

Human Development legitimizing new institutions for sustainability:

The problem of legitimacy in Earth System Governance

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Abstract

Currently, global governance addressing sustainable development issues is marked by an increasing number of non-state institutions. This trend has led to an interest among political scientists in the sources of legitimacy for these new governance institutions, as traditional understanding of legitimacy is closely tied to the nation-state. One research program that seeks to examine this question is the Earth System Governance research initiative. In this study, sustainability science is used to examine the framing of the research problem of legitimacy within that initiative, with the aim of contributing to green political theory. The study finds that the research into legitimacy done by the Earth System Governance research initiative insufficiently addresses some main challenges of sustainable development, specifically its complexity and time-aspects. The study suggests that a Human Development understanding of sustainable development can help address these challenges and inform green political theories of legitimacy by providing a measure of institutions' performance in contributing to sustainable development, through human capabilities.

Keywords: *earth system governance, sustainable development, legitimacy, accountability, governance, sustainability science, human development.*

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1. Introduction

“There is a special need to study the accountability and legitimacy of new and emerging systems of governance that function without state actors, or in which state actors play only a marginal role” (Biermann et al. 2010).

In this study I deal with the problem of legitimacy of new governance actors described in the quote above. I explore the implications of sustainable development theory for global governance, and the legitimacy thereof. I use a conceptualization of sustainable development as Human Development in an attempt to resolve some of the analytical problems of political research into emerging forms of non-state governance for sustainability.

Over the decades since the Second World War there has been a rapid increase in international and global decision-making institutions and procedures. A plethora of political institutions have arisen to address various issues such as politics, trade and the environment. With globalization reaching across the world, individual states are finding competition in decision-making power from these different kinds of governance institutions (Dingwerth 2007, Gero et al. 2010). Environmental issues are quickly becoming an important topic in this global governance, as it becomes more and more evident to scientists that changes in the earth system have become so pervasive that future lifestyles of most people on earth will be significantly altered (Biermann et al. 2010). It is likely that collapse of a number of ecosystem services of high import to human well-being will happen if measures to avoid this are not taken. This creates a key challenge for decision- and policy-makers to develop adaption and mitigation measures for global administration issues in this new reality (ibid.).

The challenges of sustainability are vast and many of them are so global in nature that many researchers believe it is unrealistic to think nation-states acting on their own will be able to address them, therefore there is broad agreement that global governance is needed to tackle environmental as well as a number of other challenges (Dingwerth 2007, Benner et al. 2005, Keohane 2006). Some examples of these challenges of sustainability are the persistent poverty and hunger in the world, the accelerating degradation of the earth’s life support systems, biodiversity loss, climate change, and reliance on finite fossil fuels (Clark 2003, Rockstrom 2009).

Historically, the United Nations has been involved with sustainability issues through for example the Rio declaration¹, and the Montreal protocol², but currently many institutions that act outside, or partly outside, the UN framework are gaining influence (Dingwerth 2007, Zürn 2005, Pattberg and Stipple 2008). Today there are over 900 international environmental treaties in force (Biermann and Gupta 2011), and numerous intergovernmental and transnational organizations³ that deal with

¹ The Rio Declaration on Environment and Development was adopted by the United Nations in 1992 and outlined 27 principles to guide the world toward sustainable development.

² The Montreal Protocol on substances that deplete the ozone layer (a protocol to the Vienna convention for the protection of the ozone layer) came into force in 1989 and aimed to reduce the emissions of ozone-depleting substances.

³ In international relations (IR) theory, a distinction is made between transnational, intergovernmental and transgovernmental institutions. For the purposes of this paper, discussing these distinctions is not highly relevant, suffice to say that this study addresses transnational governance and rule-making for the most part, although some of the arguments made are applicable on other forms of governance as well. For an excellent discussion on these distinctions in IR theory, see Dingwerth (2007)

environmental and sustainability issues (Dingwerth 2007). Some examples of these types of institutions are the World Commission on Dams⁴, the Forest Stewardship Council⁵, the Marine Stewardship Council⁶, the C40 Cities network⁷, and the Global Reporting Initiative⁸.

These increasing numbers of non-state actors that make rules and set norms for governance challenge the traditional concept of the sovereignty of the nation-state (Bäckstrand 2006b, Bosselmann 2008). Dating back to the formation of the modern nation-state, **sovereignty** is most easily summarized as a state's right to govern its own territory independently from outside influence. Sovereignty is a central part of the current international political system (Litfin 2000), but governance institutions that set rules that states are forced to comply with can be said to in part undermine this national sovereignty (Bosselmann 2008). This narrative of the nation-state under challenge is not uncontested, many authors such as Meadowcroft (2005), Eckersley (2005) and Held and Archibugi (2005) argue that the state is still the most relevant actor today, and empirical research supports this argument (Dingwerth 2008). Nevertheless, it is clear that new forms of governance actors are steadily gaining influence, and that the nation-state model needs to be complemented by better understanding of other types of governance actors and an adjusted understanding of governance.

Governance is a concept that has been explained in a variety of ways, and there is no consensus in the literature on its definition (cf. Adger and Jordan 2008). In this study, I define governance in a broad way, in line with Biermann et al. (2009), to refer to new forms of regulation that go beyond traditional hierarchical state activity. The increasing influence of non-state actors has received criticism, particularly from countries in the global south, due to inadequate legitimacy (Biermann and Pattberg 2008). Irrespective of possible political or economic reasons for developing countries to argue with legitimacy, there is a scholarly and political need for an improved conceptualization and operationalization of legitimacy of non-state actors.

Legitimacy⁹, the right to use power and expect political decisions to be obeyed, has for a long time been the purview of states, as national governments are seen as legitimate due to their accountability towards their citizens. How can non-state institutions that operate on a global level and deal with the global issue of sustainability, with related areas such as climate change and biodiversity loss, gain legitimacy? A central feature of modern society is that political authority and legitimacy rests on the consent of the governed (Litfin 2000 p. 121, Biermann and Gupta) most often the citizens of a state's territory. But when the issues are global and the effects of decisions taken will be felt for generations to come, who is a "citizen" that can consent to authority in a meaningful way?

