1992) analyzed the 1970's MIT project to create a systems dynamics model of nomadic pastoralists, who had been exposed to a long drought. He clearly illustrates that the assumptions on which the model was based, could have been configured completely differently in terms of how the historical data was used, how individuals were treated, and how potential external influences may have impacted on the system. Had these assumptions been configured differently, it would have had important effects on the outputs and conclusions of the modelling exercise (see Table 6.1).

Table 6.1: Framing Assumptions from Taylor's analysis of modelling sub-Saharan African pastoralists: Actual and Alternative (Source: adapted from Yearley, 1999:247):

Actual	Alternative (could have been used as?)
Historical data used as a long term supposedly stable values.	Historical data could have been used as a means for understanding change.
Individuals treated as uniform and aggregated.	Individuals treated as stratified and differentiated.
Group modelled as a static, self-contained system	Group modelled with the consideration of temporal and spatial variability; 'external' forces could become internalized.

Discrete categories used in modelling (i.e.: land-use type, wildlife type, vegetation cover, etc.) are important examples of how different taxonomies and understanding of similarity and difference can affect modelling outcomes. Naidoo and Hill, for example, call for the integration of 'traditional ecological knowledge' and remote sensing after finding a 'knowledge gain' from using traditional Ache categories for vegetation cover over scientific ones in the Mbaracayú Reserve (2006). Robbins goes further in his inquiry of classification, putting the modelling process itself at the centre of inquiry in order to examine the 'softness' of 'hard' tools (2003). He illustrates how landscape categories, primary inputs in land-use models, "are nothing more than a widely different set of reflectance clusters, aggregated based on the arbitrary decision-rule of the analyst… whether they are based on forestry typologies, ecological classifications, or hydrological units, (he might add 'traditional classifications' here) are inevitably partial mappings of the landscape" (Robbins 2003:249, parentheses mine). It is not that one type of classification reflects knowledge that is better, worse, more scientific or more cultural than others. Rather, it is that, "the process of resource use and conflict that gives rise to the systems of meaning each community deploys in the first place" (Robbins 2003:248).

Likewise, Harvey and Chrisman (1998) illustrate how GIS is the outcome of negotiations between social groups through mediating 'boundary objects'. In their analysis, even once a definition of 'wetlands' is agreed upon, the accounts of 4 government agencies of which mapped area consists of 'wetlands' are in wild disagreement. The authors cite a staggering 90% disagreement, and even a considerable extension in the areas delineated

by each agency results in high levels of disagreement. This is explained by the different functions of each agency, invoking different "purposes, procedures, sources, definitions, and logic… each agency's purpose delimits which methods are acceptable for fulfilling their mandate" (Harvey and Chrisman 1998:1689). They explain: "The geographic boundaries of these different wetlands delineate administrative elements in the environment… The boundary object 'wetlands' indicates the disciplinary and institutional boundaries of different groups" (Harvey and Chrisman 1998:1689). It is concluded then, that "GIS technology and technoscience are not monolithic autonomous edifices but the localized results of processes of negotiation that involve the construction of artifacts to fit various social perspectives" (Harvey and Chrisman 1998:1693).

6.3   Modelling land-use outcomes in the Mbaracayú: Boundaries of evidence and participation

Despite the work that has shown how social, disciplinary and personal preferences are often presented as matters of fact, modelling exercises continue to be used as under-examined evidence in planning processes. Moreover, models are often used to alter public values, by illustrating potentially ruinous outcomes of particular behaviours and attitudes. An example of such a model is ALCES, a cumulative effects simulation program in the Mbaracayú. This section describes the ALCES program, and looks at how modellers pay attention to the importance of both participation and evidence in developing land-use simulations for land-use planning. However, participation and evidence for policy are clearly delineated – participation providing the normative basis for land-use planning and evidence providing the factual basis.

In 2004, the FMB signed on to a three-year project in partnership with the Alberta Research Council[24] called "Community Management of the Mbaracayú Reserve". The

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[24] The sustainable land-use planning project was funded through the Canadian International Development Agency (CIDA)'s Canada-Southern Cone Technology Transfer Fund (SCTTF). The SCTTF was initiated in 1997 by CIDA, "to build linkages that could lead to sustained forms of mutual cooperation, including commercial, social, academic, and scientific cooperation". It is also emphasized that "CIDA's overall objective in the Southern Cone countries is to contribute to the achievement of greater equity," (http://www.acdi-cida.gc.ca). An endnote defines equity: "Equity is measured by comparing different groups within a society by their income levels, their level of access to services, their level of ownership of productive assets and of political and social participation and decision-making," (http://www.acdi-cida.gc.ca, emphasis added). Thus, technology transfer is not considered to be a strategy only for economic development, but is considered successful if it contributes to socio-political goals of equity and governance. As discussed in Chapter 2, I was employed with this project from January, 2004 to April, 2008.

project aimed to contribute to sustainable land-use planning in the CARJ by "enhancing the capacity" of local communities to sustainably manage the land-base surrounding the Mbaracayú Reserve. The focus was on developing institutions for participatory decision-making, and providing technical mechanisms to help guide this decision-making. A key component of the project was the transfer of a software technology - A Landscape Cumulative Effects Simulator (ALCES) that would enable users to build models to simulate the environmental, social and economic outcomes of land-use options over given temporal trajectories.

ALCES functions using evidence that has already been established through systematic research about relationships between land-use options and outcomes. The outcomes that are examined are delineated by pre-selected indicators; measurable variables that reflect progress, or lack of progress, towards certain predefined goals. Ideally, the number of indicators should be limited but those selected should completely and accurately represent the characteristics of the goals in the most parsimonious way possible. To use an indicator with the simulator, there must be information available on how it is impacted by land-use. If data does not exist on the relationships and trajectories of land-use vis-à-vis the indicator, then the indicator cannot be used within the cumulative effects simulator. Once this relationship is determined, and entered into the computer program, how the indicators will respond to various land-use scenarios can be predicted. Unlike GIS applications, ALCES is *not spatially explicit*. This means that inputs and outputs are aggregated to the landscape level. This is why outcomes are illustrated by graphs (see Figure 6.2) rather than on maps. If the outputs were to be depicted on a map, the proportion of each outcome would be in accordance with the model projections, but the distribution of the outcomes (i.e.: what would happen, *where*) would be arbitrary and random.

ALCES is designed to extend participation in land-use planning beyond the modellers, to a wide array of stakeholders including land-users and regional policy makers. Advocates for the use of ALCES for facilitating participatory planning, claim that, "The active engagement of stakeholders in the modelling process and the transparency of the model, in which the key processes are all under the control of the user, promotes the

understanding and acceptance of the outcomes" (Schneider, Stelfox et al. 2003:no page - electronic resource).

Indeed, according to the expert who prepared and presented the ALCES simulations to stakeholders in Paraguay, the first 'Basic Step to Using ALCES' is to 'Identify ALCES Committees'[25]. Thus, in May of 2006, the first meeting of Tangara, the Biosphere Reserve Committee for Paraguay's Mbaracayú Biosphere Reserve convened. Formed through a laborious process of community consultation, meetings with government officials and conversations with Paraguayan environmental organizations, the Biosphere Reserve Committee is considered to be a representative group that will ultimately participate in land-use planning and decision-making for the Mbaracayú Biosphere Reserve. A pamphlet about the Biosphere Reserve Committee urges that: "The present and future of the Reserve depends on the participation of all" (Fundación Moises Bertoni and Alberta Research Council 2005).

6.3.1   Establishing indicators and generating simulations

Using both evidence and wider participation to establish indicators for use within the model is emphasized by the ALCES modeller, owing that they "should include variables that are meaningful to the local community and communicate both the ecological and socioeconomic implications of land-use" (Carlson 2006:6). To begin establishing the suite of indicators, a search was carried out online and in the FMB library for studies undertaken in the Mbaracayú region, or surrounding areas where more research takes place, such as the department of San Pedro[26]. The studies located provided economic, agricultural, land-use, land cover data and demographic data. From this baseline of data availability, the modeller determined what indicators it would be possible to model (given certain data requirements for each indicator), based on what land-uses, and thus, what types of simulations could be generated (see Table 6.2).

In order to enhance wider participation in the construction of the model, work was undertaken to establish 'community-based indicators' (See Box 6.1)[27] – following other

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[25] From a presentation given to ARC and FMB staff in Asuncion, Paraguay in 2005.

[26] The search for existing research reports that could supply data for indicators was in part my responsibility, in cooperation with the ALCES technician. I conducted this work as a part of my employment with the ARC/CIDA project (discussed in Chapter 2, and in Footnote 24).

[27] This work, discussed in Chapter 2 and in Box 6.1 was my responsibility, and undertaken as a part of my employment with the ARC/CIDA project.

projects involving the cumulative effects simulator (Parlee 1998). Many researchers over the past decade have claimed that community-based indicators are vital to ensuring public, non-expert participation in the monitoring and assessment of project outcomes (Gasteyer and Butler, 2000; Nurick and Johnson, 1998). Furthermore, compared to more conventional ecological indicators, authors claim that they are more likely to measure a wider array of social and political issues that are related to environmental management (Mitchell and Davis 2005).

Table 6.2. Data required, sources of data and source details for selected ALCES indicators (Source: Author, based on information from Carlson, 2006)

Indicator	Data Required	Source Study	Source Details
Net Agricultural Income – Soy	Income – conventional and conservation agriculture	W.J. Sorrenson. 1997.	Over 10 years - net income under conventional and conservation agriculture on 135 Ha farms in San Pedro and Itapua
	Inputs	Bickel, U., and J. M. Dros. 2003.	Litres/Hectare pesticide application
	Rate of expansion	Dros, 2004	Projections of the government and soy industry
Net Agricultural Income Small Producers	Productivity	Florentin, M.A., M. Peoalva, A. Calegari, and R. Derpsch. 2001.	20 year crop productivity - small farmers in San Pedro
	Inputs and other costs	Lange, D. 2005.	Production cost and crop price – from 2-7 farms in San Pedro and Edelira in 1998 and 2003, for each of corn, cotton and mandioca Includes pesticide inputs
	Rate of expansion	UNDP, 2003	Based on population growth
Natural Habitat	Land cover of protected area	FMB, 2003	Based on GIS mapping and measurement
	Rate of Soy Expansion	Dros, 2004	Based on growth estimates – industry and government
	Rate of Smallholder expansion	UNDP, 2003	Based on population expansion
	Probability of conversion by landscape type	Naidoo and Adamowicz, 2006	Based on historical patterns of expansion

Box 6.1. Focus Groups and Community-based Indicators (Source: Author)

Between August and October, 2005, I conducted 2 workshops in each of 8 CARJ communities in order to establish community-based indicators along with assistant facilitators. Each focus group began with a presentation to introduce the concept of indicators, particularly, community-based ones, with a linkage made to the notion of well-being. I explained to participants that I was seeking to establish community-based indicators so that local opinions, priorities and knowledge would be captured in monitoring and evaluating watershed changes. I asked the participants to think in a general sense about what well-being meant for them. Comments were captured on a large sheet at the front of the room, or on the floor, depending on where the workshop was being held. As concepts emerged, the facilitators used probes to extend and deepen the dialogue as to arrive at specific indicators.

When participants were satisfied that all of their important points had been documented, I posted the list of indicators and each participant was given five "votes" and were asked to stick round coloured stickers next to five indicators considered priorities. The participants were encouraged to use more than one of their votes to emphasize any indicator they considered as very high priority. The number of votes for each indicator was tallied at each focus group to determine the priority ranking of that indicator.

Focus groups as a data collection methodology is described in greater detail in Chapter 2.

Many potential indicators were identified and discussed in the workshops, but the following tended to be thematic priorities: quality and quantity of and access to water; availability and access to forest products; quantity and variety of personal consumption; levels of agricultural production and agricultural income; and land distribution (distribution of land per person). The focus groups generated many discussions about what sustainable development entails at the local level in the watershed, and how well-being and sustainability might be measured by indicators (see Table 6.3). The thematic range of these discussions exhibits substantial breadth and depth, showcasing a number of overall themes and associated specific issues. These range from concerns about natural resources such as water and forest; to basic needs and services such as nutrition, health and education; to social concerns such as sense of community, language and religion; to economic concerns about production and income, technical assistance and infrastructure for goods and people. Finally, these concerns regarded concerns such as land availability and tenure. It was made clear in the focus groups, that indicating sustainability means addressing a variety of issues from a range of perspectives.

This range of perspectives was not represented in the final suite of indicators chosen for inclusion in the simulations. After the focus groups had been conducted and a list of

potential community-based indicators were established, each of the resulting indicators were discussed with the modeller to determine the feasibility of integrating them into cumulative effects scenarios. It was concluded that, "it was not possible to simulate the full suite of indicators identified at the workshop(s) …due to lack of information for many of the indicators" (Carlson 2006:6). Ultimately, no new indicators were added to the original expert-led suite as a result of the focus groups, and some of the locally generated ideas about suitable indicators were abandoned.

Table 6.3: Community-based Indicators from Focus Groups (Source: Author)

Theme	Indicator examples	Priority ranking
Agricultural Production	Cash crops subsistence crops	1 1
Commercialization	Quantity of products commercialized Sources of support for commercialization (those known and those accessible)	1 1
Culture	Level of use of Guarani Participation in religious events	4 4
Education	Levels of formal education Accessibility of education (cost/location) Literacy rates Opportunities to continue education beyond basic levels Opportunities for training/work	2 2 1 2 2 2
Forest cover	forest products available for use satisfaction with availability of forest products	1 1
Health	Accessibility of medications through social or private pharmacies Accessibility of Health Centre	2 3
Income	Cash crops Employment income Distribution of income by household	1 2 1
Infrastructure	Quantity and accessibility of means of transportation (for produce and people)	2
Property rights	Incidence of land title Quantity of land owned by producer households Quantity of land-used per household	4 4 1
Technical assistance	Number and type of workshops for men and women	3
Water	quantity of available water sources quality of available water sources existence/sufficiency of riparian zones accessibility/distance from water sources households	1 1 2 1

Thus, indicators for use with ALCES were determined "based on consideration of workshop outcomes, availability of data, and capacity of ALCES" (Carlson 2006:6). The three indicators chosen for simulation with the ALCES software were: net agricultural income; net agricultural income for small producers; and remaining 'natural' area. In the case of each of these indicators, some data was available through a previous study undertaken in the Mbaracayú, in neighbouring regions believed to be comparable, and more generally on global trends in the agricultural sector (see Table 6.2 for an illustration of these studies and data sources). Furthermore, in each case, the indicator can be directly and quantifiably associated with distinct land-uses.

The aim of using ALCES is to project the indicator outcomes relative to different land-use trajectories, and based on this assess the sustainability of the trajectories. Thus, indicator data must be available, or calculable, for different points along the trajectory. Data availability and the ability to directly and quantifiably relate these data to land-use scenarios determine the aptness of both potential indicators and possible trajectories or scenarios. These requirements culminated in the assessment of three land-use trajectories: business as usual (current practices), increased conservation of natural habitat (where no human activity will be permitted, much like in the RNBM), and the implementation of practices that qualify as 'sustainable agriculture'.

Once the indicators were established and baseline data and data regarding their relationship with land-uses, the modeller generated the scenarios that illustrated land-used patterns and outcomes in the CARJ over the next 50 years. In 2006 a first draft of the report detailing the analysis was released, and in March of the same year scenarios were presented to stakeholders in the CARJ[28]. The scenarios illustrated what would occur in relation to three different indicators, over the next 50 years, under three different land-use scenarios.

To simulate indicator outcomes of land-use, certain assumptions are acknowledged and maintained throughout each scenario (Carlson 2006). In these scenarios, "the assumptions used in the simulations were, as much as possible, based on empirical

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[28] The scenarios that were presented were preliminary analyses, and this was made explicit at the outset. Further analysis was awaiting feedback and input from stakeholders, and identification of additional potential data sources.

findings from the region" (Carlson 2006:8). All trajectories have the following assumptions in common:

- Soybean expansion will occur at a rate of 6% per year. This is based on international demand, and projections of the government and soy industry (Dros, 2004). Furthermore, the amount of additional land occupied in this expansion will also be 6% because the majority of soy production involves sustainable agriculture (i.e.: maintains soil quality), and does not necessitate land abandonment.

- In 2005, 60% of soy production in Paraguay was reported by Lange (2005) to have been produced using no-till. However, in the CARJ, it is believed to be much higher, approaching 100% (personal communication).

- Small scale agriculture expansion will occur at a rate of 1.5% per year - based on population growth which was, in the area 1.5% annually between 1990 and 2000 (UNDP, 2003).

- Land cultivated by small producers will be abandoned after 26 years of unsustainable agricultural production that will render the land unproductive, and new land to replace it will be sought out (Lange 2005).

- In 1998, Sorrenson et al. (1998) reported that .4% of Paraguay's small producers employed no-till agriculture.

With the indicators established, the relationships between these indicators and land-uses determined from previous studies, and the assumptions made explicit and confirmed to be 'reasonable' by stakeholders, the cumulative effects simulator was positioned to generate scenarios. The graphs (pictured) illustrate the scenario outcomes by indicator. Each of the three coloured lines represents a land-use trajectory:

Figure 6.2: Indicator responses to three land use scenarios (Source: Carlson, 2006)
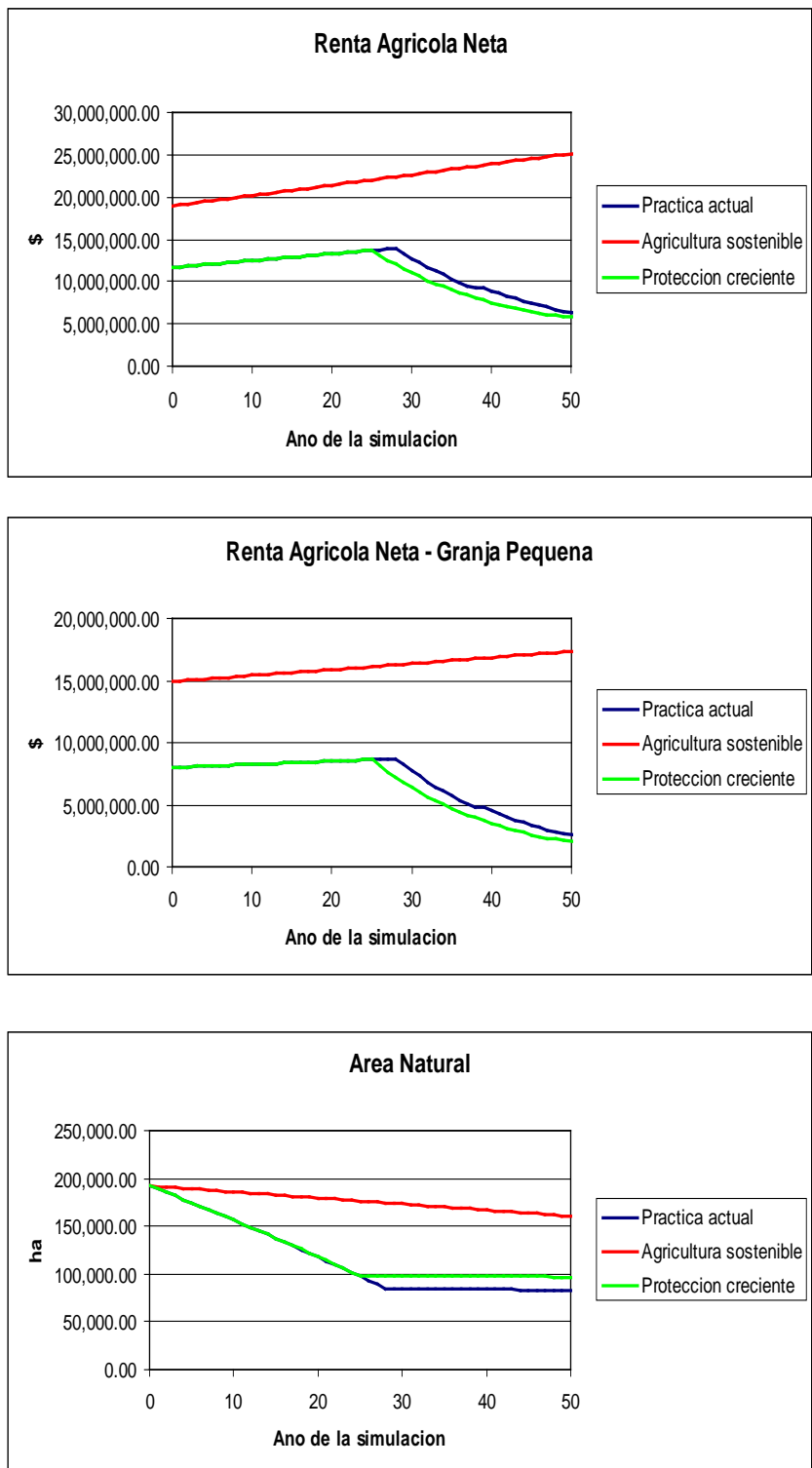
1. The first scenario (blue line) illustrates how three indicators respond to current practices. Under current practices, land-used for shifting cultivation increases by 1.5% which accounts for the population growth. Soy production experiences a 6% growth, reflecting the growth in the industry. Expansion can only continue until a maximum of 78% of the Mbaracayú Biosphere land is dedicated to agriculture. This is because 22% of the land is protected by either private reserves (including the Mbaracayú Forest Nature Reserve) or indigenous reserves is thus not available for agricultural expansion.