The idea of democratic, state-centered accountability and legitimacy is not well suited for evaluating non-electoral, non-territorial governance arrangements, such as those exemplified above (Bäckstrand et al. 2010 p. 38).). Indeed: *"accountability mechanisms in global climate governance is quite weak /.../ national elections make very little*

⁴ <http://www.unep.org/DAMS/WCD/>

⁵ <http://www.fsc.org/>

⁶ <http://www.msc.org/>

⁷ <http://www.c40cities.org/>

⁸ <http://www.globalreporting.org/Home>

⁹ This concept is expanded upon at length in chapter three

contribution to transnational accountability" (Dryzek 2010 p. 16). Instead researchers call for a rethinking of the notion of legitimacy to suit a new reality of global governance (Bäckstrand 2006a, Biermann and Pattberg 2008, Biermann et al. 2009). In the past, some legitimacy of international institutions has come through indirect consent of state governments, but this view is increasingly challenged and new requirements for legitimacy are called for (Held and Archibugi 2005, Biermann et al. 2009, Zürn 2005). There is tension between the territoriality implied in the traditional concept of (state) legitimacy, and the holistic approach to ecosystems and the earth-system that is advocated by environmentalists (Litfin 2000 p.127). Because of this tension, the legitimacy of environmental organizations, especially public-private partnerships¹⁰ and networked governance has emerged as a central concern among scholars of international relations, environmental politics and political theory of environmental issues (Bäckstrand et al. 2010 p.39, Bäckstrand 2006b, Biermann and Pattberg 2008).

As a part of this research development, the Earth System Governance Project¹¹ was inaugurated in 2008 with the aim of studying various aspects of governance that are being developed and need to be developed in order to deal with the changing earth system¹² The Earth System Governance Project is an initiative that will run for ten years and will facilitate research into five major analytical problems of earth system governance¹³, one of which is the problem of accountability and legitimacy of new types of governance actors discussed above.

The Earth System Governance Project is a particularly interesting case of research initiative because it has an explicit aim to assist and influence policy-making (Biermann et al. 2009 p.6, 23). The research program seeks not only to understand the political reality of earth system governance, but also to contribute to its development.

"The normative aspiration of earth system governance /.../ is sustainable development" (ibid. p. 23). In this way, the research initiative has much in common with sustainability science, which also aims to contribute to scientific advances but at the same time is normatively committed to sustainable development (Clark 2010).

One important task of sustainability science is to reframe various issues, to examine problems from different angles and to question fundamental assumptions of other sciences (Olsson 2009b). This study looks into how researchers in the Earth System Governance Project are framing the problem of legitimacy of the governance actors they are studying, and investigates whether sustainable development theory, based on an understanding of sustainability as an increasing of human capabilities, is helpful in clarifying the kind of legitimacy demands that should be placed on those actors. By integrating sustainability science understood in this way more into the research being done, and in extension on the design and assessment of various non-state actors working in earth system governance, this study aims to contribute to a more comprehensive understanding of the legitimacy of non-state actors.

¹⁰ *"institutionalized transboundary interactions between public and private actors, with the goal to provide public goods"* (Bäckstrand et al. 2010). One example is the Marine Stewardship Council.

¹¹ <http://www.earthsystemgovernance.org>

¹² The concept of the *Earth system* is a way of summarizing the interconnectedness of the different biogeochemical systems on this planet. Changes in the earth system refers to the current situation where almost all of these interconnected systems are being affected by human action. For more information cf. Biermann et al. 2009.

¹³ These five research areas are the: architecture, agency, adaptiveness, accountability and allocation & access in earth system governance. For more information cf. Biermann et al. 2009.

2. Research framework

The legitimacy of non-state actors is an ongoing research problem within political science, with implications for both the efficacy of global governance and their just use of power. Hamdouch and Zuindeau (2010, p. 429) underline the need for sustainable development theory to influence democratization and stakeholder involvement in decision-making, as well as legitimacy in a broader sense. Bosselmann (2008) also argues that sustainability needs to influence governance to a large extent. And indeed, sustainable development has emerged as a domain for experimenting new types of governance (Bäckstrand 2006b p. 471).

The Earth System Governance Project (cf. Biermann et al. 2009, Biermann et al. 2010) is poised to move to the forefront of political theory into environmental governance, with its numerous research projects in multiple locations around the world and its ambitious research agenda. As the Earth System Governance Project is similar to the sustainability science research project in its partly normative approach to scientific research, as well as closely tied to LUCSUS¹⁴, it is fitting to use sustainability science to examine the work of the Earth System Governance Project.

Sustainability science is defined to a large extent by the practical problem it aims to study, that of sustainable development. Sustainable development is a contentious, multifaceted concept, and this implies that the role of sustainability science is twofold in relation to sustainable development 1. To advance theoretical understanding of what constitutes sustainable development, especially with a focus on coupled social-ecological systems and 2. To advance understanding of the practical implications of sustainable development theory for researchers and practitioners. (Clark 2010).

With these two aims in mind, sustainability science can be understood as use-inspired basic research that seeks to both improve understanding of core questions, and address problem-solving challenges.

¹⁴ LUCSUS, the Lund University Center for Sustainability Studies, hosts (at time of writing; the spring of 2011) the International Project Office of the Earth System Governance Project.

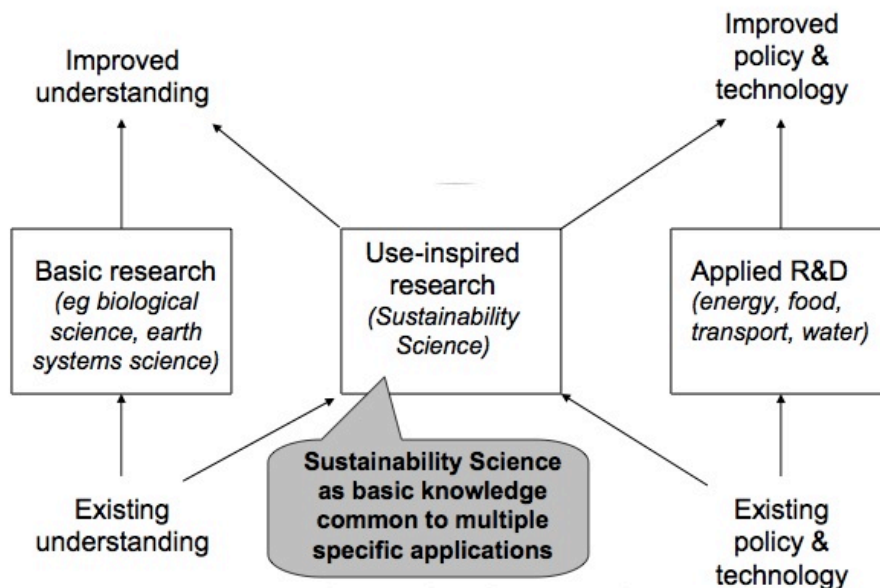


Fig. 1: Sustainability science as use-inspired research. Adapted from Clark (2010).

In this study, I conceptualize sustainable development (SD) as a continuation of the project of modernity, with the ultimate goal of contributing to human freedom. This conceptualization is based on the work of sociologist Jürgen Habermas¹⁵ (cf. Wironen 2007). This understanding of SD is not uncontested, but will be argued for in the report. The main aim of this study is not to defend the position that sustainable development can be understood as human development, but to look at the consequences of this conceptualization for the problem of legitimacy beyond the state. In this way this study is in line with the second role of sustainability science.

There are many points of connection between Earth System Governance Project and Sustainability Science, but legitimacy is relevant on account of the political developments addressed in the introduction, and also allows for an interesting discussion on the implications of sustainable development theory for research into, as well as practical development of, governance. The problem of governance and legitimacy also ties in with the core questions of sustainability science¹⁶

2.1 Aims/Research questions

The aim of this exploratory study is to examine how researchers in the earth system governance research initiative frame the issue of legitimacy of non-state governance actors, and to critically reframe that issue from a sustainability science perspective,

¹⁵ The connection between Habermas and sustainable development is discussed in chapter 4.

¹⁶ In Kates et al. (2001) the authors outline seven core questions of sustainability science. Issues of governance and legitimacy tie in primarily with the fifth core question: "What system of incentive structures –including markets, rules, norms, and scientific information, can most effectively improve social capacity to guide interactions between nature and society toward more sustainable trajectories." Cf. Kates et al. 2001.

specifically with an understanding of sustainable development as an increase in human freedom and capabilities (cf. Anand and Sen 2000).

Framing refers to the way in which people develop conceptualizations and thinking around an issue:

“Analytic frames emerge from theory and serve as a starting point for generating questions, hypotheses and propositions in research. In this capacity analytic frames are not only forceful tools for facilitating or even determining the choice of research design but also for guiding researchers through data construction, analysis and interpretation” (Olsson 2009b, see also Chong and Druckmann 2007).

Reframing of issues is a method of recontextualizing and reinterpreting existing viewpoints, and is an important part of sustainability science in practice (Olsson 2009b), as new ways of conceptualizing problems might often be essential in order to solve them.

With this exploratory study, I seek to contribute to the research being done by the Earth System Governance Project and to combine what I see as salient issues from sustainability science with the earth-system governance research program in the illustrative case that is the question of legitimacy.

The overarching research question in this study can be expressed as:

How can sustainable development theory contribute to research into legitimacy of emerging non-state governance institutions, especially those that address sustainable development?

This research question is operationalized through three sub-questions:

- How is the problem of legitimacy beyond the state framed in the Earth System Governance Project in relation to input and output sources of legitimacy and internal and external accountability of political institutions?
- How does that framing take into account the theoretical challenges of sustainable development¹⁷ specifically its temporal and spatial scales and complexity of information?
- How does reframing the problem of legitimacy beyond the state using sustainable human development as a theoretical starting point help further address those challenges?

2.2 Research Methodology

In this exploratory study I have applied a mixed-methods approach in order to answer the research questions.

In order to examine the framing of the legitimacy problematique in the Earth System Governance Project I performed a qualitative text analysis (Bryman 2001 p. 373). To conduct that analysis I used the publications listed at the earth system governance

¹⁷ Olsson 2009a discusses seven main challenges of sustainable development: climate change, loss of biodiversity, overfishing, water scarcity, land use change, land degradation and deforestation. These are **not** the challenges I am referring to in this research question. See chapter 4 for an outline of what I call the theoretical challenges of sustainable development.

website under the heading accountability and legitimacy¹⁸ in addition to the section on accountability and legitimacy in the research framework published by the ESG (cf. Biermann et al. 2009) as data sources. I assumed these publications to be representative of Earth System Governance Project research dealing with the issue of legitimacy, and through it the framing of the issue within the Earth System Governance Project. While a document should not be taken off hand as a representation of an organizational or social reality, I feel that this assumption is justified as the publications were self-selected by the Earth System Governance Project, and it is reasonable to expect that the texts they select for their public pages are the texts that to some extent show their viewpoint.

In total this amounted to 12 publications¹⁹ that were used in the study. Most of these were articles in scientific journals, some were articles in popular magazines, and one was a book. Four of these publications were outlines of and introductions to the ESG-program, which discussed the relevance of the ESGs focus areas and the program's research framework and flagship projects.²⁰ The rest were focused on certain themes of research²¹, or were case analyses of specific governance institutions, programs and actors, such as the REDD+²² programme²³, non-governmental organizations²⁴, coastal governance²⁵ and participatory processes in the Pacific²⁶.