2. The second scenario (green line) illustrates how the indicators would respond to a 4% increase in protected areas and reserved land in the CARJ. The scenario is practically identical to the business as usual scenario except for that agriculture can only expand to cover a maximum of 74% of the land, as an additional 4% is protected as reserve.

3. The blue and green lines show that there is little variance in the indicator response between the current practices and the increased protection scenarios. However, the real positive impact on the indicators is shown to result from the sustainable agriculture scenario (the red line), under which all producers are using sustainable techniques (namely no-till cultivation), soil quality is maintained, productivity increases, and agricultural expansion slows to reflect only increases in production. No land needs to be cleared to replace degraded land as soil quality is maintained and the need for abandonment is eliminated. Furthermore, productivity is not merely maintained, but increased under sustainable agriculture and thus incomes also rise.

6.3.2 Implications of the simulations: Evidence-based policy recommendations

Implementation of sustainable agricultural practices, according to interpretations of the ALCES simulations, plays a large role in averting social and ecological disaster (Carlson 2006). Under current practices, reads Carlson's report, "the simulation predicts that in 50 years the Cuenca will be a region of severe poverty and ecological degradation" (Carlson 2006:29). However, it continues, "Fortunately, the scenario analysis indicates that economic and ecological ruin need not occur. Sustainable agricultural practices, in

particular, have the potential to support the Mbaracayú program's goal of supporting both biodiversity and the well-being of local inhabitants" (Carlson 2006:29).

The practical implications of this analysis for the design of policy and interventions are clear. Soy production, undertaken on large properties, using no-till cultivation, is considered sustainable because it has been shown to not compromise soil quality, and thus does not necessitate the abandonment of cultivated land and relocation of cultivation on newly deforested land. Aside from the 'inevitable' six percent growth in land cover used for soy production, based on predictions about annual growth in the soy industry, soy production will not incur further deforestation. According to the CES analysis, the practices of soy producers on large landholdings do not pose a threat to sustainability. Rather, the simulations showed that 'sustainable agriculture' was typically practiced on large landholdings in the CARJ, and thus, large landholders were depicted as engaging in sustainable development!

However, simulations also showed that small holders, as they abandon degraded land and clear new land for subsistence agriculture, would drive the area to ecological and economic ruin within 50 years. This fate could be changed if producers, small producers in particular, recognized the risk of not undertaking changes in their practices, and engaged with sustainable agriculture. Based on these unsustainable practices, a focus on behaviour change in small producers is projected as required to maintain production levels, agricultural incomes, and 'natural areas'. Promoting sustainable practices is to advocate personal training, the production of technical manuals and disseminating radio messages about new crops and new and advanced practices (as we saw in Chapter 4). Similarly, using the cumulative effects simulator programme, will show what kinds of land-use options will enable citizens to reach their environmental, social and economic goals. These methods are aimed at increasing technical knowledge, improving available information and streamlining data.

Overall, it is assumed that implementing these methods, environmental degradation and deforestation in particular, is more likely to be mitigated because: a) the simulator has shown people what they have to do; and, b) through technical assistance they have been shown how to do it. If producers were aware of the detrimental environmental impact their practices were having (if they understood the error of their ways), and

were instructed in practices that would thwart these negative impacts, then they could and would change those practices. Non-compliance with these strategies is attributed to a lack of the understanding and sophistication required to see the local, regional and global significance of the goal of reducing deforestation, and the vision to understand the impact of specific behaviours on the end goal.

6.4   Modelling land-use outcomes: Blurring the lines between facts and norms

The last section illustrated how ALCES is understood as both a product of, and a means of creating evidence. Data was used to create the simulations, which then became evidence for basing policy choices. The roles of the expert and the participants were clearly separated into the task of generating facts and the task of establishing an acceptable normative framework for decision-making. The expert was to establish evidence by generating the simulations. The public, was then invited to debate about land-use trade-offs and planning goals, in light of the evidence. However, upon closer inspection, policy inputs cannot be neatly compartmentalized into norms on the one hand, and facts on the other. First, debates about land-use trade offs and setting planning goals are not rooted in social facts regarding social, economic and political disparities between different groups of people. Secondly, despite the assumed essence of the indicator outcomes as fact, choices, preferences and social factors profoundly involved in establishing and operationalizing the indicators used to illustrate meaningful outcomes of land-use for local people.

6.4.1   *Defining land-use trade-offs and planning goals: More than a normative perspective*

The idea that there can be universal norms surrounding trade offs of different land-use between different stakeholders overlooks how perspective on such matters is linked to socio-economic and political factors such as ethnic difference, inequality and different resource priorities. Whether or not trade offs are beneficial, or even acceptable, depends very much on not only one's physical position, but also social position. Thus, attitudes and values about land-uses vis-à-vis socio-economic and ecological outcomes are not inherent, and do not emerge in absentia of facts. Rather they are formed in relation to context that is perhaps not fixed, but does have material and political implications.

The cumulative effects simulator is meant to explore the comparative advantages and disadvantages of potential land-use regimes. But advantages and disadvantages are not universal; they depend on variables such as socio-economic position, livelihood pattern, access to resources and potential for opportunities. As is characteristic for biosphere reserves, the Mbaracayú is home to diverse conditions making it vital to talk not solely about benefits and risks, but the distribution of these benefits and risks implied by different land-use scenarios. As Carlson states in his planning principles, "Each land-use generates advantages and each land-use generates disadvantages… The challenge is to balance the positive and negative effects of land-use options" (Carlson 2006). The attempt to pin down some inherent and objective advantages and disadvantages of different land-uses lacks both utility and meaning in the context of the CARJ. A 'balance' of risks and benefits for one, does not likely represent a balance for others. Risks and the benefits of mitigating risks are viewed more appropriately as: differentially distributed within society; as generated by multiple sources in uneven ways; and as phenomena subjectively experienced by individuals and groups of individuals. This nuanced and contextualized way of viewing so-called advantages and disadvantages will inevitably entail a richer analysis that delves more deeply into desegregation and distribution.

The assumption that risk is spread equally among individuals, is implicit in a non-spatially explicit 'cumulative effects simulator', which looks at net regional risks and benefits, and has very limited capacity to disaggregate these benefits. However, the ability to exploit resources through the implementation of land-use options requires resources such as access to land and investment capital. Access to these resources is clearly highly disparate in the biosphere reserve, and thus the benefits from land-use, generally, are realized differentially by different groups of people.

There is plenty of disagreement about the advantages and disadvantages of various land-uses in the CARJ. Padwe (2001) writes about an instance, that I also became familiar with during my fieldwork, that exemplifies this disagreement, and the ensuing conflict. The conflict arose between different perspectives on desirable land-use patterns.

1. The FMB, whose main concern is deforestation and biodiversity conservation inside the reserve, who promotes forest conservation outside of the reserve, and who is generally in favour or excluding people from use of the reserve.

2. The campesino community of Maria Auxiliadora – colonists who had come to the area roughly 10 years before; the migration facilitated by the IBR. The campesinos wanted to improve their living standard by selling timber and expanding their agricultural base.

3. The Indigenous Ache, who wanted to assure their continued access to sufficient forest for hunting and foraging, but were inhibited by both violent clashes with the residents of Maria Auxiliadora, and the FMB's restrictions on entering the RNBM.

Between 1997 and 1998, acute conflict was settled through a land deal, assisted by the FMB. The land was purchased from the landowners of Maria Auxiliadora, and the campesinos were relocated to new land that to many, was more desirable based on its proximity to roads and public services. Title to the land was granted the Ache (Palacios, personal communication). For the time being, the land-use goals of all parties were been met. But land-use preferences are not necessarily static, and may change over time with the presentation of changing social and economic circumstances and opportunities. For example, questions have been raised about what will happen to the relationship between the FMB and the Ache, should the Ache decide :

> Although the Ache currently state that their goal of hunting motivates them to maintain forest on the properties, they are subject to many of the same social and economic constraints which faced the colonists. In the future Ache goals may change, they may desire more agricultural lands or money from timber sales, and deforestation may be the result (Padwe 2001:138)

Further, new demands on land-use may be introduced – this is exactly what happened in the example above. Ten years after the Maria Auxiliadora land sale was struck, during my stay in the Mbaracayú , a new dimension in this conflict came to the fore: a prospective landowner produced a title from decades before, showing himself to be the owner of the property. This challenge was overturned, but even though the attempt at expropriation was not successful this time around, it highlights ongoing pressures of emergent land claims (Palacios and others, personal communication).

Because of these wildly divergent perspectives on what kinds of advantages and disadvantages are generated by land-uses, establishing common goals for land-use planning is problematic. Indeed, establishing goals is part of many planning processes, and is supposed to direct, limit and provide a structure for debate and ultimately, decisions made during the planning process. Many planners would argue that setting goals is vital to the planning process, however, goal setting can be an ambiguous process, that often reaches agreement between disparate stakeholders by generating uncontroversial and vague goals that are abstracted to a degree at which they are no longer useful for making meaningful decisions. For example, the modeller suggested that the goals of land-use planning should "satisfy human needs while protecting resources for the future" (Carlson 2006). Based on this vague criteria, he proposed the following as goals (Carlson 2006):

1. Maintain the rich biodiversity of the RNBM
2. Sustainable use of the natural resources in the CARJ
3. Improve the well-being of the local residents of the CARJ

The exercise of setting goals becomes problematic for several reasons. Firstly, goals are generally formed in a conceptually broad environment that is all too often deficient of meaning, elaboration of interpretation and recognition of diverse perspectives. Goals are articulated in a language that makes them uncontroversial and difficult to debate. The goals above are not likely to be challenged as, broadly speaking, they represent the interests of all stakeholders. For example, 'improving the well-being of communities', and 'promoting the sustainable use of natural resources' are not likely to be challenged by many people as worthy goals.

However, when these statements are unpacked, it becomes apparent that the meanings they hold, and what decisions they entail, even how they will be measured, will not be the same for everyone. Yet these kinds of overarching goals have become idioms that can embody many manifestations, but are often assumed to be understood in the same ways by all stakeholders. For example, the importance of maintaining rich biodiversity seems a benign statement, but which biodiversity is most important – medicinal plants, animals important for hunting such as the common tapir, or charismatic species more relevant to tourism such as the jaguar? Why biodiversity is important will affect the

answer to this question – is it 'ecosystem health' (and who decides when an ecosystem is healthy?), potential for bioprospecting, or sustainable livelihoods?

Sustainable use of natural resources is obviously important, but as was previously discussed, what constitutes 'sustainable use', and do these definitions limit the ability of poor farmers, with limited access to credit or labour, to act in ways that are sanctioned as sustainable?   How sustainable can natural resource use be considered, when one percent of the population controls eighty percent of the natural resources?   What aspects of well-being are considered vital or even important for local residents?   If rural employment increases, but is accompanied by an increase in pesticide related illness, is this acceptable or desirable?   How are unintended consequences accounted for?   Furthermore, when trade-offs need to be made, which of these goals take precedence over the others, and who makes this decision?

Furthermore, it is not only goals, but the priority of goals that needs to be analyzed in the planning process – however, this is often not taken into account, and goals are glazed over as equally important in order to satisfy all stakeholders.   If one goal is achieved, but another is not, how acceptable have the outcomes of land-use planning been?   This, I suggest largely depends on where you sit at the negotiation tables.   For example, if both NGOs and rural producers are involved in land-use planning, much different responses will be observed if biodiversity is seen to be maintained but small landholdings are perceived as insufficient (and vice versa).   A participant in one ALCES workshops wanted to address this issue by setting minimum criteria for achieving goals before their interpretation is opened up for debate: "Some actions are simply not acceptable, and we must identify what those are before opening the conversation to more stakeholders" (participant in ALCES discussions, 2006).

Ultimately, establishing this brand of 'goal' can justify a variety of outcomes that may not be desirable or even acceptable to large stakeholder groups.   In addition to the interpretation, the prioritization and operationalization of measures to reach goals further problematizes the processes involved with goal setting.   Perhaps, in order to be less ambiguous and problematic in planning, we need to abandon the expectation, or at least question the feasibility of the necessity between disparate stakeholders for agreement and consensus.

6.4.2   Indicators: evidence of how land-use change is experienced?

Indicators provide evidence of the outcomes of land-use. But to what extent are these outcomes unequivocal? This section examines the indicators in more detail and finds that they do not provide an unbiased, unavoidable social and ecological trajectory for the Mbaracayú. Rather, they provide one perspective that is deeply influenced by a variety of caveats, including the choices and preferences of the modeller and requirements of the model. Selection of the indicators:

1. favoured indicators with a short term, quantifiable relationship with land-use
2. favoured particular reasons over others, about what indicator dimensions are most significant, which may affect the way in which the indicator is measured, and ultimate policy implications of taking a particular view on an indicator.
3. was characterized by data requirements that were more complex than recognized
4. favoured indicators for which there is data, potentially overlooking the politics of missing data
5. favoured specific elements of diverse livelihoods over others

First, selection of the indicators favoured those with a short term, quantifiable relationship with land-use. Indicators are vital elements in models; they signal the changes in ouputs (such as income or forest cover) that correspond with changes in inputs (such as land-use practices and effective protection policies). The signal is both in vector (direction of change, be it positive or negative; desirable or undesirable) and strength (the degree to which the change is effected). Because of this assumedly 'predictive' capacity, indicators have certain requirements that must be fulfilled. The indicator must have a causal, quantifiable and incremental relationship with the outcome.

Understandings and available evidence about causal relationships become problematic in conjunction with complex systems and socio-political processes. For example, while the 'well-being of local communities' is an important goal of the land-use plan, the ability of 'measurable indicators that closely reflect land-use changes', to monitor progress towards this goal, are unlikely to be sufficient. There are two reasons for this.

The first is the long term, complex and non-incremental, or non-fixed incremental connection between land-use and many aspects of wellbeing. For example, concerns around health and education are important to local people, but indicators related to health and education are inappropriate for integration into the model because of the unclear links between these indicators and land-use options and changes. Thus often, important local issues are disregarded either because of unavailable data, or more importantly, because the corresponding indicators are considered inappropriate as indicators of land-use (lacking a direct link with land-use). Various participants in the ALCES workshops echoed this concern:

> The indicators presented for ALCES differ in good measure from those that were identified by the FMB staff in (indicator development) workshops; on this point I am very sorry that during the ALCES presentations the priority was to show the program and convince us of the importance and capacity of it, and not to work on key aspects such as developing appropriate indicators – those presented were identified and presented as the necessary ones (Comment made by FMB Manager at an ALCES workshop in Asuncion).

Data availability is not the only factor affecting the suitability of an indicator for use in modelling. In addition, the relationship between an indicator and any given land-use scenario must be both direct and quantifiable with different points in time in order to consider the indicator within the cumulative effects model. Both the causal link in the relationship between and indicator and land-use, and the precise strength of the relationship, need to have quantitative correlates to be used in the model. This effectively eliminates those variables and issues that may be highly relevant to land-use outcomes, but that are not easily quantifiable or exhibit a less clear or direct relationship with land-use. It also leaves out variables that cannot be linked to land-use outcomes via an inherently causal relationship. For example, education is likely to have dramatic impacts on land-use through many intermediate processes, such as literacy and alternative employment opportunities – but this relationship is likely better described as a correlation, or is not easily quantified (x number of years of education will result in reduced deforestation in the order of y number of hectares).

It is certainly true that land-use change and thus indicator outcomes are long term concerns, potentially spanning many decades. Complicating the potential for social indicators even further is that relationships between an indicator such as education and land-use are likely to be understood over long periods of time; these indicators are not

likely to cause a response in land-use over the short term. In sum, short term studies are not likely to find concrete links between many social indicators and land-use. More relevant studies are likely to be expensive, long term and out of the reach of planners for the time being, and likely, well into the future. Another concern for planners using models to engage the public, is that relationships that are demonstrable over a relatively short term are more likely to engage the public imagination and incite meaningful debate. However, shorter term projections that operate at the scale of participants' foreseeable futures are likely to be more successful at engaging participants, by emphasizing the relevance of current patterns of land-use in a more concrete sense (e.g., distribution of land, land tenure, health, education and traditional livelihoods).

Secondly, the indicators selected explicitly favoured particular dimensions of outcome over others. This affects the way in which the indicator is measured, and ultimate policy implications of taking a particular view on an indicator. For example, whether the expert is talking about natural area or local people are talking about forest resources, the object is the same, but the perspective changes, and this has implications for identifying the indicator. The existence and maintenance of water and forest are, in some respects, encapsulated by the expert-led indicator of "natural area". The relevance of natural area to standing forest and the existence of forest products is apparent (though not all forests are equal in their production of all forest products, and, not all so-called 'natural area' is forest; it also includes savannah grasslands). The relationship between natural area and water quality and quantity, is also implied, assuming that the larger portion of land base accounted for by "natural habitat", the more likelihood that riparian zones will exist, and be sufficiently large to protect water resources.

In focus groups, local resource users recast these particular ecological issues as issues of access to resources. Participants drew attention to an aspect of both forest cover and water not addressed directly by the expert-led indicators, but of tantamount importance to local people; namely, access and distribution of resources. While the existence of clean water and forest products is relevant to resource availability, an issue of equal importance is *accessibility*. The degree to which resources are protected, or even the degree to which this protection contributes to maintaining high standards of quality, says little about who has access to, and control over those resources. Thus, the existence of forest cover, while an obvious prerequisite to access to forest, is an

incomplete measure of access to forest products. Several focus group participants commented that the indicator "forest area" needs to be accompanied by one which measures "forest area available for public use" in order to be an adequate measure of sustainable development.

The different motivations behind establishing such indicators can have ramifications for how they become manifest in policy. For example, expert-led indicators captured reduced forest cover and acute deforestation specifically because of the link with reduced biodiversity or carbon sequestration. On the other hand, community-based indicators captured the same but because deforestation can have negative implications for local people who use the forests for firewood, a source of food, and cash income. An overt emphasis on forest protection as a means of protecting biodiversity, without paying attention to local peoples' dependence on forest resources and existing property rights, may cause hardship for local people such as displacement and restrictions on forest use. This calls attention to the importance of more inclusive ways of developing indicators.