The focus of the text analysis in this study was on how the issue of legitimacy was presented in the texts. Analysis was conducted in an inductive manner; I read and cross-referenced the texts to find common themes and key concepts that related to how the authors discussed both how governance actors construct legitimacy and how researchers should study and assess legitimacy of non-state governance actors. In doing so I aimed to find how legitimacy was framed within the Earth System Governance Project.

In trying to examine how the authors of the publications that I have read frame the issue of legitimacy, I took an interpretive stance towards knowledge creation (Bryman 2001), I assumed that the different authors were using specific words, such as "representation" "deliberation" "participation" etc. to signify the same (or similar) types of referents. I did not use any stringent coding method for text analysis, instead I have included quotes from the texts which illustrate the way the issue is presented by the authors. As with all qualitative study, my research is likely to reflect some bias that I have as a researcher (Bryman 2001). In order to limit this bias I used established theoretical models as starting points for my text analysis. These theoretical starting points were two pairs of concepts: input and output sources of legitimacy (cf. Scharpf 1997, DT, Dingwerth 2007, Keohane 2006) and internal and external accountability (cf. Bäckstrand 2006b, Keohane 2006) all of which are expanded on in the first theory chapter. My text analysis can be

¹⁸ <http://earthsystemgovernance.org/publications/accountability>, accessed 1/7,

¹⁹ One publication on the website was a bibliography, which was not used as data in this study. The ones that were used as data were: Biermann et al. 2009, Biermann et al. 2010, Biermann and Gupta 2011, Biermann and Zondervan 2009a, Biermann and Zondervan 2009b, Bäckstrand et al. 2010, Corbera and Schroeder 2010, Dombrowski 2010, Dryzek and Haley 2010, Falaveela et al. 2011, Géro et al. 2010 and Gupta 2010a. These publications are marked with an asterisk in the references section.

²⁰ Biermann et al. 2009, Biermann et al. 2010, Biermann and Gupta 2011, Biermann and Zondervan 2009a, Biermann and Zondervan 2009b,

²¹ Bäckstrand et al. 2010, Dryzek and Haley 2010, Gupta 2010a

²² REDD: Reducing Emissions from Deforestation and Forest Degradation, cf. www.un-redd.org

²³ Corbera and Schroeder 2010

²⁴ Dombrowski 2010

²⁵ Falaveela et al. 2011

²⁶ Géro et al. 2010

described as theory-guided inductive research, as I did not have any hypotheses coming from theory when conducting the analysis, but used theory as a way of helping me understand the texts (Bryman 2001).

After finding a number of common themes in relation to the legitimacy issue in the publications, I summarized these themes into an analytical “framing” of the problem within the Earth System Governance Project (Olsson 2009, also Chong et al.). I then proceeded to critically analyze this framing by applying some theoretical challenges of sustainable development on the framing. These theoretical challenges were gathered from various thinkers within sustainability science and sustainable development theory, and are expanded upon in the fourth chapter.

Finally, I used an understanding of sustainable development as human development²⁷ to reframe the problem of legitimacy of non-state actors and help address some of those theoretical challenges of sustainable development not currently resolved in the framing of legitimacy in the Earth System Governance Project

2.3 Limitations

This study is concerned with the theoretical underpinnings for legitimacy and accountability, and deals with questions of how a legitimacy-framework can be outlined from a sustainability science viewpoint. However, as the study focuses on research being done, the efficacy of the various organizations discussed, and its relation to their legitimacy claims, are left to a hypothetical discussion. Further research needs to be done into the “on-the-ground” efficacy of various organizations. This type of research is also called for by the Earth System Governance Project, as discussed in Biermann et al. (2010 p.11). However, theoretical research is also an important part of investigating legitimacy beyond the state (Biermann et al. 2009 p. 53), and that is where this paper positions itself.

As will be discussed, I define sustainable development from a specific perspective, building on the works of Amartya Sen and Jürgen Habermas as theoretically developed by Wironen (2007). Due to the contested nature of sustainable development, clarifying one’s position as a researcher is necessary but also sufficient for discussing the issue (Clark 2010).

²⁷ Cf. Anand and Sen 2000, this view of sustainable development is expanded on in chapter 3.

3. Theoretical background one: legitimacy and accountability

It is often posited that governance, to be effective, must be perceived as legitimate by all stakeholders. (Biermann and Zondervan 2010b p.11)

Legitimacy is a central and contested concept in political science. Legitimacy can be understood in two ways (Zürn 2005, Dingwerth 2007, Bäckstrand et al. 2010), either as a descriptive or a normative concept that relates to how power, rules, norms, and institutions are accepted by members of societies (Keohane 2006). If legitimacy is high, people are likely to comply with the rules and norms, and obey the power and institutions. In other words, legitimate institutions are likely to be effective in implementing their agendas.

In the descriptive understanding of legitimacy²⁸, institutions with power are considered legitimate when people perceive them as legitimate regardless of why they do so. The descriptive understanding is thus an empirical concept, and deals with the social *acceptance* of authority (Dingwerth 2007, p.14). The influential sociologist Max Weber analyzed this type of legitimacy in the early twentieth century, in his classical text describing how people perceive power as legitimate if it is derived from tradition, charismatic leaders or legal procedures (Weber 1958). Descriptive legitimacy is tied to individual motivations for action, and as such it can be considered sociological in nature (Dingwerth 2007 p. 219). To say that a political institution is legitimate in the descriptive sense is to assert that the institution is widely believed to have a right to set rules, norms etc. (Beisheim and Dingwerth 2008).