Thirdly, the data requirements for indicator calculations may be more complex and nuanced than meets the eye. Often, social, cultural and political context determines what kind of data is required for a particular indicator. For example, the expert-led indicator of agricultural income is measured with several data sources, accounting for productivity, production inputs and other costs, and the rate of small holder agricultural expansion. Intuitively, these data seem sufficient to arrive at a reasonable estimate of agricultural income for small producers. However, a perusal of the community-based indicators suggests many other contributing factors for small producers to profit from agricultural production. For example, commercialization support, means of transportation and improved infrastructure and technical assistance were emphasized in the focus groups as important factors relating to agricultural income (see Figure 6.3). Indeed, at existing levels of production, producers often encounter difficulties selling it, and heavily depend on intermediaries for commercialisation and transportation. If the price is low, however, producers may get stuck with crops and no buyer at all. Mountains of produce can be laid to waste before any buyer has made an appearance.

This example illustrates that contextual factors have a fundamental impact on how, and whether, farmers are able to market their production. This means that the otherwise reasonable assumption for agricultural income to be calculated with several core data sources renders the indicator inaccurate. Improved incomes in the watershed may depend somewhat on increased production. But, incomes would be much more responsive to other factors such as even marginal improvements in infrastructure. Thus, expert-led indicators may overlook mid points in development processes, and thus have significantly greater data requirements than meets the eye.

Figure 6.3: Smallholder income: Example of complex indicator data requirements (Source: Author)
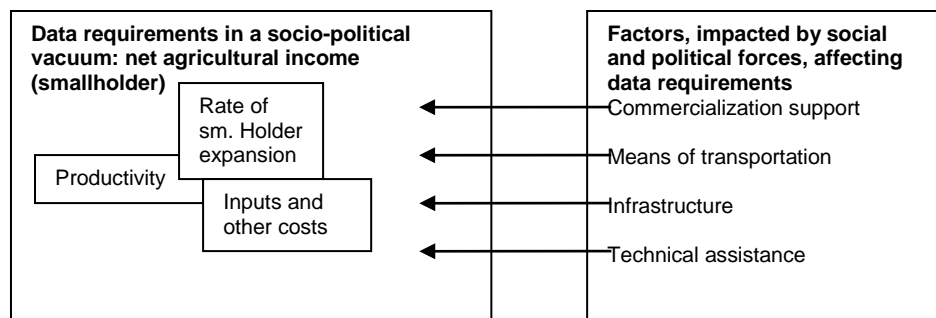
The fourth factor that confounds the idea of factual indicators is that indicators are limited by data availability, and missing data can be the result of concerted and deliberate decisions. Obviously, a model has a high level of data dependence. As Carlson emphasizes, "It is important to understand that predictions made by ALCES will only be as good as the information that is put into ALCES" (Carlson 2006). Without quantitative information about land-use patterns and relationships between land-use and ecological, social and economic indicators, the program cannot run. 'Avoidable Error' and the quality of data have been posited as the fundamental issue in the successful implementation of ALCES. Data availability was the most forthcoming limitation to using the community-based indicators in cumulative effects modelling. For this case study, data availability drove the design of the simulations. Once data sources were identified, the scenarios were constructed around them. This is not an uncommon

problem, particularly in developing countries where there is little national funding for research activities.

While not wanting to exaggerate the importance of insufficient or incorrect data for my argument, it is important to recognize how much of a shortcoming this can potentially be for using database-oriented tools for land-use planning, such as ALCES, in Paraguay. Data availability is neither a politically neutral phenomenon nor does it have politically neutral consequences. It is important to look not only at the 'missing-data' issue, but also to examine and reflect on *which* data are missing, why this might be (aside from the obvious 'lack of research and funding for research') and how this might reorient the focus from certain activities to others. This reorientation of focus may be a product of false assumptions, created by the elimination of a necessary part of the picture.

For example, lack of data, research gaps, and lack of resources to conduct research are often (rightly) pointed out as serious obstacles to 'feeding' simulation models. However, the case may be that data is unavailable for more covert reasons, such as illegal activity. For example, illegal logging has an observable impact on the landscape in the Mbaracayú Biopshere Reserve. One only has to be present to see trees and processed wood streaming out of the region on the truck beds, in oxcarts and the backs of men. However, because specific information and particularly official or peer reviewed studies, on the impact of logging, is not likely to be offered or asked for, this aspect of land-use is omitted from the cumulative effects analysis. Meanwhile, the ecological burden of this activity is attributed to factors that are recognized by the cumulative effects simulator: one of these being the unsustainable agricultural techniques used by small holders. Thus, the excluded data is likely to compensate for 'missing explanation' by exaggerating others.

Most social indicators lack agreed-upon thresholds and quantifiable cause-effect trends backed by research. It is more likely for data to be available for expert-led indicators as the issues are more standardized and predictable, due to existing research on their potential causal effects relationships. Integrating expert-led with community-based indicators may be desirable, but research and data, particularly for contextually specific community-based indicators, are not likely to exist short of designing and implementing expensive surveys for the region in question.

Fifth and finally, indicators selected can favour certain elements of diverse livelihoods over others. For example, the expert-led indicator "agricultural income" resonated deeply with focus group participants. With few opportunities to engage in wage labour, selling cash crops continues to be the most economically and culturally significant and stable way to earn income. The design of the ALCES indicator was well executed in that it captured differences between the high earners and the low earners in the watershed. This was done by splitting the agricultural income indicator into two: income from soy production, carried out exclusively on large properties in the Mbaracayú region, and income on small properties or parcels. To a large extent this helps to capture the most significant income distribution issue in the watershed: the differential in earnings between large and small land holders. This also reflects the difference in political leverage vis-à-vis a small but highly influential number of large landowners over the majority of poor small-scale producers.

However, while an important part of a complex web that comprises overall livelihood strategies, selling cash crops is not the only concern, nor is it particularly the most important for local livelihoods. Focus group participants emphasized other facets of the rural livelihoods in the watershed, attaching major importance to levels of subsistence crop production for the status of nutrition and overall well-being. Opportunities for employment income, though indeed less emphasized than agricultural income, were nonetheless considered a vital part of livelihood strategies. This links directly to land-use in the watershed due to the largely mechanized nature of large scale soy production.

6.5   Participatory planning or evidence-based participation? Challenging the expert as privileged participant

Despite aspirations that modeling can become a tool for participatory land-use planning, the analysis of ALCES illustrates how all participants are not equal. The modeler is privileged among participants because of his access to, and delivery of, the important and relevant facts, not because of some special understanding of the planning context or because he represents a broad range of interests in the planning process. However, the previous section offered various accounts of how the simulations developed within models, despite being presented as both incorporating and generating evidence, were based on data selected out of social and political preference, at times

convenience and even necessity – rather than scientific prowess. Despite this the expert driven ALCES simulations are presented as the definitive evidence, that only the choice of smallholders to switch to sustainable practices could save the Mbaracayú from ruin; hardly an example of deliberative policy making.

The deliberative critique of participation, examined in Chapter 3, provides a response. Emphasizing normative positions as potentially legitimate and credible bases for policy is important. However, an emphasis on deliberation is not enough – the authority, credibility, and policy relevance of evidence has been shown to dwarf the importance for deliberation. We must also engage with the evidence produced by the modelling exercise, to show that the land-use outcomes, presented as fact in the model, are also shaped by particular preferences, assumptions and norms that may not even be recognized by the modeller.

6.5.1   *Expert participant*

Despite the participatory aims of ALCES modellers, there is little room around the fact that the expert technician has a privileged understanding of the way data is used in the model. Because of this, the modeller plays the primary role in all stages: from the initial literature review, data selection and, the orchestration of scenarios, and thus, what implications those scenarios will likely have for policy and practice. In a case study of an experience of land-use planning with ALCES, taken from Alberta, Canada, where the software was developed, Schneider et al suggest that:

> In practice, we expect that the greatest utility of our modelling approach will be in facilitating land-use planning among groups of stakeholders. The primary benefit of the model is that it provides a level playing field of stakeholders to assess the costs and benefits associated with alternative management options… Because stakeholders must make explicit their assumptions and objectives and work together to define scenarios and assess their output, the model also facilitates communication. (Schneider, Stelfox et al. 2003:no page - electronic resource).

Carlson adds that,

> "ALCES provides a way to structure discussions among community members during land-use planning. If community members can agree that ALCES is a useful way to evaluate land-use, ALCES provides a

transparent way for the community to come together and evaluate challenging land-use issues" (Carlson 2006).

However, in practice, the process was remote from this participatory ideal. One participant in the ALCES workshops in Asuncion seemed to echo the feeling of others when he suggested that, "If the idea was to discuss this (the potential of using ALCES in land-use planning in the CARJ), I am sorry that the attempt did not work, and at least personally, I feel that the idea was to show us, rather than work with us" (comment made by workshop participant).

A potential outcome of the intensive and extensive involvement of the technician is that the apparent technical complexity in generating scenarios, combined with the seeming utility of the results may facilitate further intimacy between experts and policy formation, while aggravating and deepening the divide between policy formation and the public. Part of this is because once the data are entered into ALCES, they become laws (or at least, 'rules of thumb'), about the relationship between land-uses and indicator outcomes, and the science behind the data 'disappears'. Datasets are moulded into overarching facts that take on a life of their own once separated from the presenter and promoter, rather than scenarios that are based on the selective analysis of selective data. The reasons for the selectivity and selection processes become invisible. Ultimately, these data-cum-laws are cast in a distinctly neutral and objective light, rather than interpretations that emphasize and favour particular interests and priorities over others.

Simultaneously, it is the technician's relatively exclusive access to knowledge about the data sources and the way that ALCES uses them, on the one hand and interpretations of this knowledge on the other, which gives rise to asymmetrical power relations in the negotiations. Indeed, this uneven knowledge of the simulation tool (differential abilities to create and interpret simulations) lead to a troubling asymmetry in the power positions of different negotiating 'partners' in planning negotiations? (Svedin 1998:302). As Yearley comments on Taylor's 1992 analysis: "The potential role of the actors themselves as conscious agents of change is highly limited. The … modellers through their special skills and techniques are supposedly able to provide insights into the system which the actors themselves are denied" (Yearley 1999:247). Furthermore, the simplistic policy implications that emerged from the ALCES scenarios compound and

extend these power asymmetries through assigning blame to campesinos for unsustainable agricultural practices. The simulations position behaviour changes as voluntary – producers choose to implement or choose to not implement sustainable practices. To choose to implement sustainable practices is to salvage the Mbaracayú from a certain future of poverty and desolation. To choose to the contrary is to write its end.

6.5.2   Participatory modelling or model-based participation?

Combining participatory with evidence-based approaches is often more about using the model to shape participation than using participation to shape the model. The idea of ALCES, is to use the facts about the outcomes of land-uses to reorient public values, norms and attitudes towards sustainable practices. By showing people future impacts of land-uses, the modellers encourage the adoption of the land-use practices or systems to which the indicators respond most favourably. The rationale is that if people can see the future implications of current land-use, they will be more likely to tailor their behaviours in a way that produces desired outcomes. Fallibility in the scenarios is attributed to flawed or incomplete data ('The results generated by the simulator are only as good as the data entered into it'); and the decisions that people make about land-use ('Cumulative effects simulators cannot tell the future, because we cannot foresee the decisions that the community will make'). Therefore, to improve the reliability and validity of the scenarios, improved data quality, and improved influence of the models over the decisions people make are prescribed.

But improving the evidence, and the influence that evidence has over peoples' behaviour is not so straightforward. Rather than being 'fed' with facts and 'producing' facts, models have been shown to that models is imbued with values, priorities and perspectives that are linked to social identity. Furthermore, in the case of experts, this social identity is most often hidden - passed for some kind of universal, objective view. This spells the end of any potential for deliberation, because the model is taken for uncontestable truth. This key problem is highlighted with regards to integrated assessment models (IAMs)[29]:

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[29] IAM is a 'container concept' to refer to different computer programs (such as ALCES) developed to support IA. IAMs are "computer models in which knowledge from many different disciplines is combined to assess the problem at hand in an integrated fashion. IAMs are being used for several purposes, such as scenario analysis, (ex-ante) evaluation of the environmental, economic, and social consequences of different policy strategies…" (p. 323) Van der Sluijs, J. P. (2001). Integrated Assessment

> Subjective choice and value-laden assumptions often remain implicit as they are hidden in computer code, in scientific documentation of the model, or in the minds of the modelers. Often, the modelers themselves are not aware of the value-laden character of the assumptions made. The value laden assumptions in IAMs remain largely invisible. In a participatory setting this is undesirable, because stakeholders involved in the… debate need not necessarily share the values and subjective choices that underlie an IAM" (Van der Sluijs 2001:318).

Thus, it is not simply that more knowledge is needed to get ALCES right – it is that the fundamental notion of what it means to 'get it right' is itself a matter of debate. As put by Wynne different social facts influence environmental values differently:

> It is not, therefore, that scientific knowledge merely omits social dimensions that ordinary people incorporate in their evaluations and assessments. It is that scientific knowledge tacitly imports and imposes particular and problematic versions of social relationships and identities. This seems a major factor in the sometimes negative public response to technical pronouncements, especially ones which, in their lack of institutional self-awareness or reflexivity, impose these social prescriptions without negotiation (Wynne 1996a:20-21).

Yet, these discussions at a landscape level do not emphasize how advantages and disadvantages are disaggregated and the focus of analyses is impacted by the data dependencies inherent in such computer programs. These points are of crucial importance, particularly in a society characterized by dramatically grave inequality, as is Paraguay.

However, this chapter has shown this – each experienced differently by different people dependent on their social, political and economic locations. Whereas the environment and development strategies are focused on primarily addressing one of these risks (deforestation) there are other risks that, for diverse stakeholders, loom largely in the foreground. Thus, we see that the deliberate definition of deforestation as the supreme issue, is a political act, rather than reflecting some consistent, objective 'state of things'. Sustainable development has been shown to be, only to a limited extent, defined by predicted, mechanical, ecological responses to certain behaviours. In sum, "everyone assumes that agriculture must be sustainable. But we differ in the interpretations of

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Modeling and the Participatory Challenge: The Case of Climate Change. <u>Knowledge, Power, and Participation in Environmental Policy Analysis</u>. M. Hisschemöller, R. Hoppe, W. N. Dunn and J. R. Ravetz. New Brunswick and London, Transaction Publishers: 317-347.

conditions and assumptions under which this can be made to occur" (Francis and Hildebrand, 1989:8, from Pretty, 1995:1248).

Some critics of the ALCES modelling exercise, may be tempted to blame the incompleteness and inaccuracies on the fact that the modeller himself was an outsider, with little experience of Paraguay and particularly this region of Paraguay. While this is not a completely dismissible issue, the analysis in this chapter has shown that exaggerating its importance is to miss more important aspects of the problems. This is because the issue with modelling goes beyond the identity of the modeller, to the issue of 'naïve planning'. Drawing on the concept of naïve sociology (Wynne 1989) naivety in planning is illustrated when the analytical findings of the process make sense only in light of assumptions which are largely closed off to closer empirical examination. An example of this is how the data requirements for indicators are underappreciated and insufficiently nuanced. For example, the indicator of small holder income is deeply profoundly by external supports such as technical assistance and infrastructure, but these are not considered in projected smallholder incomes. Nor could they be considered in the indicator calculations because they are neither quantitative nor are they proportionate to income.

Another example of an under-examined assumption is rapid rate of deforestation, based on a 26 year 'expiry date' for land cultivated by small producers. After 26 years, it is estimated that unsustainable agriculture will exhaust the land to the point that productivity levels will be insufficient to profit from, and the land will be abandoned and new land will be deforested for agriculture. This, combined with population growth (with corresponding agricultural expansion) will result in the total deforestation of non-protected lands (i.e.: outside the reserve) and the plummeting of smallholder farm incomes in fewer than thirty years. But upon closer examination of the actually existing conditions in the CARJ, this estimate is a gross exaggeration on several accounts (these were discussed in Chapter 4):

- Small holders use sustainable techniques.
- Small producers, with an average of ten hectares of land, rarely cultivate all ten hectares at once, if ever.

- Small producers adapt by intensifying cultivation methods as yields are perceived to decline.

- There is the potential for an increasing proportion of household income in the CARJ to come from migrant employment (i.e.: to Asuncion, Argentina, and increasingly Europe).

6.5.3   *From modelling landscapes to 'model' landscapes*

This brings us to the question of whether or not a model can *ever* be 'purely factual'. Modelling enterprises do not produce neutral snapshots of a landscape (Harvey and Chrisman 1998; Robbins 2003). Rather, they provide *representations* of a landscape that correspond with particular views of the world, priorities, and values. The ALCES representations of the Mbaracayú, unsurprisingly, not only correspond, but reinforce and legitimate the conservation and development landscapes discussed in Chapter 4. Contrary to the conventional view of the map as an objective representation, the well-known critical geographer/cartographer Brian Harley's careful analyses reveal the "textuality of maps, including their metaphorical and rhetorical nature… (and) the dimensions both of external power and of the omnipresence of internal power in the cartographic representation of place" (Harley 1989:1). The ALCES program is nonspatial; it does not produce spatially explicit depictions of outcomes. Rather, outcomes are predicted at an aggregated, landscape level. However, despite the absence of a map, a landscape is still produced by the ALCES analyses. And the 'textuality' of this landscape is clear: rapidly disappearing forests, are eaten away by unsustainable small producers as a benevolent NGO fights to save forests and the cultivation techniques of large producers set the sustainable example for all. Blame for land degradation and deforestation lands squarely on the campesinos, and their rationality is further compromised by the 'ALCES-generated fact' that if they don't change their behaviour, they confound their own well-being and even assure their own demise.

The simplicity and aggregation fulfil the requirements of ALCES, to make descriptions and categories in ALCES useful and operational, and sharpen the focus on such a landscape. Once again, we are reminded of legibility in the representation of landscapes, discussed in Chapter 4. Legibility persists, and is insisted upon, despite that "the data from which such simplifications arise are, to varying degrees, riddled with

inaccuracies, omissions, faulty aggregations, fraud, negligence, political distortion and so on" (Scott 1998:49).

6.5.4   Models: Use them or lose them?

It is unsurprising that the matter of whether, and to what extent, modelling should be used in a participatory context is a contentious one. But what does the present analysis mean for the role of models in environmental governance? Are planners held hostage to either using models and surrendering deliberation on the one hand, or surrendering models for the sake of salvaging deliberation on the other? Positions on the use of models range from advocacy to adamant opposition. Advocates argue that despite uncertainty and knowledge gaps, models are the best (though imperfect) way to integrate knowledge and evaluate approximate outcomes.

Critical advocates suggest there is a middle ground, where "complex simulations are no longer touted as predictive models but as heuristic devices to explore the logical implications of certain assumptions" (Peters 1991:116). Indeed others seem to agree that models can be useful, but their limitations must be fully recognized by stakeholders before they can be implemented into the planning process without usurping public participation and stakeholder debate altogether. For example, Van der Sluijs promotes the incorporation of 'uncertainty management' with the use of models:

> …it is not surprising that there is a controversy about the usefulness of IAMS for assessing climate change… Given this controversy, the use of IAMs can only be justified if all actors that deal with IAMs and IAM results are fully aware of the limitations and caveats of IAM-assessments. This requires full-fledged uncertainty management (Van der Sluijs 2001:327).

Likewise, Edwards suggests:

> If models are heuristic guides, then the political issue becomes what kind of bets to place. Should we centre our planning on the outcome viewed as most likely? To what degree should we plan for extreme, but relatively unlikely, predicted outcomes. These boil down to questions about how much risk a society is willing to take and how much it is willing to pay to reduce it. This construction – rather than the caricature in which science appears as a source of final certainty – places science in its most valuable and responsible role: as a very important source of information which cannot and should not by itself determine policy… (1999:466).

6.6   Conclusion

This chapter has shown how "scientific models for policy purposes are a particularly fruitful site for studying science and expertise in their public contexts" (Yearley, Forrester et al. 2001:366). The rationale of implementing sustainable practices in order to obtain sustainable development outcomes is confounded by a deeper analysis of the context upon which ALCES has been imposed. The ALCES scenarios make clear evidence-based policy prescriptions. Viewed alone, however, without the interrogation of more contextualized dimensions, cumulative effects simulators have the potential to inspire policy that does not confront cultural and political challenges and that is, in many ways, estranged from a reality that is recognized from local perspectives.

The ALCES analysis of indicators outcomes of different land-uses in the CARJ has positioned sustainable development as an objective phenomenon that can universally be achieved through standardized, sustainable agriculture. Its findings are positioned as evidence-based: apolitical and uncontroversial. Sustainability is depicted as a technical issue that can be addressed through behaviour changes, which are, in turn a matter of voluntary will. However, as we have seen, sustainability is not a matter of fact, but rather socially constructed in the image of power relationships. Even in the face of severe inequality which places other livelihood concerns among, or above environmental concerns, practices on large landholdings are cast as sustainable while small producers are blamed for making unsustainable choices.

Data availability and data quality are often identified as the main issues pointed out as problematic by modellers. However, these are not the only, or most important conundrums raised by this tool. Working with the program necessitates use of technical discourse of indicators, outcomes and evidence-based relationships. In other words, the expertise used to generate scenarios, the very nature of the computer program itself, and the specific policy recommendations to which the scenarios give rise, cannot accommodate more normative, political aspects of the sustainability problem. This leads to dramatic simplifications and the direction of blame for ecological degradation toward those whose concerns are not, and cannot be, integrated into the simulations. But this is not to say that the models are factual as opposed to normative. Indeed, as we have seen, the facts to which the model gives rise, cannot be separated from normative positions

about what assumptions are acceptable, how indicators can and should be constructed and what policy recommendations are reasonable.

Chapter 7:

Discursive sustainability: The politics of developing certification standards for soy

In Chapters 5 and 6 I argued that environmental governance mechanisms based on evidence and participation need to be re-examined. This is because there are various problems with the oft-taken assumption that evidence provides the factual basis for decision-making, while participation provides the normative framework. First, evidence for decision-making, particularly in conditions of complexity and uncertainty, is a product of facts and values and norms. This relationship, however, often goes unrecognized, and evidence is treated in a privileged way based on its supposed commitment to objectivity and neutrality. Secondly, because of this privilege and resultant unquestioned relevance to decision-making, participation is relegated to a secondary concern – a search for a normative frame for decision-making that fits neatly within the confines of the evidence. It has been argued that analyzing evidence-based policy mechanisms and making their normative commitments explicit, we can deconstruct the basis for evidential authority. By adopting this approach, analysts achieve a more realistic view of the significant role of normative positions in policy making (including evidence-based policy making) and ultimately open debate to a wider range of potentially rational policy inputs and positions.

Chapter 7 extends this argument with the analysis of a final case – a certification system for the sustainable production of soy. The analysis in Chapter 7 supports and advances the argument that certification systems are more rightly seen as political processes than as evidence-based policies. While evidence is invoked as the basis for sustainable soy production criteria, closer analysis reveals that this evidence is not as factual as it initially seems. Rather, fact is mixed with values about development and sustainability to produce evidence. Like models, discussed in Chapter 6, the basis of certification and labelling standards in evidence about sustainable practices, is often overblown. The controversial and contested nature of certification is often overlooked in favour of a simplified vision of the function of certification bodies: to develop codes of practice that provide the instrumental effects of addressing the environmental and social problems induced by commodity production.

7.1 Introduction

Certification labels, from 'organic' to 'sustainable', are becoming an increasingly prominent part of non-state market based environmental governance (Cashore et al., Cashore 2002; Cashore, Auld et al. 2003; 2006; Klooster 2006; Nepstad, Stickler et al. 2006). Standards must be seen as legitimate to be effective in influencing the behaviour of the producer (to implement the standards) and the consumer (to prefer the certified product based on superior production methods). Legitimacy is often invoked through two means of standards development: stakeholder participation, and sound evidence about how standards link with sustainability. Certification standards can embody public values by incorporating the priorities and perspectives of diverse participants in the process of standards development. But in the face of disagreement, these values often fail to stand up against that which is regarded as evidence – knowledge often assumed to be factual and less dependent on emotion, individual interests and political perspective. However, researchers increasingly recognize that such distinctions are inaccurate. This is important for the study of certification systems, because when evidence is presented as fact (as opposed to values), they are effectively cut off from normative appraisal and human judgment.

This chapter examines the process of developing certification standards for 'responsible soy'. The standards development process is directed by the Roundtable on Responsible Soy (RTRS) an organization convened in order to define sustainability in the context of the soy industry, and to develop criteria for its production, trade and marketing. The RTRS initiative has been taken for many things: a glowing example of corporate social responsibility and shameless corporate greenwashing; a sign of genuine concern about the ramifications of unmonitored production and an elaborate public relations scheme. One major objective of the RTRS was to bring together stakeholders to identify what kinds of measures are required to reduce the deleterious impact that soy production has had on the social and environmental landscape over the past few decades. The RTRS aims to endow the soy industry with "'democratic legitimacy' (which) refers to the expectation on the part of citizens that capital investment does not, at the very least, undermine public environmental interests and minimally acceptable standards of social justice" (Mason 1999:12). More specifically, both interventions specify the importance of including 'multiple stakeholders' for broad participation, dialogue, transparency and representation.

Originating in 2005, by its second year in existence, the RTRS was experiencing well-organized and coherent opposition. This chapter looks at the conditions under which the RTRS and the counter-movement took shape (and continue to take shape), organizationally, but more importantly discursively. It explores how the opposition to the RTRS discursively constructed its position so outside of the thematic categories established by the RTRS, that it was impossible for it to have any influence over the RTRS agenda. It is argued that one reason the opposition to the RTRS took such an extreme position, is the dependence within the RTRS on expert technical knowledge at the expense of other social and political concerns and responses to the impacts of soy production in Paraguay.

I begin with a general discussion about the ways in which the development of certification standards is influenced by social norms and political factors, such as power relationships between stakeholders. Recognition of these social influences promote an understanding of certification standards as promoting an interpretation of sustainability, rather than reflecting some universal understanding of sustainability. Next, I provide a detailed account of the process that gave rise to the certification standards. This process integrates public participation in defining the issues surrounding sustainable soy production, such as local employment, with evidence about rates of deforestation, agricultural techniques that maintain soil quality and zoning for agricultural expansion. This evidence generated within the specialist technical working group within the RTRS led to clear and strong evidence-based policy implications: sustainable agriculture and zoning for agricultural expansion can make soy production sustainable. In the third section, I use the concept of discourse coalitions to analyze the culmination of the collection of so-called hard facts (or, the process inputs) that contribute to the development of certification standards (or, the process output) and ultimately, the policy implications. The discussion draws implications of this case for creating a more deliberative context for the development of sustainable certification standards, by suggesting that evidence (in this case the work of the technical working group) needs to be more critically engaged than is typically done.

In sum, this chapter makes the following arguments in turn:

- the RTRS certification standards development process provides an interpretation of sustainability, rather than achieving a universal understanding of sustainability;

- participation in the RTRS certification standard development is often seen as the normative contribution vis-à-vis the factual contribution of evidence;

- forthcoming standards for responsible soy production – commonly understood as based on the facts about soy production – emerge as a result of normative political struggle, rather than disagreement over the technical aspects of sustainability; and,

- environmental values, judgements and preferences are not universal but emerge differently in relation to livelihood patterns, resource dependence, social identity.

7.2 From facts to norms in certification standards: 'effectiveness' and legitimacy

The effectiveness of certification standards to improve environmental and social performance in different productive sectors is doubtlessly important. However, increasingly, researchers are going beyond questions of effectiveness, to examine the ways in which certification systems are developed and deployed. This line of inquiry reveals that certification standards do not reflect a straightforward and instrumental application of technical knowledge to produce desired outcomes, as has been commonly understood. Rather, certification standards embody processes that are social and political in nature – they are a product of, and deployed in, contexts of societal values and norms. This view begs greater attention to the inputs to certification systems, as opposed to the outcomes, as a key dimension of their legitimacy.

Legitimate certification systems involve the development of standards generally taken as appropriate and rigorous, along with the monitoring apparatuses that ensure the standards are adhered to. Such systems endow commodities, often forest and agricultural products, with a guarantee the product was produced under conditions and through methods deemed sustainable. Thus, certification provides 'market barrier reductions' (Stavins 2000) by appealing to consumer demand for ethical products, and providing a standard that the consumer accepts and trusts. In some cases the producer may receive a premium for certification. In other cases, continued or enhanced market

access is the compensation for compliance with standards. In such cases, certification becomes a "market-based alternative to disruptive environmental boycotts" (Bartley 2007:229). Legitimate certification systems are often understood as pragmatic, widely applicable and relevant to a global understanding of sustainability (Seroa da Motta et al., 1999; Nepstad, Stickler et al. 2006; UNCTAD 2008).

Despite the optimism of some, several authors have indicated the failure of standards to result in the kinds of outcomes they claim. For example, contrary to their aims and claims, certification programs focusing on organic production and 'fair' trading have in many cases failed to improve the incomes of small producers (Kilian, Jones et al. 2006) and failed to increase the potential for small producers to have greater control over the terms of trade with which they are forced to engage (Getz and Shreck 2006). Stringer adds,

> One of the early claims made about forest certification was that the development of environmental certification standards would become an instrument of development. Through the lens of the global commodity chain framework we find there is little evidence to suggest that this is the case (2006:217).

It is output-focused observations such as these that have inspired increased attention to less pragmatic and more political aspects of certification systems.

In contrast to outcome oriented analyses, political scientists approach certification systems in terms of their development and means of deployment (Auld and Bull 2003; Schlyter, Stjernquist et al. 2009). Such concerns call attention to the importance of procedural or input legitimacy (Schlyter, Stjernquist et al. 2009) in certification systems (Cashore 2002; Auld and Bull 2003; Cashore, Auld et al. 2003). These approaches criticize more orthodox studies for overlooking issues of conflict, contestation and struggles over power and representation (i.e.: the politics) that affect the standards development processes, and are ultimately reflected in the mechanisms themselves. Primary focus on effectiveness means that certification mechanisms become black boxed; outcomes and impacts are overemphasized and the processes that give rise to the standards, go unquestioned and unchallenged.

For example, even the same standards are not interpreted and applied in the same fashion everywhere. Much of this potential difference depends on the auditors and consultants hired to help companies implement standards: their level and type of expertise; their attitude to implementation; and their background, be it local or non-local (Maletz and Tysiachniouk 2009). Despite the typified expectation that such experts and professionals treat the subject matter in a consistently objective manner, "auditors have a certain freedom to interpret criteria and indicators in the way they deem to be most favourable for themselves, certified companies and society at large the way they understand it, and these understandings differ" (Tysiatchniouk and Maletz 2008:135). Thus, it is not only the development of standards that introduces the mixing up of values and norms with the facts, but also unrealistic assumptions about their uniform and standardized deployment.

Many authors also argue that the larger social and political context within which certification systems emerge are integral considerations in questions of policy making authority and legitimacy (Cashore, Auld et al. 2003). One of the most obvious aspects of this larger context is the dominance of neo-liberal thinking – particularly around the issues of corporate and environmental governance. Certification is widely critiqued as an increasingly integral part of this privatized neoliberal governance (Bartley 2003; Walter 2003). The globalization of capital flows and commercial activity, and the entrenchment of privatization and liberalization under neo-liberal reforms in the 1990's have led to an emphasis on privatized corporate governance, as corporations move further away from the regulatory eye of the state. The consequent gap in corporate governance is felt particularly acutely in the developing world, where national regulation may be subject to even more restricted state capacity and/or state vulnerability to corruption. This governance gap is said to induce a 'race to the bottom' in terms of social and environmental requisites for business, as countries vie to attract much needed foreign capital by providing the most relaxed terms for investment (Haufler 2003). In this sense, the regulatory vacuum created by this 'postnational constellation', becomes a key challenge to development and democracy (Habermas 2001; Scherer and Palazzo 2008).

In its role as a part of neoliberal governance, certification has become increasingly mainstream, provoking critiques that this mainstreaming 'restrains political struggle'

and 'limits the scope of action' (Klooster 2010). For example, Walter asks if neo-liberal models for certification represents a shift from 'civil disobedience to obedient consumerism' (2003). As they become increasingly mainstream, support grows for certified products in conventional markets, and by conventional funders, but this occurs at the expense of democratic processes (Mutersbaugh, Klooster et al. 2005) and more radical critiques of the conditions that gave rise to certification in the first place (Bartley 2007). The concurrent roles of certification systems as 'market mechanism, regulatory form and social cause' are contradictory (Brown and Getz 2008) and suggest a naïve and dubious expectation that values can simply be inserted into markets (Klooster 2006). This is of particular concern as mainstreaming and an overall commitment to market principles attracts larger actors and entities, introducing increasingly vast differentials in power relations between producers, consumers and buyers (Taylor 2005; Taylor 2005).

These power differentials are important, not least because they skew access to decision-making towards the most powerful actors in commodity chains. Such decision-making can determine which standards are established, despite that conflicting interests can give rise to very different ideas about how a favourable set of standards would look (Mutersbaugh, Klooster et al. 2005). For example, some authors show that unequal distribution of decision-making power among stakeholders result in certification systems that are mechanisms of 'control at a distance' (Klooster 2005; Ponte and Gibbon 2005; McEwan and Bek 2009). These authors argue that small producers, who are less powerful and influential relative to others in the global value chain, are held hostage to the demands of international buyers or consumers to conform to standards which they had no input in creating. Compliance with these standards often involves costly investments which diminish the profitability for small producers, or exclude them from participation in the certification scheme altogether (Klooster 2005). Thus, while certification is often seen as a means of reducing market barriers, it can also be a means of erecting market barriers (Klooster 2005; McEwan and Bek 2009; Klooster 2010).

Concerns about certification systems simply recreating power relations, rather than transforming them, are echoed elsewhere, as certification is identified as a marketing tool above all else: "While certification schemes were established with the goal of

sustainable forestry management, certification has become a market-based tool to promote forestry products" (Stringer 2006:717-718). Stringer describes a 'fundamental shift' in the underlying notions behind certification: "Instead of facilitating access to the international market for tropical wood, companies predominantly in core localities have subscribed to certification schemes in order to gain a competitive edge internationally" (2006:717-718). Currently, certification "schemes appear voluntary but in time market forces may demand certified products" (Stringer 2006:717).

Some worry that widespread recognition of the need for companies to subscribe to certification principles in order to maintain or increase their market share, may lower the standards of certification rather than raising the bar for practices. Ultimately, if certification is considered predominantly a marketing strategy, it may be abandoned if not successful enough in gaining market share, or if the approach falls out of fashion. This questions the extent to which certification is an adequate replacement for state-led regulation (Klooster 2006; Klooster 2009), or even a solution for current gaps in global environmental governance (Gulbrandsen 2004; Gulbrandsen 2008; Gulbrandsen 2009).

7.2.1 Input legitimacy: participation and evidence

Concerns such as those discussed above have lead to growing scepticism about the legitimacy of certification to improve corporate performance on social and environmental issues (Becker-Olsen, Cudmore et al. 2006). One response is the ubiquitous call for broad stakeholder participation in developing certification standards and protocols as an integral aspect of a system's legitimacy (Klintman 2009; Auld and Gulbrandsen 2010).

Thus, the development of certification systems becomes an increasingly public affair, opened to a wider array of stakeholders. This stands in contrast to the more traditional focus on shareholders in corporate governance, deemed necessary because corporate activities are no longer recognized as simply economically rational acts. Particularly in the postnational constellation, corporate activities have moral implications via their effect on various stakeholders (Deetz 2007). Accordingly, debates would involve *all* stakeholders who are impacted by corporate activities (Mingers 2009). Palazzo and Scherer (Palazzo and Scherer 2006) argue that moral legitimacy has effectively come to

be demanded of corporations under post-nationalism, and that strategic, or instrumental approaches are no longer widely accepted as sufficient or appropriate.

But scepticism about the potential for authentic engagement between more and less powerful actors in certification debates abounds. For example, Taylor notes that, despite efforts on behalf of both the FLO and FSC to formally institutionalize stakeholders' inclusion, "nonetheless, their internal governance and organization trajectories are shaped by the social and political relations of their respective commodity chains" (2005:140). Even less optimistic, Gulbrandsen suggests that "the steps taken by industry-dominated standards organizations to enhance autonomy and inclusiveness in part serve to justify a business-as-usual situation and avoid building a capacity and commitment to be responsive to environmental and social groups" (2008:579).

Another means of achieving input legitimacy is developing certification standards on the basis of technical knowledge and expertise – often scientific expertise – even insofar as it is characterized by high levels of uncertainty (Auld and Bull 2003). Legitimate policy, as rational and neutral, pursued by 'speaking truth to power' (Wildavsky 1979) or 'evidence-based policy' (Fischer 2009; Kleinschmit, Böcher et al. 2009) has been fundamentally challenged by sociologists of science, who see scientific and technical expertise as profoundly influenced by social and political forces (Jasanoff 2004). In this respect, authority and credibility are not rooted in the inherent privilege of objectivity and access to truth, but actively defended through socially determined boundaries (Gieryn 1999). But if the growing domination of technical issues over other issues does not necessarily have the effect of improving certification systems in some way, it certainly has another effect: depoliticizing them (Klooster 2005). This is because the emphasis is "on technical regulatory mechanisms rather than processes that can deliver radical change… Expert knowledge becomes privileged and if shortcomings arise they can be fixed technically and managerially" (McEwan and Bek 2009:9).

In some policy circles technical expertise persists as the preferred, unequivocal (or at least, the least equivocal) contribution to legitimate policy making. But some analysts challenge that the relationship between knowledge and policy is not so straightforward. For example, Fischer boldly claims that "in the 'real world' of public policy there is no

such thing as a purely technical decision" (Fischer 2000:43). He continues: "…there is, in fact, no linear bridge which connects the hard sciences to the public domain sciences. There is, in short, no epistemological road over which expertise can directly travel from one domain to the other" (Fischer 2009:144). Auld and Bull (2003) analyze the differences between two different models for decision-making in certification initiatives: one prioritizes participation; the other technical expertise. They find that indeed, expertise to be mediated by different normative assumptions behind the models, and thus, did not 'translate' into policy in the same ways. Each model produced very different outcomes in terms of establishing certification standards. These disparate outcomes were not because scientific claims were used more 'scientifically' in one model as opposed to the other, in fact "none of the initiatives drew extensively on science… however, *science* still played an important role in influencing the character of the their respective standards" (Auld and Bull 2003:59, emphasis added).

7.3   Evidence, participation and non-participation in the RTRS

The RTRS emerged in 2005 in response to the impacts of the 'soy boom' of the previous two decades. For example, the production of soy in Paraguay had increased manifold, bringing about a new potential engine of development for the country. However, the costs and benefits of the boom were extremely differential, and even observers with optimism about the potential of soy production for national growth, could not deny that the associated problems, particularly the social and political fallout of soy production, needed to be addressed (See Box 7.1). Initiators considered both participatory and evidence-based approaches to be important elements of the RTRS process, seen to promote standards that adhere to public expectations for both democratic legitimacy and scientific rigour. Evidence was brought to bear on the RTRS process mainly through the 'Principles, Criteria and Verification Development Group' ('DG' for short) – a group of technical experts that would head up the articulation of the different iterations of the certification criteria. Also, participation has been facilitated through a number of means, including: representation of, what the organizers view as, the major stakeholder groups (industry, finance and trade; soy producers; and civil society); and the initiation of consultation processes regarding the iterations of the proposals for standards. These are discussed further in this section.