In the normative understanding of legitimacy, the question is not so much *if* people accept power, but rather on what grounds they *should* accept that power. In his discussion on the relevance of normative legitimacy, political scientist Klaus Dingwerth (2007, p. 14) expresses the problem as relevant in terms of saying not only which types of governance institutions people have *acceptance* for, but also which types can be considered to have *acceptability*. While descriptive legitimacy is primarily an empirical concept, normative legitimacy deals with theoretical and philosophical models for which criteria should be used to test whether institutions are legitimate or not (Dingwerth and Beisheim 2008). It is by discussing normative legitimacy that one can question whether international institutions such as the WTO or the UN meet (for example) democratic standards (Zürn 2005). These institutions might be legitimate in the descriptive sense because the people or actors subject to their decisions obey them but researchers and activists can still be critical of the normative side of their legitimacy (Zürn 2005). Normative legitimacy is concerned with the question of whether social acceptance of institutions can be considered rightful, and allows for evaluating the legitimacy of governance from principles such as democracy or justice. To say that an institution is legitimate in the normative sense is to assert that it has a right to set rules, norms, etc. (Beisheim and Dingwerth 2008). There is a connection between the two perspectives of legitimacy in the sense that normative legitimacy can lead to increased descriptive legitimacy. According to Zürn (2005), social belief in the legitimacy of an institution is closely tied with the normative validity of a political order, especially in modern societies.

²⁸ Sometimes referred to as sociological legitimacy, in e.g. Dingwerth 2007.

Accountability is the possibility for certain actors to hold others up to a set of standards, to judge whether they have fulfilled their obligations, and if not to sanction them (Bäckstrand et al. 2010 p.40). Accountability is based on a power relationship; those who hold others accountable have power over them (Keohane 2006), which explains why many non-state institutions resist being held accountable to a large degree (ibid.). According to Robert Keohane (2006), the main purpose of accountability is to safeguard against abuses of power. In other words, accountability is a way in which social actors show that political institutions (or specific actors within those institutions) have lost their legitimacy. Accountability can be said to have four elements:

(1) a normative element, that is, a standard of behavior defined with sufficient precision; (2) a relational element, linking those who are held accountable to those who have the right to hold to account; (3) a decision element, that is, a judgment of those actors who may hold other actors accountable about whether the expected standard of behavior has been met; and finally (4) a behavioral element that allows the governing actor to sanction deviant behavior of those held accountable. All elements need to be present in sufficient degree to make any accountability relationship meaningful. (Biermann and Gupta 2011, page unnumbered).

According to Keohane (2006 p.80-81), the issue is not whether institutions are accountable, but rather: to whom they should be accountable. Determining who has a right to hold someone else accountable is a major theoretical challenge with regards to non-state institutions. Drawing on Keohane, in this study I refer to actors who are held accountable as *agents*, and actors who hold agents accountable as *principals*.

3.1 Input and output sources of legitimacy

A conceptual distinction that is useful for understanding legitimacy and that was used in the text analysis in this study is that between input and output of decision-making as a source of legitimacy. This distinction was made early on by Fritz Scharpf (cf. Scharpf 1997) in his research into new governance forms in the European Union, but has since been adopted by many political scientists as a useful model for conceptualizing legitimacy (cf. Dingwerth 2007, Bäckstrand et al. 2010). In the input/output-model (fig. 1) the legitimacy of decision-making is analyzed in relation to both its procedural background, and to what results stem from the decision.

Input legitimacy (procedural legitimacy)	<ul style="list-style-type: none"> • Participation/Inclusion • Control/Accountability • Deliberative quality
Output legitimacy (effectiveness)	<ul style="list-style-type: none"> • Policy effectiveness • Environmental effectiveness

Table 1: Input and Output sources of legitimacy. Adapted from Bäckstrand et al. (2010)

Input refers to the questions of participation and democratic control of decisions taken. Input legitimacy rests on a procedural logic, and its primary focus is on the participation in decision-making (Bäckstrand et al. 2010 p.39). In terms of participation two factors that are relevant are: 1. Who is included in decision-making, and 2. In which way those actors are included. Dingwerth (2007) makes a categorization of input legitimacy as involving three dimensions: participation and inclusion, control and accountability, and discursive quality. Input sources of legitimacy are connected with the idea of institutions acting on a mandate from their constituents (cf. Dombrowski 2010). This is the classical

understanding of government ruling by the consent of the governed in a very explicit way.

Output refers to the efficacy of actual decisions reached by the organization. Thus, output legitimacy rests on consequential logic, and asks: do the decisions taken contribute to collective problem-solving? And (perhaps more importantly) are they at least perceived as doing so? (Biermann and Gupta 2011). Determining measures of output can be complex, and it is common to differentiate between output such as *compliance* of the various actors to the rules decided on, and the *impact* that the decision has on resolving collective problems (cf. Bäckstrand et al. 2010, also Beisheim and Dingwerth 2008). Many organizations make their claims to legitimacy based on output, rather than input legitimacy, and it is argued that high output can compensate for low input legitimacy to some extent (cf. Bäckstrand et al. 2010 p.199, Bäckstrand 2006b). This is also the source of parts of state legitimacy: the state is considered legitimate because it provides citizens with many things that are perceived as good and useful, such as economic growth and physical safety, not necessarily because it ensures participation in decision-making (Litfin 2000 p. 121). Output sources of legitimacy are tied to the concept of a trusteeship role of the decision-making body, in which the institution's role is not only to respect the wishes of its constituents but also to guarantee certain substantive outcomes of decisions.

From a normative standpoint, social acceptability of power (legitimacy) can increase either through better (e.g. in line with democratic standards) input sources of legitimacy, better (more effective at collective problem-solving) output sources, or a combination thereof.

3.2 Internal and external accountability

Another pair of concepts that has been used in the analysis is that of internal and external accountability. Internal accountability refers to a decision-making body's accountability to its members. For example, a democratic state government is accountable to its citizens, an NGO to its members, an intergovernmental organization to its member-states etc. (cf. Keohane 2006). Internal accountability can be hierarchical (the accountability of a sub-ordinate to their superior) or electoral (the accountability of a government to its citizens) (ibid.). External accountability means that decision-makers have to (also) justify their actions towards non-members that are affected by the decisions. (Bäckstrand 2006b).

This distinction addresses the relational element of accountability discussed by Biermann and Gupta above. When discussing internal accountability, the relational element is clear and comes through the membership status of those holding actors accountable (Biermann and Gupta 2011), which makes inclusion of various actors in decision-making central to increasing accountability. In internal accountability, actors have a right to hold decision-makers accountable because they are *principals* that have given a mandate to those decision-makers. Inclusive mechanisms of accountability, such as regular elections or board meetings, contribute to input legitimacy.

When discussing external accountability the relational element is less clear. In external accountability, actors affected by decision could be said to have a right to claim they should be able to hold decision-makers accountable because one of the principles of modern society is that "*all those potentially affected by risks should have some meaningful*

opportunity to participate or otherwise be represented in the making of the policies or decisions which generate such risks". (Dombrowski 2010 p.400) When discussing external accountability, actors thus gain status as *principals* by being affected by the risks of decisions taken, rather than by having membership status in the decision-making institution. External accountability is difficult to limit, as Dingwerth (2007 p. 33) points out, there needs to be a "*context-sensitive threshold, by which we could determine the degree of affectedness that validates a claim to participation and control.*" External accountability is not well developed in the present political system, and theorists such as Robert Keohane advocate the need for a stronger focus on external accountability in global governance (cf. Keohane 2006). Some mechanisms to increase external accountability that are suggested by theorists (cf. Keohane 2006, Benner et al. 2005) are *market accountability* (towards customers) and *reputational accountability* (towards other political institutions). Because the relational, decision and behavioral elements (cf. Biermann and Gupta 2011) are not clear in external accountability situations, these mechanisms are not as strong as those of internal accountability.

3.3 Summary and implications for this study

Legitimacy is the rightful social acceptance of power (Dingwerth 2007) and can derive from input into decision-making that is seen as following principles such as democratic proceduralism, as well as from output from decision-making such as results that contribute to collective problem-solving. Institutions and actors that exercise (legitimate) power are held accountable to normative standards of behavior by other social actors. This accountability can be internal, when the decision-makers are given a mandate from an electorate or other authority. The accountability can also be external, when the institutions are not given a mandate per se, but are held accountable by those affected by the decisions that the institution takes.

I analyzed the framing of the legitimacy of non-state actors in the Earth System Governance Project publications in relation to the two pairs of concepts presented here. Using the two pairs of concepts generated a number of open questions from which to start the text analysis:

- How does this text address input and output sources of legitimacy? Which kinds of input are emphasized as being most relevant? Which kinds of output are emphasized as being most relevant?
- How does this text address internal and external accountability? Does the text discuss accountability towards members of decision-making bodies and their constituents? Does it discuss accountability towards non-members that are affected by decisions?

4. Theoretical background two: sustainability science and sustainable development

“Science must be connected to the political agenda for sustainable development” (Kates et al. 2001 p. 642).

“Sustainability needs to be understood as a discursively created rather than an authoritatively given product” (Wironen 2007 p. 34).

As this study has built on a critical analysis and reframing of the legitimacy issue from a sustainability science point of view, it is pertinent that I expand on how I conceptualize sustainability science, sustainability and sustainable development as theories that are useful in this type of research.

Drawing on a presentation by sustainability scientist William Clark (Clark 2010), I understand sustainability science as use-inspired research that deals specifically with the problem of sustainable development, uses scientific understanding of the interactions between human and environmental systems and combines a variety of different scientific disciplines in a transdisciplinary²⁹ manner to do so.

In order to do this the science must address the question of what is meant by sustainable development, and although some researchers such as Dryzek (1999) sees defining sustainable development as an impossibility, as a sustainability science researcher I nevertheless wish to clarify my position in the matter. As I will use my conceptualization of sustainable development to reframe the issue of legitimacy of governance actors, I will spend some time expanding on this conceptualization in the sections below.

4.1 Sustainable development, short history

The term sustainable development came into popular use in the nineties in connection with the publishing of the so-called Brundtland-report *Our common future*³⁰. The concept assumed a connection between poverty and environmental degradation and thus allowed for a way forward that combined the “development” paradigm of the post-war western world with the increasing awareness of environmental issues (Carter 2007). Instead of creating contention between development (understood as economic growth and industrialization) and environmental protection, sustainable development framed the issue as one where increased development would also lead to increased environmental protection, as richer countries and persons would cause less environmental degradation.

Since its first appearance, the concept of sustainable development has received criticism for being too broad and ill-defined. Critics claim that the term ultimately has come to simply mean “good society” (Dryzek 2005). Nevertheless, and perhaps partly due to its ambiguity, the term sustainable development has become mainstream and has been adopted by many different actors: businesses, NGOs and public institutions (Dryzek 1999). These actors all use the term sustainable development but have widely different

²⁹ For a discussion on inter- and transdisciplinarity, cf. Max-Neef 2005.

³⁰ <http://www.un-documents.net/wced-ocf.htm>

views on what it might entail, everything from business-as-usual development to a radical rejection of the current economic system.

4.2 Sustainable development, key issues, theoretical challenges

When discussing sustainable development, two main questions must be addressed: What is to be sustained? And: What is to be developed? (Clark 2010).

WHAT IS TO BE SUSTAINED:	FOR HOW LONG? 25 years *Now and in the future* Forever	WHAT IS TO BE DEVELOPED:
NATURE Earth Biodiversity Ecosystems		PEOPLE Child Survival Life Expectancy Education Equity Equal Opportunity
LIFE SUPPORT Ecosystem Services Resources Environment	LINKED BY <i>Only Mostly But And Or</i>	ECONOMY Wealth Productive Sectors Consumption
COMMUNITY Cultures Groups Places		SOCIETY Institutions Social Capital States Regions

Fig. 2: Questions of sustainable development. Clark (2010).