Box 7.1: Antecedents to a growing need for governance of the soy boom (Source: Author)

Global demand for soy, and consequently production, rose to 214 million tons in 2005 (Charles 2008) and is expected to rise further in the coming years due to rising demand for animal feed in China and India. Most of the world's soy expansion has occurred in South America; a trend that is expected to continue given land 'availability', relatively low land prices, and low overall production costs. Paraguay is the world's fourth largest soy producer and exporter – staggering considering its minute size and population, particularly in comparison with the US and Brazil, the world's first and second largest. In fact, after Brazilian President Lula da Silva expressed his 'optimism' for Paraguay because of its potential to produce the raw materials for ethanol and biodiesel, during a recent visit to Paraguay, Paraguay's then President Nicanor Duarte said "If Brazil is to become the Saudi Arabia of biofuels, why can't Paraguay become the Kuwait of the 21st century?" (Newsroom 2007).

Exclusion from the boom
Soy was introduced into the Paraguayan Agricultural repertoire in the 1980's, and within the same decade Paraguay's agricultural exports nearly tripled (Carter, Barham et al. 1996); the dominance it has come to have over agricultural production has been described as the 'Soy Boom'. The benefits of this boom, however, have seen very little redistribution (Carter 1994; Carter, Barham et al. 1996). Primarily, there has been widespread exclusion of peasants from Paraguay's economic growth, of which agricultural and related activities has (and continues to be) an important source of employment and income. This exclusionary growth has limited peasant access to land and employment opportunities for two main reasons. The first is the nature of the land market. Although land has become prohibitively expensive for many Paraguayans, it remains comparatively cheap for even poor Brazilians, who immigrated in substantial numbers to buy once soy prices began to soar (Carter, Barham et al. 1996). Furthermore, as Carter concluded in his study on willingness to pay for land, large farms grow faster than small farms, leading to an ever growing concentration of land holdings among those able to expand their soy production (Carter, Barham et al. 1996). The second reason for the exclusion of most peasants from the soy boom is "crop characteristics and the relative economic importance of the countervailing class biases they create" (Carter, Barham et al. 1996:56). Principally, these crop characteristics refer to the low labour and high capital investment requirements of soy production. Each of these factors erodes the potential competitive advantage of high access to low-cost family labour but low capital availability.

Box 7.2: Social and environmental impacts of the boom (Source: Author)

For some observers, soy producers have joined the ranks of Paraguay's pre-eminent public enemies. Soy has been publicly branded a product of 'forest crime'[1] by Greenpeace. Several high profile cases in the Mercosur soy producing region appear to support this alarming assertion. For example, the murder in February, 2005 of 74 year old Dorothy Stang, a catholic nun and activist against large-scale agricultural expansion in Brazil, became an international incident and led to an outcry against soy producers, dubbed as "agrobandits" by the media (Jan Rocha, Saturday February 19, 2005, The Guardian). Perhaps the most important case in Paraguay's movement against soy, was that of 11 year old Silvino Talavera. In January, 2004 the child died from exposure to agrochemicals used in the cultivation of soy, which were routinely applied to the soy crops around the periphery of which Silvino lived with his family. With the support of NGOs and alliances, the 2004 acquittal of the two agribusiness owners responsible was appealed. In November of 2006 they were found guilty of 'creating public risks' and committing homicide, each receiving a sentence of 2 years in prison.

These characteristics of the soy boom in Paraguay have attracted criticism and blame for many of the social and environmental problems faced by contemporary Paraguay. Environmental NGOs attribute rapid rates of deforestation and loss of biodiversity to large scale agricultural expansion. Campesino land is being sold or forcibly overtaken by larger, more influential and powerful growers. Finally, the soy producers themselves are facing the possibility of sanctions and boycotts from an international public becoming increasingly aware of soy controversies. Furthermore, growing resentment of soy at the local level is also increasing loss due to theft and destruction and introducing new production costs such as increasing levels of security. Considering this intensification and broadening of complaints against soy production and soy producers, the RTRS, it would seem, has emerged in a timely fashion.

After its inception the RTRS took a few years to find its feet as an organization (See Box 7.2). In 2007, based on nominations from various organizations, the RTRS executive board selected members of the RTRS to comprise the Principles, Criteria and Verification Development Group, or the 'DG'. Under the coordination of the consulting firm ProForest, author of the Basel Criteria, the DG worked to develop the multiple iterations and final version of the criteria for sustainable soy, and a verification system for monitoring these criteria. As with the OC and the executive board, the DG is considered by the RTRS executive committee to represent a broad range of stakeholders with varied geographical and technical experience, including, once again, producers; industry, finance and trade; civil society organizations. However this time, it was the decision of the executive board that civil society organization was too broad a category and in order to assure representation of a broader array of interests, civil society membership was divided into those organizations with a particular interest in environmental concerns and those with a particular interest in social concerns.

Between 2005 and 2010, a series of key events earmark milestones in the development of the certification standards (See Table 7.1). The work undertaken at the first DG

meeting in October, 2007 was based on 'nine key impacts of soy in Brazil' that were developed by 60 participants in the Technical Meeting of April, 2006. Draft principles were developed based on these 'key impacts'. A public consultation was conducted with these principles through two principal means. First, the document was posted on the RTRS website, and interested parties were asked to provide comments, electronically mailed to the RTRS. Secondly, each participant was asked to circulate and discuss the document with his/her respective constituents, and solicit feedback and comments on the contents. There was an approximate two-month time allowance for this process. In February, 2008, at the second meeting of the DG, these comments were considered in the revising and refining of the principles and criteria for responsible soy. Again, the documents produced at this meeting were subjected to another public consultation which took shape in much the same way as the former. In November, 2008, the third draft of the principles and criteria were again circulated for public consultation. In May of 2009, a version of the criteria was developed for field testing.

Box 7.3: Origins and early years of the RTRS (Source: Author)

The road since travelled by the RTRS has been a long one, having its conceptual origins in the Roundtable on Sustainable Palm Oil (RSPO), which began in 2001. In 2004, applying the RSPO concept to soy, the WWF in Switzerland, in conjunction with Coop Switzerland, commissioned a 30-plus page report entitled, The Basel Criteria for Responsible Soy Production. The purpose of developing the Basel Criteria was "to provide a working definition of acceptable soy production that can be used by individual retailers or producers" (pg2)ADD. The Basel Criteria was intended to have global significance, as "It is expected that companies meeting the requirements of the Basel Criteria will be well positioned to comply with any international criteria that are developed" (pg 2).

The same year that the Basel Criteria were released, a group of stakeholders, known as the 'Organizing Committee' (OC) came together to set up the RTRS, and plan for its initial stages. The OC counted three types of organizations among its membership: Producers; Industry, Finance and Trade; and Civil Society. These three categories became an organizing principle for bodies within the RTRS and its subcommittees, being understood as providing representation for all stakeholders in the soy industry. Throughout the criteria development process the OC met monthly through conference calls, and had several live, face to face meetings. In November 2006, the RTRS became a civil association under Swiss Law, and 12 positions within an executive board were created, allowing 4 positions for each of the representative constituencies. From the OC, members of the RTRS executive board were nominated and voted upon, filling 10 of the 12 positions.

Between 2004 and 2008 the OC has been characterized by a somewhat shifting membership. Since its inception, some organizations have joined the OC and others have decided to leave the OC. The departed include Cordaid, a Dutch NGO focusing on 'structural poverty

Table 7.1: Key events in timeline for Responsible Soy Certification Criteria Development (Source: Author)

Month/Year	Key event in the development of responsible soy certification standards
2005	First RTRS general conference, spearheaded by the WWF
2006	Technical Meeting – 9 key impacts of soy that would form the guiding principles of the criteria
2007	First DG meeting – development of principles and criteria
Jan, 2008	First draft of principles and criteria circulated for public consultation
April, 2008	Second draft of principles and criteria circulated for public consultation
Nov, 2008	Third draft of principles and criteria circulated for public consultation
May, 2009	RTRS Principles and Criteria for responsible soy production: Field testing version
March, 2010	Principles and Criteria (draft)
June, 2010	RTRS standard for responsible soy production, Version 1.0

The RTRS is not only proposing that it be the site for knowledge creation regarding sustainable soy, but also that, based on this knowledge, it develop the criteria for sustainable soy and undertake the monitoring of these criteria and the granting of certification to soy producers. Concurrently with the development of sustainable soy criteria, the framework for an implementation and verification mechanism is also being developed by the DG. At the 2008 meeting, the DG discussions went beyond 'principles and criteria' to include how this knowledge about sustainable soy might be put into action through 'implementation and verification models'. This mechanism would be the medium through which the criteria would become policy for certification.

The first draft of the implementation and verification framework was released in March 2008 for public consultation. The framework consists of two 'pillars': the first is the 'certification of responsible soy production'; the second is 'support to producers to improve social, environmental and economic performance'. In the words used in the document,

> The first pillar consists of a voluntary business-to-business certification system funded by market premiums. For this pillar the Principles and Criteria must be fully implemented and independently verified as with any certification scheme. This pillar is aimed at producers and processors supplying markets that are demanding certification… The second pillar is a much wider programme aimed at working with a majority of producers to achieve targets based on the P&C over time, through a combination of training, incentives and other measures. The activities in the second pillar would focus on support and incentives for soy producers (RTRS 2008:2-3).

7.3.1 *RTRS and Participatory Governance*

Ultimately, the initiation of the RTRS was an attempt to promote multi-stakeholder deliberations about soy and sustainability, particularly in Latin America. Despite the arguments of critics that the RTRS was not intended to be an inclusive and deliberative body, there is evidence that this was, at the very least, the intentional portrayal of the initiative. One of the main objectives of the RTRS initiative, is to "Reach consensus among key stakeholders and players linked to the soy industry"[30]. Who are these key stakeholders? It continues that those "who should actively participate in the Roundtable on Responsible Soy" include[31]:

- Members of the soy industry and chain of value throughout the world;
- Any person in a position to contribute to the improvement of responsible soy production standards;
- Parties concerned over the economic, social and environmental aspects of soy production. ·Any person who believes that it is our duty toward future generations to preserve valuable natural resources.

After the first Roundtable meeting, one of several general agreements reached was "To ensure that this is a transparent, open, multi-sectoral, participatory and decentralized process"[32]. Indeed, opportunities have been opened for all interested parties to participate in the RTRS. One type of opportunity pertains to financial support for participating in conferences and meetings. For example, recognizing the importance of the participation of social and environmental NGOs in the RTRS process, but also recognizing their comparative disadvantage in locating financial support for this

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[30] http://www.responsiblesoy.org/objectives retrieved Sept 12, 2009.
[31] http://www.responsiblesoy.org/objectives retrieved Sept 12, 2009.
[32] http://www.responsiblesoy.org/events/1stroundtable, retrieved November, 2007.

participation, DOEN, a Dutch NGO offered to financially support the attendance of international NGOs.

Secondly, as has been previously mentioned, is the attention paid to representation on committees and in working groups. All sub-group members are selected to represent three main categories of stakeholders: industry, finance and trade; producers; and, civil society. Furthermore, in cases such as the formation of the DG for principles and criteria, further attention is paid to representation. In this case for example, civil society is broken down into environmental and social civil society, to better represent the varied interests within this broad group. Also in the case of the DG, the producer groups and industry, finance and trade groups have 9 and 6 members respectively, compared to the 4 members in each of the civil society groups. This, according to the RTRS, attends to the need for "a DG composition which included a good range of geographical and technical experience"[33]. However, these larger groups do not have proportionately larger decision-making power in the DG. In any case where a decision might fall to a vote, each group will have the same number of votes, irrespective of its size.

Thirdly, opportunities are opened for observance and participation in decision-making beyond the RTRS membership. All documents that pertain to the RTRS, including minutes of OC meetings, attendance, presentations and general outcomes from conferences, membership, and organizational objectives, statutes and bylaws are posted on the website and are available for anyone to access. Furthermore, key documents produced and revised by the sub-committees of the RTRS, such as the principles and criteria draft and the implementation and verification framework have been opened for around two months for 'public consultation', by being featured on the RTRS website along with pro-formas for comments. Comments from the first public consultation were integrated into the second draft and the actual comments themselves were then posted on the website. The same process is slated for the second public consultation, which concluded on May 30, 2008.

At the same time as claiming legitimacy through participation and deliberation, the RTRS has from the beginning, had a strong foot-hold in expertise. The technical meeting of 2006 was an example of this, when "Over 60 participants, including highly

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[33] http://www.responsiblesoy.org/DG, retrieved November, 2007.

regarded international experts and key stakeholders from farmers associations, agribusiness, social and environmental NGOs participated in the science-based discussions over three days exchanging different regional experiences and perspectives related to soy production, processing and trade"[34]. The aim of the workshop was to "develop and perfect criteria and indicators for sustainable soy production"[35].

7.3.2   *Non-Participation as protest against the RTRS*

These various attempts at making the development of certification standards for sustainable soy a participatory process, no matter how sincere, were unsuccessful by several accounts. This came as a surprise to some involved in the RTRS process (personal communication). By addressing the issue of soy production, WWF had hit on something that, with seeming obviousness, would be of great interest to campesinos. It seemed that through the objective of creating a more acceptable framework for soy production, an alliance was assured between soy producers, environmental NGOs and campesinos. It also seemed that the talks proposed by WWF might succeed in providing an international forum for campesinos to articulate their grievances such as reckless pesticide use and rash deforestation.

However, many campesino groups and some NGOs were pitted against the RTRS rather than joining the talks. In August, 2006, the second general meeting of the RTRS was held in Asuncion, Paraguay to convene producers and industries with interests in large-scale soy production. Despite the apparent promise that a proposal of 'sustainable soy' was expected to have for addressing the concerns expressed by campesino organizations, rather than participating in these 2006 talks, many participated in a 'counter-conference', organized by NGOs MOCASE (Via Campesina Argentina) and the Grupo de Reflexion Rural (GRR). This counter-conference culminated in a demonstration of protest, involving hundreds of people, outside the RTRS. It was led by various NGOs and peasant organizations, who rejected the idea of 'sustainable' soy on several grounds. The aims of the counter-conference organizers were to "coordinate future strategies for a different agricultural model, based on principles of food sovereignty, land reform and local development"[36].

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[34] http://www.responsiblesoy.org/events, retrieved November, 2007.
[35] http://www.responsiblesoy.org/events, retrieved November, 2007.
[36] http://www.thepowerhour.com/news/forum_nospray.htm, retrieved November, 2007.

A similar situation was experienced by FMB staff to the 'sustainable soy' project that they have become involved with through DAP. With motivations and rationale similar to those of the RTRS, DAP focuses on social and environmental goals in addition to economic goals. They aimed to conform strictly to the established Paraguayan environmental legislation that relates to agricultural lands larger than 20 hectares. Furthermore, they would implement a 'rural development' program that would focus on agricultural extension and the creation of employment opportunities for campesinos surrounding their soy fields. This approach was expected to satiate the campesino demands made of large producers. However, it has not resulted in this. Rather, campesinos have more aggressively than ever, manifested their disagreement and disenchantment with the initiative. In 2006 a DAP employee was murdered while clearing a field for planting soy and management has, on several occasions, hired military protection of the land. DAP personnel have claimed that the opposition to the 'sustainable soy' initiative is due to a lack of understanding, and a stubbornness on the part of the campesinos. One field worker with DAP explained how this led to communication problems: "We went there to hold a meeting in the community, to explain how we intended to work for the triple bottom line, and we couldn't even talk to them because they were all drunk!"[37].

However, organizations representing the campesinos saw it a different way. It would seem that despite the apparent attempt to address the concerns of local people about pesticide use, deforestation and general non-compliance with environmental legislation, the RTRS was not perceived as an appropriate venue for voicing their concerns. This may have been at least partly, an observation that grew out of experience, rather than simply an assumption.

Another instance of non-participation is the case of two NGOs, Cordaid of the Netherlands and and Fetraf-SUL of Brazil. Both organizations initiated their involvement with the RTRS by assuming dominant roles, in the Organizing Committee (OC), which comprised only a handful of other members. However, because of difficulties they perceived with the nature of their involvement, they withdrew from the OC and withdrew their membership from the organization entirely,

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[37] Anonymous, personal communication, May 3, 2008.

shortly before the first Roundtable occurred[38]. The RTRS website expresses thanks for the participation of these two organizations in the OC leading up to the inaugural events, and assures that particularly Cordaid will continue working cooperatively towards the goals of the RTRS. However, it is apparent from the list of participants (found on the website), that neither organization even participated in the second RTRS, held in Asuncion in 2006. The non-participation of the Cordaid and Fetraf-SUL seems to be an explicit statement against what they saw happening during their tenure with the OC. Furthermore, after witnessing the withdrawal of two relatively powerful NGOs – one Northern, one Brazilian – how could others have any faith that their experience in the RTRS would be different, or that it could potentially evolve into an effective and appropriate venue for their grievances?

7.4   Interpreting soy facts: Discourse coalitions and the role of normative positions

The emergence of the RTRS has created the backdrop for two very different discourses about the environmental and social politics of soy production in Paraguay. Despite internal inconsistencies, they have been presented as two 'sides' to the story, each vying for dominance over public opinion, and policy, ultimately achieving discursive hegemony. These alliances, or discourse coalitions, each embody a story-line, set of actors who use the story lines, and a set of practices at which the story lines are directed (Hajer 1995). The story lines regard the very nature of the soy industry and its social, economic and political impacts on Paraguayan society. The actors include 'big business', government, and powerful ENGOs on the one hand, and small producers, human rights organizations and smaller, less powerful ENGOs on the other. The set of practices are: the ways in which the soy industry conducts business in Paraguay, adhering (or not adhering) to ethical and moral principles; and the practice of development itself.

7.4.1   Dialogue and Consensus

Featured strongly in the RTRS proceedings is the rhetoric of reconciling differences, establishing common goals, and working together for complimentary objectives. In his

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[38] This was not unprecedented. For example, in 1998 Greenpeace and the Association for Private Forest Landowners withdrew from the standard-setting process engaged by the FCS, because they could not "compromise on certain criteria" Bostrom, M. (2003). "How State-Dependent Is a Non-State-Driven Rule-Making Project? The Case of a Forest Certification in Sweden." Journal of Environmental Policy & Planning **5**(2): 165-180.

recap of RTRS cumulative accomplishments at the second RTRS general conference, Alberto Yanosky spoke of working "towards a possible solution", that being, the "integration of interests so that 'everyone wins'" (Yanosky 2006). Similarly, the RTRS technical meeting closed with emphasis on the likelihood and importance of "taking the (Roundtable on Responsible Soy) Initiative ahead in a positive "win-win" mode"[39]. Those who chose to participate in the counter conference were seen as obstructing dialogue. One organizer observed that:

> All of the stakeholders were invited to sit at the table and discuss their interests – this included the campesino organizations. However, instead of coming to the meeting and talking openly with the others, they chose to stand outside and demonstrate their opposition. This wasn't very helpful for anyone (personal communication, July, 2008).

Likewise, the country's Vice President included in his speech at the RTRS meeting that even with the potential costs, as a politician, of coming to the meeting, "I could be outside in the demonstration, but it seems to me that only with dialogue and interaction between the different parties, can this phenomenon be constructed" (IDEA 2006).

In the 2005 RTRS general meeting, this use of sustained growth is emphasized through a series of slides presented by ABIOVE, illustrating 'soybean crop as a vector of sustained development'(Trigueirinho 2005). This may have been one impetus to a contribution of Cordaid to the deliberations, before its exit from the RTRS Organizing Committee. This contribution was the replacement of notion of 'sustainable' with the notion of 'responsible'. Furthermore, Cordaid may have felt that this revised terminology sharpened and clarified the assertion that certification standards must focus on more than only environmental criteria, and that strategies which address social issues must also be showcased.

This apparent enthusiasm for dialogue and deliberation reflects an optimism about the possibility of reaching a consensus around the core issues of the meaning of sustainable, how sustainability would be achieved, and even whether or not soy production could ever be 'sustainable' per se. *If this consensus was not reached, then it would not be because of an inherent impossibility for it to be reached. Rather, it would be because some*

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[39] http://www.responsiblesoy.org/eng/index.htm , retrieved September 3, 2007.

stakeholders had chosen not to participate in the dialogue. The protesters were portrayed by RTRS organizers as stubborn and unwilling to enter into discussion, thus jeopardizing the potential for something constructive and positive to emerge for all sides, because of the loss of an opportunity for deliberation. In contrast, the RTRS is depicted as a group of 'committed', 'professionals' that would do what it takes to address the issues at stake in soy production and work to improve its negative impacts[40].