It is important to remember that there are no simple or uncontested answers to these questions. Sustainable development is a normative concept by necessity, as answering these fundamental questions requires a value judgment (Scerri, James 2008). Scientific non-normative understanding of the relationship between society and nature must inform this judgment, but sustainability does not necessarily mean the preservation of natural resources (Arias-Maldonado 2007). Practitioners and researchers are dependent on using various tools and measurement techniques to determine which

actions are in line with sustainable development³¹. Depending on how one conceptualizes sustainable development, different tools are relevant to use, and different types of information are required (Faran 2010).

Despite the contested nature of sustainability, it is clear from increased scientific understanding of the workings of the earth-system that sustainable development is an issue that cuts across all spatial scales and levels. Global issues are one important scale for sustainable development but local, regional, or tied to ecosystems are all relevant spatial scales. (Kates et al. 2001) Furthermore, these different scales are interconnected and interdependent on each other (Kates et al. 2001, Biermann and Gupta 2011).

Another important aspect of sustainable development is the intergenerational component, the time-scale for the sustaining and development to take place within (Ness et al. 2006). Sustainable development is an issue of time. Without a focus on future-states, the discussion of sustainable development is a non-starter. Many of the ecological crises that constitute the backdrop of the sustainable development debate³² are projected outcomes of the current business-as-usual scenario, rather than actual crises happening at the present time³³. It is important to note that sustainable development addresses impacts of decisions made today, on people in the future.

From this brief description of sustainable development, we can see how it has two main theoretical challenges that need to be addressed: the complex information that is needed to determine whether a specific action contributes to SD or not, and the different scales at which sustainable development operates, both spatial and temporal.

4.3 Two views of sustainable development

Since the publishing of the Brundtland report, two major theoretical views of what constitutes sustainable development have come out of research into the issue. I will briefly account for these³⁴ before I expand on the view of sustainable development that I will use in this study, that of sustainable development as a critically modern project of increasing human capabilities.

4.3.1 Weak vs. strong sustainability

Shortly after the publishing of the Brundtland report, the economist Robert Solow defined sustainable development in the following manner: what is to be sustained and developed is gross domestic product (GDP) growth, and through it human welfare. The argument made by Solow was that we cannot know what future generations want and therefore we must try and give them equal or better economic opportunities to select their own path than we have today. These economic opportunities come in the form of GDP. According to Solow, many types of capital; natural resources, human resources etc. are substitutable for one another. *“If you don’t eat one species of fish, you can eat another species of fish”* (Solow 1991, p.4 quote taken from Anand and Sen p.2037). There are few specific things that we might need to preserve for future generations, again because we cannot know which kinds of taste future generations might have. Another consequence of this line of thinking is that human-made capital can substitute for natural capital,

³¹ For a review of a number of such tools and indicators, cf. Ness et al. 2006

³² Olsson (2009a) discusses seven main challenges of sustainable development: climate change, loss of biodiversity, overfishing, water scarcity, land use change, land degradation and deforestation.

³³ Although this is not uncontested, some researchers claim current weather patterns are already affected.

³⁴ This is just an introductory discussion, for a more in-depth account see e.g. Carter 2007.

which means that loss of forest (for example) can be compensated by an increase in GDP.

In Solow's view, destruction of natural capital is only permissible if it is done efficiently (without waste) and if it is substituted with (at least as much) human-made capital. Cost-benefit analyses are the main method of determining what actions are permissible in this understanding of sustainability. When performing these cost-benefit analyses, economists employ a discount rate of future GDP per capita, so that present consumption has a "higher value", but Solow says this discount rate should not be too large. In order to carry out these cost-benefit calculations (which involve natural assets that are not privately owned and thus have no market value) economists use a number of techniques to "shadow price" public goods (Faran 2010).

This view of sustainability is often termed weak sustainability, as it has no inherent commitment to preserve the environment and is clearly anthropocentric. Solow's perception of sustainable development does not discuss distribution of wealth, but assumes that the market works best without equity concerns. The issue of distribution is not mentioned in the Brundtland report either, so Solow is quite justified in leaving this issue aside (Faran 2010). This theory of sustainability addresses the temporal aspect of sustainable development through its commitment to increasing, or at least maintaining, the GDP of future generations. The informational challenges in this view of sustainability come from the highly complex cost-benefit analyses that are needed to assess when natural capital can be destroyed and replaced with human capital.

In response to Solow's explanation of the term, other economists such as Herman Daly advocated a different view of sustainability. This view still answered the questions of what is to be sustained and developed with GDP growth, but added the very important caveat that not every kind of natural capital is substitutable with human-made capital. Oftentimes, natural and human-made capital are complementary rather than substitutable for one another.

In this view of sustainability, the prerogative to preserve nature and natural capital is much stronger than in Solow's view. Because of non-substitutability, it is no longer permissible to quantify all types of resources in the same way, i.e. economically. There is instead a need to qualitatively differentiate between natural and manufactured capital. If non-renewable natural capital is used, for example, all proceeds should go toward investing in other types of natural capital, in order to maintain GDP. Using a discount rate that places higher value on consumption now than in the future is seen as questionable in this view, and some theorists even advocate using a negative discount rate instead. (Faran 2010).

This view is often referred to as strong sustainability, as it places a much higher emphasis on the protection of the environment and natural resources. Like weak sustainability, this theory of sustainability addresses the temporal aspect of sustainable development through its commitment to increasing the GDP of future generations. The informational challenge in this view of sustainability comes from identifying which types of natural capital that cannot be substituted with human capital, and also in making cost-benefit analyses similar to those of weak sustainability.

4.4 Sustainable development as an expansion of freedom and capabilities

In this study, another definition of sustainable development is used, which I will explain below. This view is one of sustainable development as an expansion of human freedom and capabilities. This version of sustainable development answers the question posed by Clark in the following manner: *“What is to be sustained is the nature of the lives that people can lead”* (Anand and Sen 2000, p. 2040).