7.4.2   *Inevitability and 'Good'ness*

Soy, or "*green gold*" was portrayed as a driver of national growth and regional growth in the Mercosur countries through producing an important export (generating foreign exchange) and creating employment opportunities. The material presented by the soy producers focused on the global and national inevitability, importance and potential of soy and soy products.   To support its illustration of "soybean crop as a vector of *sustained development*" ABIOVE noted that:

> The evolution of crop techniques and the 'tropicalization' of soybeans allowed the extensive and rudimentary occupation of the 'cerrado' to be replaced by an activity based on technology, with economic, social and environmental sustainability… The soybean crop development brought about an improvement in the quality of life and the development of infrastructure in the areas of transport, education and health (Trigueirinho 2005).

This notion that soy producers are modernizing (thus improving) the regional agricultural base, vis-à-vis campesino practices, emphasizes that in comparison, campesino practices are rudimentary, unproductive and degrading.   For example, Steward found that:

> When pushed to acknowledge colonos (i.e.: campesinos) settlement they discuss colonos' "environmentally degrading" land-use practices, which they see as having little or no regional economic benefit. In direct contrast to their beliefs about colonos' land-use, agribusiness stresses that soy farming introduces environmental and economic value to the landscape.   A Cargill soy buyer explained that agro-industrial development provides a more stable foundation for economic development (than previous development projects) because it is linked to the global agricultural market where soy has great product versatility and a lucrative world price. Buyers believe that soy expansion to the Santarem region signals an upward economic growth trend, one in which all Santarem's

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[40] www.panda.org/about_wwf/what_we_do/forests/news/events_/index.cfm, retrieved August, 2008.

citizens will benefit and one which will not result in increased
deforestation (Steward 2007:113, parentheses added).

Additionally, the global benefits of soy production were emphasized. Increased food
production should be everyone's target because of a rising global population and the
need to satisfy world hunger(!) Speaking about agricultural expansion and, in
particular, intensification, one participant at the 2005 RTRS general meeting presented
a slide that proclaimed, "We should keep moving forward and we should not rest until
the complete elimination of hunger is achieved on the entire world!!!!" (Peiretti 2005).
Shortly after, another slide assures the audience that particular practices such as no-till
lead to "the achievement of a evolved farming system that ensures the actual and
future food provision as well as the absolute and complete counteraction of human
hunger…" (Peiretti 2005). Furthermore, global demand will increase as soy is put to
new and important uses such as a (cheap) source of protein, nutraceutical properties
and a future source of energy through biofuel production. These are benefits that
accrue to 'the developed and developing world' (Peiretti 2005).

It is a simple fact that more soy will be produced in Mercosur countries, and this is a
good thing. As Steward found in her research with Brazilian soy producers, "Soy
farmers view themselves as fulfilling national economic goals when they purchase land,
clear it, prepare it, and cultivate soy for the export market. As one farmer explained,
'Soybean farmers believe they are national heroes'" (Steward 2007:111).

7.4.3 Technical Solutions for 'Sustainability'
While a handful of the presentations made at the RSS refuted the problematization of
soy production (particularly on a comparative basis with the environmental damage
caused by the economic development of other countries), those presentations that did
acknowledge the impact of soy production, and the need to address this impact,
focused on technical, pragmatic approaches, with little to no attention paid to social or
political issues. The emphasis was clearly placed on sustainable agricultural techniques
and improved planning and zoning to address these impacts.

The 2005 presentation on behalf of La Confederación de Asociaciones Americanas
para la Producción de la Agricultura Sustentable (CAAPAS) focused on the potential
of maximizing production on existing farmland to reduce the pressure to expand

agriculture into forested areas, given the inevitability of increased production to feed a growing global population: "To be successful at this purpose, we should base the process on science and on the full and wise utilization of all modern technology (from agro ecology to biotechnology) along with other type of empirical and even recycled ancestral human knowledge" (Peiretti 2005). In fact, several presentations elaborated on no-till cultivation[41], suggesting that no-till cultivation in and of itself constitutes sustainable production, given the potential of maintaining, even improving soil quality.

In addition to improved production techniques, governmental environmental and agricultural agencies (SEAM from Paraguay and SAGPA in Argentina) and NGOs focused on higher level policies such as zoning and planning. For example, one presentation suggested earmarking abandoned lands for soy expansion or converting cattle ranches no longer in use. The WWF was particularly interested in routing soy production away from ecologically 'high value' areas[42].

The discourse of the RTRS asserts that:

1) 'responsible soy' is a knowable and achievable phenomenon;
2) that consensus can be reached regarding criteria for what it is and how it can be achieved through deliberation; and,
3) the problems associated with soy can be addressed through technical and administrative means.

Meanwhile, some of the most controversial aspects of soy production (those discussed in the next section) were scarcely included as brief asides, and detailed attention to why these issues were vital to consider, and how these issues might be addressed, was notably (and perhaps predictably) absent.

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[41] No-till cultivation is a technique considered by many to be 'sustainable'. It involves planting and cutting a cover crop, and then seeding directly into it, rather than into the soil – eliminating the need for any tillage at all. It is described and discussed further in Chapters 5&6, in conjunction with rural development and cumulative effects simulations.

[42] The WWF's system of forest valuation has been a controversial WWF policy. The focus on 'high value' areas such as high bio-mass rainforest has been shown to accelerate the conversion of secondary forest and semi-deciduous forests to agriculture. Hecht, S. (2005). "Soybeans, Development and Conservation on the Amazon Frontier." Development and Change **36**(2): 375-404.. Other authors have shown how this valuation system leads non or less valued forests to be considered as 'soy reserves'. Stewart, C. (2007). "From Colonization to "Environmental Soy": A Case Study of Environmental and Socio-Economic Valuation in the Amazon Soy Frontier." Agriculture and Human Values **24**(1): 107-122.

7.4.4   Counter RTRS Movement

The counter RTRS movement is pessimistic about the way in which soy production will contribute to Mercosur economies by promoting jobs and growth and the extent to which it can be promoted alongside environmental and social objectives. Such concerns have led author and activist Eduardo Galeano to declare soy a 'salvavida de plomo' (a lead lifejacket), saying "this means bread for today but hunger for tomorrow" (Galeano 2006). In this spirit, an impressive rallying of available resources and interest resulted in a surprisingly coherent reaction to the first meeting of the RTRS. This is surprising, because to this day, the counter-RTRS movement lacks the distinct administrative and organizational corpus or the unified identity that have been achieved by the RTRS.

Within the discourse of the counter-RTRS movement, the RTRS participants are constructed as dishonest cheaters who are concerned with nothing aside from the expansion of soy. The objective of the RTRS was said to be an opportunity for the legitimization, rather than the transformation of the role of soy production.

> Everyone related to the production of soy will analyze and will decide upon strategies to continue expanding the soy model in our country and our continent… they try like this – confusing and cheating – to change the public opinion about the ecological and social disaster that they are causing (BASEIS 2006)[43].

Responsible soy always appears in quotation marks; the concept is considered impossible, and any attempt to establish 'responsible' large scale soy production would be based on lies, because 'responsible soy' is, in and of itself, a contradiction. The soy industry has become a tacit way of describing a model of development, based on export crops, necessitating economic globalization and global integration – that are synonymous with colonization and loss of local and national sovereignty.

> The name, 'responsible production' of large scale soy is a fallacy, a demagogic expression used to hide the interests of the business sector in alliance with transnational corporations in response to the growing state of citizen consciousness regarding national and regional economic alternatives based on democracy, participation, inclusion

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[43] todos relacionados con la producción de la soja analizaran y decidirán estrategias para continuar expandiendo el modelo sojero en nuestro país y nuestro continente… pretenden asimismo – confundiendo y enganando – cambiar la imagen ante la opinion publica del desastre ecologico y social que estan ocasionando

and social, political, economic and environmental sustainability (ASEED 2006)[44].

Inherently the 'soy model' defies true development and true sustainability, based on democracy, participation and inclusion. Soy as an 'engine of growth' results in active underdevelopment, culminating in absolute exclusion of 'the people'. In stark contrast to the image of soy as a mechanism of local, national and regional development and prosperity, the counter movement charges that soy production leads to environmental destruction and the underdevelopment of society: "All monocrops are destroyers of the ecosystems where they are installed; they generate poverty; unemployment; they exclude and expulse the local population" (BASEIS 2006)[45]. The fields under soy cultivation become 'green deserts', a powerful trope which evokes environmental degradation, and the absence of people: "The expansion of the "green deserts" that are all monocrops like soy, pasture and exotic trees, that promote an agriculture with machines, without peasants, without people" (BASEIS 2006)[46].

Furthermore, countries succumbing to soy expansion are seen to be suffering the continued effects of colonization and oppression in the world order:

> According to the received wisdom, our countries must believe in the free market (even though it does not exist), honour the debt (even though it is dishonourable) attract investment (even though it is undignified), and enter into the World (even though it is through the service door). Enter the World: the World is the market. The market is global, where they buy countries. Nothing new… This sad routine of the centuries began with gold and silver, followed by sugar, tobacco, guano, saltpetre, copper, rubber, cocoa, banana, coffee, petroleum. What did those splendours leave us with? They left us without inheritance or desire. Gardens converted to deserts, abandoned countryside, perforated mountains, rotten waters, caravans of unhappy people, condemned to hard times, empty palaces where ghosts wander… [47] (Galeano 2006)

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[44] La llamada "producción responsable" de soja a gran escala es una falacia, una expresión demagógica usada para esconder los intereses del sector empresarial aliado con las corporaciones transnacionales frente al creciente estado de conciencia ciudadana sobre alternativas económicas nacionales y regionales en decidido proceso de construcción, basadas en la democracia, la participación, la inclusión y la sustentabilidad social, política, económica y ambiental,

[45] Todos los monocultivos son destructores de los ecosistemas en que se instalan; genera pobreza; desempleo; excluyen y expulsan a la población local

[46] La expansión de los "desiertos verdes" que son todos los monocultivos como los de soja, pasturas y árboles exóticos, promueve una agricultura con máquinas, sin campesinos, sin gente

[47] "Según la voz de mando, nuestros países deben creer en la libertad de comercio (aunque no exista), honrar la deuda (aunque sea deshonrosa), atraer inversiones (aunque sean indignas) y entrar al mundo (aunque sea por la puerta de servicio). Entrar al mundo: el mundo es el mercado. El mercado mundial, donde se compran países. Nada de nuevo…Esta triste rutina de los siglos empezó con el oro y la plata y siguió con el azúcar, el tabaco, el guano, el salitre, el cobre, el estaño, el caucho, el cacao, la banana, el

The opposition to the RTRS insists that their version of history be accounted for, and that the patterns of the past need to be considered in decisions for the future:

> Who will take responsibility for the environmental pollution caused by approximately 20 million litres of chemicals dumped on Paraguay this year?, The destruction of streams, rivers, springs and wetlands? The eviction of almost a hundred thousand small farmers from their homes and fields? The assassination of more than one hundred peasant leaders? The forced relocation and ethnocide of Indigenous Peoples and communities? The charges pressed against more than 2,000 small farmers for their legitimate resistance to this predatory system? Large scale soy monocultures are NOT possible without this litany of adverse impacts (ASEED 2006).

The basic charges of the counter-conference alliance are that the 'development model' which soy production epitomizes, is 'irresponsible, unsustainable and anti-democratic'. The alternative development model proposed is one that:

> …promotes community sustainability and sovereignty, based on the specific characteristics of each territory. Such a model would produce healthy and competitive crops, while simultaneously promoting the decentralization of power and democratic decision-making about land-use and production. Furthermore, it would be based on equitable land distribution and would halt social exclusion, eviction and forced displacement by reviewing legal land tenure and titles to ensure that they regulate and limit extensive large scale agricultural production. (ASEED 2006).

The discourse of the counter-conference refutes the legitimacy of the RTRS by:

1) rejecting outrightly, the conceptual possibility of 'responsible soy';

2) by rejecting the possibility of a consensus among stakeholders on the definitions of key concepts such as sustainability; and,

3) by asserting that the solution to the problems of soy impacts would require a change in the 'model of development'.

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café, el petróleo... ¿Qué nos dejaron esos esplendores? Nos dejaron sin herencia ni querencia. Jardines convertidos en desiertos, campos abandonados, montañas agujereadas, aguas podridas, largas caravanas de infelices condenados a la fuerte temprana, vacíos palacios donde deambulan los fantasmas " Galeano, E. (2006). Salvavidas De Plomo. La Jornada. D.F. Mexico City.

Table 7.2: Elements of soy discourses (source: Author)

	RTRS Conference	Counter-Conference
Tropes	Green Gold	Green Desert
	Triple bottom line	Green-washing
Discursive Claims	Consensus possible	Consensus impossible
	RTRS process inclusive	RTRS concept inherently exclusive
	Soy important globally	Soy only for export - Focus on local markets
	Capitalist	Populist
	Global Integration	Autonomy
	Globalization	Colonization
	Pragmatism	Ideology
	Agricultural intensification, increased productivity	Monoculture
Required Action	Sustainable techniques Enforcement of legislation	Adoption of different development model

The kind of vehement opposition to the RTRS process epitomized by the resistance movement of campesino organizations has resonated throughout the criteria development process (See Table 7.2). Consequently, the criteria development process cannot be characterized by the development of a stable policy network and consensus around cognitive beliefs about what sustainable soy production entails. Deliberations within the RTRS have not lead to a set of uncontested, neutral and pragmatic certification criteria. Rather, agreement has coalesced around the larger narrative that speaks to the need for alternatives to soy production, but different policy actors account for this need in vastly disparate ways. For example, for soy producers, the imperative lies in reassuring European consumers of benign soy production; for international environmental organizations, the priority is to reduce the impacts of deforestation; for small producers, the issues of decreasing land availability and the harmful effects of pesticide use are paramount. Perhaps predictably, these perspectives are manifest very differently in the debate about what comprises 'responsible soy', even

within the RTRS. Ultimately, contestation, rather than consensus, has been the hallmark of the RTRS process.

7.4.5   *Coalition structure: Shifting alliances*

Within the RTRS, discourse coalitions have been formed by previously antagonistic groups of actors, such as environmental NGOs and soy producers. Within these coalitions, "the search for policy relevant facts is not unimportant, but it takes a back seat to storylines that offer social orientation, reassurance, or guidance" (Fischer 2003:103). Discourse coalitions create conditions under which even unlikely alliances can be formed, imbuing particular ways of framing problems, and their solutions, with greater (and potentially increasing) power and resilience vis-à-vis alternatives.

How new alliances have been enabled by the language of responsible soy was impeccably illustrated, when the Moises Bertoni Foundation (FMB)[48], accepted a 5-year contract with Desarrollo Agricola del Paraguay (DAP), a consortium of Paraguayan, Argentinean, Brazilian and American investors in Paraguay. As a participating organization in the RTRS, DAP implemented the idea of a sustainable soy production project on four properties accounting for over 20,000 hectares in San Pedro, Paraguay. The contract was for consultancy services; the FMB would advise and implement environmental protection and rural development strategies to achieve sustainable soy production on the landholdings of DAP. While the initiation of the RTRS to some extent, legitimated the approach of DAP, it remained controversial for some FMB staff members and observers nonetheless because of past tension between environmental NGOs and the soy industry. Furthermore, some believed that the RTRS had inspired few, if any, changes in soy production practices and that the only shifts were the rhetoric used to legitimate soy production among those who were close to its problems. The fact that the FMB involved itself so closely with DAP through its initiation of the production of soy (sustainable or not) is only part of its controversy – three of the ten founding members, and principal investors in DAP are also long time board members of the FMB, some founding members. An alliance between soy producers and environmental NGOs, a notion that would have been unthinkable only a few years earlier, became not only possible, but considered by many as 'progressive'.

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[48] Discussed at length in Chapter 5.

This opened the door to the possibility of new alliances and partnerships that hitherto would not have been logistically nor ethically feasible.

More generally within the RTRS, the sustainable soy discourse has made possible a degree of reconciliation between the environmental and empresarial agendas, to an extent that earlier observers of the RTRS process could not likely have predicted. Early in 2009, agro-services giants Monsanto and Syngenta were admitted as members to the RTRS, sparking an outcry from the public and from other RTRS members. These alliances may become insurmountably problematic because of the inability to integrate these companies into a discourse of sustainability, even at the most basic level, given their devilish public image and an environmental and social track record considered by some to be inexcusably, inarguably unsustainable. Whether or not these alliances become too difficult for some RTRS members to reconcile with the overarching storyline of sustainable soy, remains to be seen.

The RTRS has been at least partly responsible for shifting alliances in the debate about the soy industry. Introducing the concept of sustainability (or, responsibility) into the proximity of the soy debate, has made a relationship of cooperation, rather than castigation, viable between environmental NGOs and soy producers. This has jeopardized their alliance with campesinos, whose larger suite of grievances were at least partially embedded in environmental issues. Indeed, the alliance between some environmental NGOs and campesino groups has been a casualty of the RTRS, as the approach of environmental NGOs' toward soy producers shifts from castigation to encouragement, cooperation and support for responsible soy production. Environmental interests are an effective rallying point between campesino groups and environmental NGOs, against soy producers. However, if the RTRS becomes an organisation that is seen to address environmental issues, and can help bestow credibility on large landholders who are working towards criteria compliance, this may jeopardize the wider legitimacy of campesino grievances against them.

7.5   From sustainable to deliberative soy

Within the RTRS proceedings, evidence is privileged on the basis that it is fact, and it is expected that rational stakeholders will participate in debates using this fact as a starting point. However, the idea that participation should be shaped by knowledge within the

RTRS about so-called sustainable agricultural techniques has been clearly rejected by campesino groups, who rather than participating in the RTRS, have opted out of the discussions altogether. This rejection underlines that these facts *represent* (rather than reflect) one perspective of what might comprise sustainable soy in a way that distinctly favours international environmental organizations, large landowners and agribusiness. Further, this representation dominates the RTRS proceedings, not because it is more accurate or truthful than others, but because it is advanced through power relationships within the RTRS *and* a trust in information presented as 'evidence'.

The RTRS was conceived of as a relatively straightforward, participatory process that would convene evidence about sustainable soy production techniques thereby creating consensus and cohesion among policy actors with regards to the facts about potential certification criteria. By improving the social and environmental conditions surrounding soy production, it was commonly held within the RTRS, that the process was bound to benefit stakeholders by improving the performance of soy producers. This is the case, *even if* the improvements are marginal. But as we have seen, the RTRS has not garnered full participation by stakeholders. Notwithstanding the deep interest that campesinos have in the governance of the soy industry, they organized vehement public protests against the RTRS meetings. The opposition maintains an ongoing critique of the RTRS process and of the soy industry more generally.

The seeming openness to participation of the RTRS, and the language of consensus and 'win-win' scenarios causes some stakeholders within the RTRS to question the rational basis for opposition. Particularly as their challenges to the criteria development process are not based on direct critique of the proposed agricultural practices and zoning laws that were proposed to make soy sustainable. Indeed, challenges to the RTRS were not aimed at the technical or scientific basis for criteria development. Rather, they were aimed at the larger RTRS discourse that suggests as a matter of fact: the inevitability and goodness of the soy industry; of sustainability in the soy industry being a matter of technical solutions; and even the very possibility of a link between soy and sustainability.

What has been taken for fact in the RTRS debates about sustainable soy, is not a matter of epistemological superiority, but of apparent differential power relations

within the roundtable. What started out as a potentially transformative exercise, to address grievances against the soy industry, has ultimately resulted in confirmation and reinforcement of the status quo. There has been no shift in power relations nor in social order at large. In fact, the proceedings of the RTRS may even strengthen existing power relations by institutionalizing further disregard for a large part of the campesino experience and host of grievances. Spelling further detriment to Campesinos, the discourse of sustainable soy seems to have jeopardized the alliance between campesinos and conservationists by creating the possibility for a new alliance between the traditionally antagonistic conservationists and agriculturalists.

It was not participation that was rejected by the campesinos, but participation shaped by these discursive facts and the supposedly neutral evidence of how soy cultivation practices could be sustainable through the right practices and legislation. Therefore, unwilling to be a part of RTRS discussions, they stepped outside of the RTRS process in order to advance their own discourse of soy and sustainable soy in particular, which differs radically from that of the RTRS' protagonists. As a result, the campesino discourse is largely absent in the RTRS debates; the development of sustainability certification criteria for soy is destined to contain and promote only the discourses of large, powerful actors such as the WWF and even larger and more powerful actors such as Andre Maggi, Cargill and Monsanto.

7.5.1 *A deliberative future for the RTRS?*

Authors have suggested that campesinos in the soy producing regions of South America have been left out of negotiations and the general debate about the role of, and regulations that should pertain to, soy production and further soy expansion in this part of the world. This is partly true, but omits an important point. Campesino representatives were invited to the negotiations and the 'door remains open' for them to participate in the future, but many of them have not only vehemently refused to participate, but have orchestrated coherent action against RTRS proceedings. The most visible and coherent opposition to the RTRS has been established at substantial discursive distance from it. My analysis has shown that it is in fact positioned in direct opposition. This is significant, because the formulation of criteria for 'responsible soy' that is broadly inclusive of diverse stakeholders requires the establishment of some

common linguistic terrain. Thus, the new possibilities for the creation of shared problem definitions once a new language is agreed upon are foregone (Bostrom 2003). There are at least two possible scenarios that could explain how this anti-RTRS discourse will position the participating actors in future debates about soy production in Paraguay. The first is that the RTRS will lose legitimacy altogether because of the lack of inclusion of a more critical approach to the potential sustainability of soy production, particularly considering the increasing publication of its severely negative impacts. This would not be without precedent. The Roundtable on Sustainable Palm Oil (RSPO), a parallel initiative, has been widely dismissed as a failure for just such reasons.

The second possible scenario is that the Campesino groups are effectively left out of any future proceedings or decision-making. As Fischer notes, without a common linguistic terrain upon which ideological battles may be fought out, there exists the risk,

> …of losing its direct influence and therefore often trades its expressive freedom for influence on the policymaking process. Given a hegemonic discourse, people who try to challenge the dominant storyline are often expected to position their contribution in terms of established categories (Fischer 2003:88).

By rejecting outrightly, the possibility of 'sustainable' or 'responsible' soy, this counter-movement may have lost any possibility they may have had, to become 'officially' involved in the debate. They have effectively shut down future opportunities to comment on what might comprise more or less responsible soy from *within* the RTRS decision-making body. They have refused a role in the discourse coalition of the RTRS, by taking such a strong position against it, and by using parentheses around many of the linguistic categories established by the RTRS. This is all the more important considering the RTRS is positioned to be the dominant discourse coalition in the debate about responsible soy. This analysis points to the need to critically engage with discourses of knowledge to give further space to marginalized groups in deliberations.

7.6 Conclusion

The pragmatic debate about whether or not certification systems lead to positive or negative outcomes in terms of environmental and social sustainability is no doubt an

important one. However, alone, it only begs improvements in technical knowledge, for improved policy and more desired outcomes. This paradigm overlooks the issue of how within the development of certification criteria for sustainability, powerful agendas are often imposed on the less powerful actors in negotiations and decision-making.

Ultimately, any certification label that emerges from the RTRS criteria development process may put the global consumer at ease, and may well even result in reduced environmental impacts through improved agricultural practices and planning and zoning. On the other hand such a label is unlikely to address issues such as a more equitable distribution of land and opportunities that, for many campesinos, are at the heart of the problems with the soy industry. Once the criteria for sustainable soy have been finalized, soy producers will eventually begin to cultivate 'responsible soy' and it will be promoted and most probably accepted as such in international markets. However, like its conceptual cousins, products labelled sustainable, fair and otherwise, there is a strong possibility that over time the political asymmetries in the discursive struggles that have given rise to the responsible soy certification criteria, will become of secondary concern.

The rational application of factual knowledge about sustainable soy production cannot alone explain the outcomes of the RTRS certification criteria development process. Rather, the outcomes reflect how discourses about the soy problematic contain and incite political struggle. Campesinos have been disadvantaged in this struggle and the RTRS process has born political costs to them. Indeed, analyzing the RTRS and counter-RTRS discourses illuminates ways in which certification systems, far from being pragmatic exercises in the development of sound, efficient and effective criteria for sustainable agricultural production are profoundly influenced by power relationships.

Chapter 8

Critical deliberative governance: Rethinking participation and the politics of evidence in environmental governance

This thesis began by asking the question: *How do policy positions reflect normative positions in spite of appearing to privilege evidence in environmental decision-making and what does this mean for the relative contribution of participation and evidence to policy making?* To answer this question, I considered the following, in the context of environmental governance:

- How and why might public participation pose legitimate challenges to evidence-based policy implications for environmental governance?
- What is considered to be evidence in environmental policy and how can it be often privileged in policy debates?
- To what extent is evidence influenced by social and political factors?

These questions become evermore important as 'new' modes of governance based on participation and deliberation are increasingly promoted, but often not reflected in environmental decision making (Fischer 2009; Dressler, Buscher et al. 2010). Calls for greater participation, in large part, have been unsuccessful because they have not been accompanied by sufficient recognition of the normative arguments for policy inclusiveness; they have also neglected sufficient attention to barriers to achieving it .

This thesis has combined the theoretical inquiry of C hapters 3 and 4 with the empirical investigation of Chapters 5, 6 and 7 to propose a response to these hitherto inadequate treatments of evidence and participation in policy studies. Ethnographic fieldwork was undertaken for a total of 23 months over a four and a half year period, involving a variety of data collection methods. The principal methods were participant observation, individual and focus group interviews and textual analysis. Through these methods, I elicited data on three separate cases of governance mechanisms, that emphasize evidence and participation in environmental decision making.

Each of the three empirical chapters of this thesis has analyzed a governance mechanism, selected because it has drawn on or generated evidence for decision making support in environmental policy. However, with increasing attention toward

participation in policy making, have typically incorporated allowances for greater public involvement than was typically the case. Straight conservation has incorporated productive activities through integrated conservation and development and landscape approaches (Twyman 2000; Hernandez, Janapa et al. 2003). Modeling is rarely spoken about as the strict domain of experts; participatory modeling has become a policy mainstay (Cinderby 1999; Van der Sluijs 2001; Robbins 2003). Finally, public acceptance of certification standards as legitimate has come to depend largely on the input legitimacy bestowed by public participation in processes that lead to their development (Auld and Bull 2003; McDaniel 2003; Auld and Gulbrandsen 2010).

Each of these governance mechanisms has been used in Paraguay as a means of achieving both environmental and democratic outcomes. This is important in Paraguay as the country is widely seen as undergoing rapid and extensive environmental degradation. Much of this is blamed on a lack of expertise and elite capture of decision-making. Moreover, the participatory aspects of these mechanisms are understood as going some way towards addressing the historic and continued exclusion of much of the public from decision-making, including environmental decision-making.

Even in the context of such emphasis on participation, I found that evidence is treated unproblematically as the 'best' approach to defining and solving environmental problems (Leshner 2002; Clark and Dickson 2003). In each case, I examined this 'best' approach – the evidence based policy recommendations. Land classification led to recommendations of conservation and sustainable development (chapter 5). Computer models led to recommendations of sustainable agriculture (chapter 6). Standards development led to recommendations of sustainable techniques and zoning (chapter 7). I analyzed these recommendations and found that these unproblematized policy implications became problematic, as the evidence in each case came to be more completely understood as embedded in, and contingent on, wider social and political contexts. Such contexts illuminate the complexity and uncertainty of evidence based policy as leading to some 'best approach'.

My analysis leads to three main findings. The first is that deliberation can present legitimate and rational arguments in policy debate. Secondly, public participation in conservation, modelling and standards development is often shaped and constrained by

what is considered evidence within these governance mechanisms. Emergent norms are considered rational policy inputs only insofar as they are compatible with that which is presented as the evidence. These first two findings lead to a *rethinking of participation*. Thirdly, while evidence is considered such because it is assumed to be based on fact, evidence-based arguments are often deeply influenced by social and political factors. These factors are fundamental in developing rationales for and against conservation, in navigating the complexity of the trade-offs depicted by models, and in assessing the extent to which soy production can be deemed sustainable. This third finding leads to a *rethinking of evidence*.

As a result of these findings, and the consequent rethinking of participation and evidence, I argue for a new theoretical approach to environmental governance, based on *critical deliberative governance*. The framework emphasizes deliberation, because it posits that the main importance of public involvement in decision-making does not reference logistical advantages or buy in, as is sometimes suggested by those who advocate for participation. Rather, from a deliberative standpoint, the importance of public involvement in decision-making is that rational and democratic policy making depends on it. The framework is critical, because within it, evidence is not treated as a neutral and objective reflection of nature, but as socially influenced and politically influential. Thus, evidence should not be automatically privileged over participation in policy debates, and evidence should be evaluated with consideration for its social and political commitments.

Chapter 8, which concludes this work, synthesizes the empirical and theoretical inquiries undertaken, and brings them to bear on the central research question of this thesis. It begins with the ways in which this research has led to a rethinking of participation and evidence respectively. The third section discusses the implications of these findings for governance theory and public policy. This section poses a way of operationalizing critical deliberative governance through three new policy principles. I conclude with some comments on the future of critical deliberative governance.

8.1   Rethinking participation: the need for deliberation

This thesis has argued for a rethinking of participation, as participatory designs often fall short of enhancing inclusiveness in policy debate. Despite that the rise of

participation in the 1980's as the new development orthodoxy seemed a welcome shift from top-down policy orientations, critiques of tokenism and instrumentalism dampened enthusiasm for the participatory turn (Cooke and Kothari 2001). Such critiques charged that participatory approaches to development tended to lead to negative, albeit often unintended, consequences such as overriding legitimate decision-making processes , undermining local knowledge systems (Mosse 2001), reinforcement of powerful interests and, stifling other potentially advantageous methodologies (Cooke and Kothari 2001). But such critiques did not lead to the abandonment of participatory approaches to policy and planning; a commitment to the inclusion of public representation in public decision making persists. However, concern for inclusiveness in policy processes is increasingly manifest in the language and theory of deliberation (Blowers, Boersema et al. 2005; Fischer 2009; Bäckstrand, Khan et al. 2010; Dore and Lebel 2010).

Deliberation is hardly a new concept – but, as chapter 3 recounts, its usage has undergone a transformation over the past decades. Indeed, the environmental and democratic wisdom of green politics has been extensively questioned, and what I have labelled 'contemporary' approaches to deliberation have been somewhat distanced from these green political beginnings (Jasanoff 2003; Fischer 2009; Dryzek 2010). What makes these more contemporary approaches deliberative, however, is a continued and increasingly critical emphasis on communication as a means of democratic rationality. That is, the assertion that through free, equal and unencumbered communication, different perspectives can become the basis for rational policy, rather than a challenge for rational policy. Thus, as a basis for public representation in decision-making, deliberation offers conceptual improvements over participation. This is because in the deliberative purview, public inclusion cannot be reduced to acting as a vehicle for assuring the efficiency or effectiveness of predetermined decisions, nor a way of validating a priori policy positions. Rather, deliberative policy processes are fundamentally necessary for rational policy outcomes (Fischer 2003; Hajer and Wagenaar 2003; Fischer 2004; Dryzek 2006; Fischer 2009; Dryzek 2010).

The schemes to effect participation, adopted by each of my case studies, illustrate that when evidence is privileged, inclusive policy debate becomes impossible (see Table 8.1). For example, when evidence is generated within the governance mechanisms of

landscape classification, land-use models and sustainable soy criteria to create visions of sustainability, these visions become remarkably resilient. Perspectives that do not coincide with the vision of sustainability that they create, are pushed to the margins of policy debate. Such perspectives are often branded as uneducated, un-environmental, irrelevant or even attempted sabotage. The participatory dimension of policy making (seen to contribute the normative dimension) is limited by, and shaped by, the facts (seen to be established through the evidence-gathering exercises presented in the cases). This is because participation is seen to be normative, *not factual*, and this normative basis for policy is taken as secondary to the factual basis.

Table 8.1: Rethinking participation in environmental governance (Source:Author)

Governance mechanisms: 3 case studies	Means of participation	Indications of (non)-participatory outcomes
Conservation landscapes	Sustainable rural development	Standardized interventions implemented Key interventions not up for debate
Land use modeling	Community based indicators (CBI) Publicly organized evaluation of scenario trade offs	CBIs are unusable Simplistic trade-offs seem obvious and eliminate the need for debate
Certification systems	Consultative framework Committee representation Web-based feedback on criteria iterations	Dissenting voices are labelled uncooperative and irrational

Chapter 5 showed how standardized landscape classification and associated models of conservation with development predetermine the FMB's interventions in the Mbaracayú. Supporting such classification and intervention regimes is the identification of the Interior Atlantic Forest a 'biodiversity hotspot' where rapid land-use change, in particular, agricultural expansion, creates an urgent need to protect disappearing ecological resources. A dire account of the fading 'vital signs', along with inventories of

'unique biodiversity' and damning reports of 'human impacts' lead obviously to policy recommendations of protection and exclusion[49]. Furthermore, they lead to a focus in rural development interventions on sustainable agricultural techniques, with little attention to the barriers to adopting new practices, or development more generally, such as infrastructure and investment.

Thus, despite the increasing talk of local participation in conservation landscapes, conservation itself is a key intervention that is not up for debate. Indeed, rather than opening conservation to questioning and scrutiny, local participation in the conservation landscape instead takes the form of sustainable rural development. This is seen as a concrete way that local people can contribute to the conservation landscape by reducing pressure on the conservation area and by contributing to broader sustainability in the wider region. Conservation remains the core intervention and the central concern as opposed to producer livelihoods.

Chapter 6 showed how rather than helping to shape the modeling exercise, participation was actually shaped *by* the models. Three main forums were established for participatory contributions to the land use planning process. The first forum was a series of focus groups to establish community based indicators for use in the models. The community based indicators would be modelled alongside the expert led indicators, ensuring that local concerns were part of the scenario outputs. For different reasons, however, including technical incompatibility, indirect relationships with land use, and the lack of data availability, the community based indicators that were established were unusable with the ALCES.

The second forum for establishing public participation in land use modelling was the process of building consensus about land use planning goals. The goals of maintaining the rich biodiversity of the RNBM, sustainable use of the natural resources in the CARJ, and improving the well-being of local residents are uncontroversial and self-evident. However, once details emerge about what these goals actually mean from different perspectives, this establishment of a normative framework for planning becomes much more complex and problematic.

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[49] http://www.biodiversityhotspots.org/xp/hotspots/atlantic_forest/Pages/default.aspx

Similarly, the third forum for establishing public participation in land use modelling became a distinctly non-deliberative exercise. The idea of the modelling exercise was to expose the respective scenarios (the modelling outputs) to public scrutiny and debate about their associated advantages, disadvantages and trade-offs. This would lead to collective decision-making about which land use trajectory should be pursued. The modelling exercise presented three scenarios: business as usual (continued use of unsustainable agriculture by smallholders); increasing the quantity of protected area; and finally, the implementation of sustainable agriculture (involving the implementation of no-till agriculture by smallholders). The scenarios clearly showed, that under the circumstances that were modelled, that the choices on offer were: 'health, wealth and a bountiful environment' on the one hand; and 'disaster, degradation and ruin' on the other. Thus, assessment of the trade-offs between different land-use scenarios became needless, as the implications of any alternative to the evidence-based policy recommendations were unthinkable.

Finally, as discussed in Chapter 7, the participatory design of the sustainable soy certification standards development process was key to its legitimacy, in a wider public environment of open hostility towards the soy industry. Thus, all interested stakeholders were invited to deliberate on the ways in which soy production could be sustainable in technical terms. Several measures were taken to ensure that the standards development process was participatory and inclusive: open invitations to meeting; careful attention paid to representing major stakeholder groups in committees and working groups; and open, public access to documents online, and online forums for public feedback and critique of iterative versions of the standards proposals. However, the discussions about sustainability into which this participation was welcomed, focused on the technical requirements such as protecting soil quality and zoning agricultural expansion away from areas of high biodiversity. Once some groups, particularly campesino groups, expressed a need to address questions of sustainable soy at a broader level, beyond these technical requirements, their contributions were branded unhelpful, uncooperative, and irrational.

Each of the empirical cases show how local participation in environmental governance is invited, but only within the confines of what is seen as the baseline facts. Thus, rather than generating new norms for policy, or identifying alternative norms,

participation in these cases can only reinforce more established, or dominant normative frameworks. To reiterate the main point made at the beginning of this section, participation and evidence are commonly seen to contribute the norms and the facts respectively, to policy debates.

While norms are negotiable, facts are seen as fixed. But this rationale for the relegation of the contributions of participation to policy as secondary, is flawed in three respects. First, many authors see that policy is not primarily based on facts, but on norms. This is particularly the case with respect to complex, 'ill-formed' problems that resonate differently for different stakeholders (Funtowicz and Ravetz 2001; Turner 2003; Fischer 2009). In such cases, the significant debates rarely centre around how to get something done, but rather, what it is that should be done in the first place (Fischer 2009). Secondly, we must consider that participation is also a basis for facts in policy debates (Wynne 1996a; Basset and Zeuli 2000). Often these facts, however, stand apart from 'formal' evidence because they are not associated with the appropriate culture or process – they do not fit within the boundaries of this formality (Jasanoff 1987; Eden 1996; Gieryn 1999). Furthermore, they may be seen as having questionable relevance to the environmental policy problem at hand. For example, some of campesinos' contributions to policy debates regard inequality, seemingly viewed as peripheral to the issue of sustainability by the FMB or the ALCES modeller. This suggests that the facts are relevant when they are associated with the 'right' normative position about conservation priorities and sustainability.

The third reason why the separation of facts and norms is a flawed basis for policy debate is that facts are coproduced with norms. Coproduction challenges assumptions about the factual basis of evidence, used to present arguments that are seemingly neutral and objective, thus privileged over normative arguments, and insulated from debate (Jasanoff 2004; Miller 2004). The next section will rethink evidence, examining how establishing facts in each of the cases of evidence based policy, has depended on values, norms and judgements and thus, are inextricably linked with the social and political world.

8.2   Rethinking evidence: Critical improvements of deliberation

Chapter 4 discussed how evidence often enjoys privileged access to credibility and authority in policy debate because of fact claims. These claims are based on realist assumptions that through positivist methodology, evidence reflects, rather than interprets nature, and that such knowledge can then be neutrally applied to policy, leading to the 'best' outcomes (Jasanoff and Wynne 1998). Thus, perspectives based on evidence cannot be considered just another contribution to policy debates (Turner 2001; Turner 2003). Rather, these perspectives are privileged when they are assumed to be based on facts rather than values, beliefs or norms. Chapter 4 continued, that when opened up to critical analysis, evidence is found to embed value, judgement and normative position (Jasanoff 1990; Jasanoff 1992). Furthermore, these values, beliefs and norms also influence which facts are considered as evidence, and which are not. This finding at once contextualizes and tempers the authority of evidence, and reinforces the role of normative decision-making. Thus, evidence and the expert practices that give rise to it, need to become central to the work of policy analysts.

Returning to the empirical cases in Chapters 5, 6 and 7, I examined the evidence created within and used by each of the environmental governance mechanisms. Evidence, in each of the cases, was expected to lead to somewhat unproblematic policy implications. In each case, however, the evidence-based policy implications were contentious. At one level, the analyses show why the implications were not universally taken as the best approach to environmental governance. Evidence and the corresponding policy implications systematically present oversimplified, one-dimensional, decontextualized, depoliticized interpretations of sustainable development. At another level, the analysis shows that the factual claims that make up the evidence-based policy recommendations are not always empirically supportable, and further, bear social and political influence (see Table 8.2).

Table 8.2: Rethinking evidence in environmental governance (Source: Author)

Governance mechanisms: 3 case studies	The facts in evidence	The politics of evidence: Empirical scrutiny/normative contingency of evidence
Conservation landscapes	Conventional conservation with development interventions Ecological importance	Land ownership is a questionable approach to conservation in a context of inequality and conflict over land. Rural development complex where risks are high, investments low, support unreliable and sustainability debated.
Land-use modelling	Expert led indicators Scenarios Policy implications	Desegregation of advantages and disadvantages. Simplistic view of data requirements.
Certification systems	Development Group (DG): technical solutions for a 'win-win' situation	Counter-conference is able to rally its own evidence for opposing soy discourse.

Assessments of the Mbaracayú as an international 'hotspot' for biodiversity, are taken as evidence of the need for conservation with development interventions. The implementation of conservation and sustainable development in the Mbaracayú subscribe to the rationale of zoning and land classification that has been adopted by integrated conservation and development and 'lived-in landscape' approaches. In accordance with the Man and Biosphere landscape model, zones in the Mbaracayú has been cordoned off into the 'core' area, for conservation and the 'buffer zone' where sustainable development will contribute to the conservation of the core area and to the sustainability of the area overall. The analysis in Chapter 5, however, shows this to be a reductionist account of the more complex history of the RNBM creation which goes beyond the need to protect biodiversity.

The analysis in Chapter 5 also illustrates how standardized and portable landscape classifications, and the interventions they support, do not seem like the best approach, once the social, economic and political realities in the contexts where they applied, are considered . Indeed, the conservation and sustainable development interventions that have been implemented in the Mbaracayú are problematic because they have been co-produced with a narrow conception of sustainability and a limited consideration of environmental knowledge.

The legibility enabled by standardized and portable landscape classifications, disables broader involvement in environmental governance. Perspectives that reconsider and problematize the appropriateness and relevance of conservation and sustainable practices such as pesticide-intensive no-till agriculture are distinctly and pre-emptively excluded by the rationale of landscape classification. As the analysis showed in Chapter 5 however, this rationale excludes certain 'facts', such as inequality, that question the appropriateness of conservation by land purchase and ownership. Sustainable rural development, principally involving sustainable agriculture interventions, homogenizes campesinos in their use of 'unsustainable practices' despite that farm management techniques vary widely among campesinos, change over time and involve tried and true methods such as crop rotation and association. A major consideration in the uptake of sustainable agriculture, is that many methods require substantial investment of time and money. These barriers to adoption may be insurmountable for the poorest farmers. Chapter 6 offered a second analysis of the 'best' approach suggested by the evidence. The 50 year scenarios that were developed through the modelling program ALCES used a series of land-use options, and their relationship with three outcome indicators to demonstrate the unambiguous outcome of unsustainable agriculture: economic and ecological disaster and ruin. In contrast, sustainable agriculture, would enable locals to avert disaster. No-till cultivation, use on most soy farms in Paraguay, is defined in these scenarios as sustainable agriculture, because of its proven effect of maintaining soil quality. Thus, it is the small farmers who are identified as using unsustainable agricultural techniques and upon whom the onus lies to shift towards sustainability.

A closer look at the indicators used in the ALCES model, show that they do not provide an unbiased, unavoidable social and ecological trajectory for the Mbaracayú. Rather, they provide one perspective that is deeply influenced by a variety of caveats, including the technical requirements of the model. My analysis illustrated these contingencies in 5 ways. First, the model favours indicators with a short term, quantifiable relationship with land-use. This excludes longer term concerns with a less direct or quantifiable relationship with land-use, such as health and education. Secondly, the selected indicators favoured particular reasons over others, for what indicator dimensions are most significant. This affects the way in which the indicator is measured, and the ultimate policy implications of taking a particular view on an

indicator. An example is the indicator of 'natural area'. If the indicator is considered important as wildlife habitat, then existence of natural area will be sufficient to measure the indicator. However, if peoples' access to resources is prioritized, then their access to the 'natural area' will be considered as a vital part of the indicator.

The third problem with the identification and use of indicators with ALCES is that often, social, cultural, even geographical context determines what kind of data is required for a particular indicator. Thus, some of the indicators were characterized by data requirements that were more complex than recognized. For example, agricultural income is measured with data sources that account for productivity, production inputs and other costs, and the rate of small holder agricultural expansion. Intuitively, these data seem sufficient to arrive at a reasonable estimate of agricultural income for small producers. However, the community-based indicators suggest that other factors are highly relevant, such as commercialization support, means of transportation and improved infrastructure and technical assistance. Fourthly, modelling scenarios favours indicators for which there is data, potentially overlooking the politics of missing data. Data availability is neither a politically neutral phenomenon nor does it have politically neutral consequences. Lastly, the indicators chosen favour specific elements of diverse livelihoods, such as agricultural income, over others such as subsistence production or remittances from participation in the migratory labour force.

In Chapter 7, the analysis of the standards development process for sustainable soy illustrated a third case of evidence-based policy as the 'best' approach to environmental governance. The process, initiated and promoted by the RTRS, gave rise to a discourse that asserts 'responsible soy' as a knowable and achievable phenomenon; that consensus can be reached regarding criteria for what responsible soy is and how it can be achieved; and ultimately, that the problems associated with soy can be addressed through technical changes to production methods and zoning legislation, to keep soy expansion away from areas of 'ecological importance'.

As Chapter 7 illustrated, the RTRS response to the problems and controversy surrounding the soy industry in Paraguay met with fierce criticism and staunch opposition. In fact, the opposition argued that not only are the tenets of 'responsible soy' not knowable and achievable, but they are practical and conceptual impossibilities.

The opposition issued an outright rejection of the possibility of any consensus among stakeholders about the responsible soy criteria. Opponents even rejected the potential for consensus regarding the definition of key concepts such as sustainability, given the vastly different perspectives on what might be accepted as sustainable and not. Finally, the idea that technical solutions and zoning regulations can change the fundamentally exploitative practices and elitist model of soy production is soundly dismissed as a misrepresentative greenwash of the soy industry. The opposition's rejection of the RTRS discourse about responsible soy underlines that what the RTRS put forth as the 'facts' about how soy can be produced sustainably are representations, rather than reflections, of sustainability within the soy industry.

8.3   The politics of evidence: New insights for a theory and practice of critical deliberative governance

8.3.1 Theory

Critical deliberative governance framework contributes to social science theory by providing linkages between theoretical positions that conventionally have been viewed as irreconcilable by theorists. The positions are broadly identified and discussed as deliberative governance, taking the Habermasian idea of communicative rationality as a guiding principle, and co-production, which is derived from a more Foucauldian approach to power and discourse. Alone, each offers an incomplete approach to environmental governance. These linkages address on-going critiques of each position, while advancing the central claims of each. Each of these positions, I have argued, is necessary (but insufficient) for better environmental and democratic outcomes in environmental policy.

As elaborated in chapters 3 and 4, deliberative governance and co-production offer perspectives on the governance-related issues of rationality, communication, democracy, and the fundamental relationship between truth and power. Deliberative governance offers the hope of a universal rationality that is fundamentally based in norms and values. Rationality is reached through communication that is open and accessible to public actors who all have the opportunity to affect the discursive outcomes. Establishing this rationality, a rationality that is the means of human emancipation, is the pragmatic goal of communication. Truth, arising from unconstrained communication, and ultimately consensus, has a transformative effect on power.

Coproduction, on the other hand takes a different approach to these four elements of governance. Rationality is a socially constructed phenomenon, potentially produced by power in society and social order more generally, rather than by unconstrained consensus. Communication is predetermined by strategic discourse, regulated, constrained and shaped by social and political forces, often in those chambers where power resides. This complicates the potential for democratic processes, as participation in debate is limited to that which is congruent with dominant discourses. Truth and power are indistinguishable because they are co-produced.

Table 8.3: Theoretical development towards critical deliberative governance
(Source: Author)

	Rationality	Communication	Democracy and Governance	Relationship between Truth and Power
Deliberative governance	Universal yet normative Unconstrained consensus; continuously contested; Contingent/ ambiguous Hyper-rationalism?	Communicative action/ deliberation Pragmatic; Generalized/ accessible; Symmetrical relationships	Achievement of cultural rationality Potential for human emancipation	Truth, as unconstrained consensus, becomes a normative foundation for critique.
Co-production	In part socially constructed Coproduced with power; social order Abandoned?	Strategic; Selective Pre-determined Regulated and restrained Power disparities; Exclusionary criteria for participation	Individuals as vehicles for power Emancipation problematic	Distinction itself is deceptive as it masks power as truth.
Synthesis/ Reconcilia-tion? **Critical deliberative governance**	Challenge to the dominance of authoritative discourse *and* assumptions about universal norms Critique of pre-determined notions of rationality	Quality assurances for deliberation through critical discourse analysis and unique opportunities for challenge Power disparities exist, but are recognized and addressed	Call for the democratization of discourse Critical analyses of dominant discourses empowers alternative discourses	Sceptical approach to truth; reaching the 'truth' is not the main objective Reflection is possible, but not automatic - an explicit objective in governance processes

I have argued that, because of the important contributions of both the deliberation and co-production literatures have made to thinking around environmental decision-making, each needs to be considered in any emergent governance framework. At the same time, each bears certain weaknesses. Thus, the reconciliation, or synthesis of the two, goes a distance in addressing these weaknesses, while building on strengths. Critical deliberative governance is borne out of such reconciliation. Critical deliberative governance takes rationality as a coproduction of normativity and empiricism, and ultimately as negotiable and contested. Achieving rationality entails a critique of pre-determined notions of rationality through on-going challenge to the dominance of authoritative discourse and assumptions about universal norms. Communication is understood as impacted by power disparities, but improves the deliberative potential of communication through recognizing and addressing these disparities. Ultimately, critical deliberative governance prioritizes reflection in policy debates over achieving 'truth'. Such reflection is a possible, but not an automatic feature of engagement with public discourse. It must be explicitly and purposefully engendered into policy practice.

A further contribution to theory made by this research is by its comparative examination of the coproduction of facts and values at different scales of governance through cases that exemplify environmental decision making at these various scales. Sustainable agriculture and conservation interventions are implemented through NGO extension at the local level. Sustainable land-use planning occurs at the regional level. Sustainable commodity production standards are developed and recognized internationally. This research has illustrated the potential for this coproduction - and the impact of this coproduction on deliberative potential – at various levels of decision-making. For example, the understanding of conservation landscapes and sustainable agriculture, mediated by expertise as factual, objective and uncontested by a local NGO, was shown to be subject to normative input in a similar way to international certification standards development. In between the 'local' and the 'global' scales of governance, regional land use planning, also understood and conveyed as factual, was also normatively influenced. Indeed, the politics of evidence permeates decision-making over a range of scales, calling into question overly optimistic accounts of the potential for greater democratic deliberation in local level governance processes.

8.3.2 Practice

Critical deliberative governance can improve environmental governance engendering a more critical awareness of how participation, deliberation and evidence, the building blocks of contemporary environmental policy, relate to the politics of knowledge. In each of the case studies, the attempt to integrate evidence and participation in environmental governance realized the environmental and democratic advantages of neither. Participation has not deepened the democratic legitimacy of environmental decision-making because it has been limited and shaped by evidence, despite that it can be based on unrecognized evidence itself. So-called evidence-based recommendations for policy are often reductionist, incorporating facts selectively and failing to acknowledge the way in which these facts are inextricably linked with norms, values, beliefs and judgments. Indeed, the findings of this study thus lead us to fundamentally question conventional views of policy processes as gaining normative insights from participation and factual insights from evidence.

In contrast to separating facts and norms as springing from evidence and participation respectively, this thesis has argued that facts and norms are co-produced in policy processes. Co-production must be accounted for in policy that does not uncritically accept so-called evidence as an unduly credible or authoritative source of knowledge in policy debates. Further, co-production must be accounted for in policy that does not privilege evidence to the exclusion of other perspectives, or the inclusion of public perspectives only insofar as they are accommodated or even shaped by evidence. Support for evidence means support for certain facts and norms. Thus, the nature of these norms must be made explicit, if evidence is to be made a part of democratic processes. Thus, co-productionist approaches to policy debate can thereby improve the contribution of each to democratic and environmental outcomes.

Analyzing ways in which facts and norms are coproduced in participatory and evidence-based policy processes is a key concern of critical deliberative governance. As a framework for environmental policy, a critical deliberative approach will help stakeholders to more fully engage the contributions of evidence to policy problems, as well as illuminate more space for the emergence of novel, non-dominant positions in policy debates. A more reflexive, less essentialist approach to knowledge can strengthen a deliberative approach to policy analysis, by making explicit the social basis for

authority and credibility, and opening up its tenets to debate. This critical approach to knowledge is vital for a democracy in which normative arguments are not effectively closed off by formal and authoritative expertise.

But how can we incorporate the concept of co-production into everyday environmental governance frameworks? How can a co-productionist approach to environmental policy be implemented? In short, this can be done by building an understanding of the politics of evidence. In Chapter 1, I outlined three of what I called 'critical social science approaches' to improving the analytical understanding of evidence and evidence-based policy. I now recall these approaches by arguing the need for 3 policy principles to improve the use of evidence and participation in policy debates, and discuss how the case studies support the implementation of these principles. The three approaches/principles are means of understanding the politics of evidence.

The **first** policy principle is that *representations of reality are socially and politically influenced interpretations, not reflections of nature.*

Seeing environmental problems and solutions as constructed does not mean that they are not real – but it does mean that how we represent the natural world and reality are deeply influenced by these social and political institutions and practices (Jasanoff 2004). Representations are interpretations, meaning that environmental problems and solutions carry different meaning and have different implications from different purviews. These purviews are often socially and politically determined by social identity (Wynne 1996b). Among these variable purviews, however, some gain prominence and this is not a matter of what perspective is essentially better or more true than others, but a matter of institutions that are fundamentally a product not of nature or some immutable reality, but of human consideration. Boundaries demarcate the credible from the improbable; the authoritative from the untrustworthy (Gieryn 1999). These boundaries are not natural, inherent or immutable, they are social and political creations, that are maintained through power (Knorr-Cetina 1982; Kinchy and Kleinman 2003).

Representations and interpretations take on a salience when they are expressed through policy. Conceptual boundaries become physical boundaries. Landscape classification systems become maps which have discursive and material consequences for people, as

they determine access to resources, and where and how conservation and sustainable development interventions are carried out. Models become trade-off scenarios, using simplistic representations of cause and effect to pressure complex decisions and exact blame. Processes of negotiation and contestation about how to define sustainability for commodity production becomes a seal of approval on a supermarket shelf. These salient markers of sustainability are thus essentialized. This first policy principle, however, reminds that they are not natural incarnations of sustainable landscapes, land-use, or production. Rather, they are representations and interpretations: open to debate and dissent, albeit resilient to challenges because of their relationship with power.

The **second** policy principle is that *consideration of the social, political, economic and physical aspects of context is vital for an understanding of environmental problems and the impacts of potential solutions.*

Environmental problems and solutions are often defined and deployed in universal terms. Moreover, approaching 'global' environmental problems has been endowed with a kind of noble sense that we are 'all in this together' (Finger 1993; Miller 2004). Global environmental knowledge, applied in standardized ways, is expected to give rise to consistent outcomes for biophysical and social systems. These universal approaches epitomize a 'naïve sociology' (Wynne 1989) of governing environmental problems through evidence assumed to be unattached to human interpretation. In both bio-physical (Wynne 1996a; Forsyth 2007) and socio-political respects, however, understanding, defining and treating environmental problems is highly dependent on context.

The importance of the second policy principle is emphasized by how each governance mechanism analyzed offered universal problem definitions and solutions to sustainability issues. The policy implications generated by each case of evidence-based policy purported to assume a public character (Porter 1995) – objective and non-partisan. But the implications were ultimately shown to be particular and situated transformed from one context to the next[50]. For example, in the ALCES modelling

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[50] See a poignant fictional account of the transformation of familiar objects in foreign contexts, in Barbara Kingslover's The Poisonwood Bible Kingslover, B. (1998). <u>The Poisonwood Bible</u>. New York, Harper Flamingo. In the story, a missionary and his family travel from the USA to the Belgian Congo: "They carry with them everything they believe they will need from home, but soon find that all of it—from garden seeds to Scripture—is calamitously transformed on African soil"…

process, people were asked to come to an agreement on general principles that would then guide the land-use planning process. It was assumed that advantages and disadvantages of various land-uses will accrue to stakeholders in the same kinds of ways, and that 'planning principles' can be aggregated to a point where they become universal, without losing meaning. However, it is found, however, that agreement about broad goals such as 'maintaining biodiversity' quickly lose coherence once questions arise about which biodiversity is important, and which are the best ways of conserving it. Finally, the goal of the RTRS is to develop and apply sustainable soy certification standards universally. This idea, however, seems somewhat absurd when one considers the different contexts of soy production, and the associated rural agricultural populations, levels of inequality and access to land and resources, labour standards and violations recourse etc. surely, sustainable soy production would look much different, and have different implications in the Argentina, for example than in Paraguay.

The **third** policy principle is that *discourse does not just communicate reality, but interprets and creates reality, and maintains power relations.*

Discourse creates (rather than communicates) ideas and associated social and political practices through interaction and interpretation. Discourses are, therefore, products of broader processes of social learning as opposed to comparatively narrow processes of cognitive learning (Hajer 1995). This is, in part, what makes discourse political. Rather than based on cognitive beliefs about causal relationships, effective policy coalitions emerge around discourses. This means that the most significant tie that binds policy coalitions is not knowledge about natural systems, per se, but rather overarching storylines, or discourses, that are broadened and simplified, appealing to different actors for different reasons. This enables, despite potential incoherence and incongruence between beliefs, different stakeholders to come to discursive agreement. This is one reason that discourse comes to embody how discourse is the embodiment of power relations, though this is often concealed. Moreover, this link with power is also how preferences for and against particular discourses are consolidated. These preferences can then become norms in society, a means by which people become self-regulating, or technologies of government.

Discourses permeate all of the cases: from the ways in which classification systems create notions of sustainable landscapes; to indicators and outcomes becoming the basis for evaluating sustainable land-use planning. In the case of the RTRS, the analysis showed how discourse coalitions created conditions under which an unlikely alliance between the soy industry and environmental organizations was formed. This alliance imbued the RTRS discourse about sustainable soy with greater (and potentially increasing) power and resilience vis-à-vis alternatives. This not only excluded, but actively denounced the opposition, portrayed as unreasonable and irrational.

These three policy principles can help build a more complete understanding of how evidence-based policy implications can get it 'right' (for some) and 'wrong' (for others) in environmental policy. This is the politics of evidence, and it has implications beyond the improved use of knowledge in decision-making. A better understanding of the politics of evidence, through enhancing policy sensitivity to interpretation/representation, context, and the power dimensions of discourse also has profound implications for the potential for deliberation. Such an understanding challenges the factual basis of evidence, by showing that this basis is dependent and contingent on values, beliefs, norms and assumptions. Thus, evidence is not objective, neutral and immutable, but social, political and contestable. Consequently, it raises the profile of normative positions in policy debate, such that they can be taken seriously.

The theoretical framework of critical deliberative governance, resolves the tensions between the roles of evidence and participation in emergent policy debates. It does this by strengthening a policy commitment to both the consideration of an expanded range of perspectives and by strengthening a commitment to evidence. Critical deliberative governance, however, takes neither participation nor evidence lightly. It interrogates both. By engaging policy inputs with more analytical rigour and critical perspective, and by fundamentally improving approaches based on participation, deliberation and evidence, critical deliberative governance has the potential to become the new gold standard in environmental policy making.

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