The basic argument made by Amartya Sen is that we have been misguided when looking at economic growth through GDP as the most important metric of (sustainable) development. What we really want are the things that economic growth brings: increased freedom for people. Why not, asks Sen rhetorically, focus on that freedom with our values and measurements, rather than on economic growth? In line with this, Sen outlines five freedoms of people that need to be expanded upon for development to be said to happen: *political freedoms, economic facilities, social opportunities, transparency guarantees, and protective security* (Sen 1999). These five constitute, according to Sen, the basic freedoms that people have a right to enjoy and that should be promoted.

If we accept development as freedom, we have to prioritize a series of targets that we might otherwise not have: universal health care, gender equality, education etc. In this conceptualization of sustainable development, sustaining nature has its own intrinsic value, beyond Cost-Benefit Analyzes of how much it contributes to GDP growth (Anand and Sen 2000, Sen 2004). The claims of future generations are expressed, through this conceptualization, as not only claims to “living-standards” (of GDP) but also rights to enjoy certain freedoms and also nature. Sen's approach to sustainable development thus combines a welfarist and a non-welfarist understanding of universalism and our responsibilities towards future generations. Some claims of future generations may be substitutable in a welfare sense, but may not be substitutable from other aspects such as a rights approach. Universalism and intergenerational equity demands that we make sure future generations enjoy at least the same freedom as the one we have to enjoy nature.

Anand and Sen (2000), also show that optimal growth, even when taking into account externalities (ie. making cost-benefit analyzes that have low or negative discount rates) etc. does not necessarily lead to sustainable outcomes. Therefore, GDP growth is in itself not a guarantee for sustainable development, but must necessarily be tempered by the moral obligations brought in through focusing on capabilities.

One result of using Sen's approach is that distributional equity today receives a great deal of attention. Anand and Sen (2000 p.2030) argue that it makes no sense to appeal to universalism (which one does by talking about intergenerational equity), if one does not also apply that universalism to people living today through distributional, intra-generational, equity. Equitable distribution for the existing generation follows from this logic, and Sen has it that such equity will not only be intrinsically useful for expanding freedom, but also instrumentally so. Since expanding freedoms of human beings is that which has central value in Sen's conceptualization, these freedoms have intrinsic value. *“Human development should be seen as a major contribution to the achievement of sustainability”* (Anand and Sen 2000, emphasis in original). However, human development is also seen as an instrumentally useful as people with more capabilities not only lead more worthwhile lives but also contribute to safeguarding similar

opportunities for the future (Anand and Sen 2000 p. 2038). Anand and Sen refer to many different examples of this happening (cf. Anand and Sen 2000).

In order to measure this development, Sen introduces the concepts capabilities and functionings of people, which are tied to the freedoms mentioned above. The *functioning* of an individual is that person's achievement, what that person manages to do or be, and is dependent on a person *capability* to achieve those things (Clark 2005 p.4). The most relevant point of Sen's approach for this study, however, is the connection between present-day inequities and equity in the future in one framework (Anand and Sen 2000 p.2040). Sustainable development is not just a future-state that requires complex predictions of system behavior, in this sense, but an agenda that can be pursued today through focusing on increasing the capabilities of the underprivileged. This view of sustainability puts a high emphasis on development in currently "under-privileged" regions, and addresses the temporal aspect of sustainable development through the view of human capabilities as both intrinsically and instrumentally important for sustainability, outlined above. The informational challenge in this view of sustainability is to measure the capabilities of people, in relation to their freedoms and to nature, which Sen proposes that we can do through looking at their functionings (Sen 1999).

4.4.1 Theoretical justification of human development as sustainability: Habermas and communicative sustainability

As argued by Wironen (2007), sustainable development has a problematic yet necessary relationship with the project of modernity, the enlightenment idea that liberation of human individuals from irrational dogmas so that they can realize their full potential is the greater good toward which society should aim. After the Second World War, the concept of development has been closely connected to the project of modernity (Wironen 2007). By creating economic growth as well as industrialization and individualization in "non-modern" countries, the development project would help accelerate progress towards liberation (Wironen 2007).

Today, the project of modernity (and of development) receives criticism from both a cultural side and an ecological side³⁵. From a green perspective modernity and its constituent parts as envisioned by the development project; industrialization and individualism, has lead to environmental degradation. "*The undesired side-effects of modernization challenge the very foundations of human rationality and progress*" (Lövbrand et al. 2008 p. 11). From a cultural point of view, many post-modern thinkers see the promise of modernity itself as problematic and just a "mask of power" for the ruling elite to remain in power. Also, critics hold its "universalism" as merely imposing western values on the rest of the world, threatening diversity and oppressing minority viewpoints (ibid.).

However, as argued by Wironen (2007), in order for sustainable development to make sense as a concept, it must be understood as building on modernity and maintaining the promise of modernity, albeit with a critical stance so as to "improve" the development project. Rejecting the anthropocentrism inherent to modernity, as many green theorists (cf. Bosselmann 2008) suggest, is impossible in a sense because it would require either giving up reproduction of humans, or setting humans and "nature" in a Nietzschean will-to-power relationship with one another, in which case there are no "rights" that nature

³⁵ These criticisms are only briefly addressed here, for a full account see Wironen 2007

can be said to have. “Nature” as a separate system than society is essentially a human construct, and it is human persons who give “nature” value (Arias-Maldonado 2007). Society cannot communicate with nature in a deliberative sense, but only communicate *about* nature (ibid.), and nature as a shared resource can only be understood through inter-subjective communication between humans (Wironen 2007).

According to Wironen, the post-modern critique of modernity’s universalizing aspects also fails because post-modernism does not lend itself to turning theory into action, which is essential in the discourse of sustainable development. Further, the concept of “sustainability,” appeals to a sense of a global humanity, which hinges on universalism. Taking an anti-modern (or post-modern) stance means that any narrative of a global ‘crisis’ (of natural resources, climate change etc.) becomes just an expression of a particular set of power-relations, with no validity as a special kind of threat.

In order to resolve the cultural and ecological criticisms against sustainable development, Wironen (2007) advocates communicative sustainability, inspired by the work of sociologist Jürgen Habermas, as a way forward. According to this view, the definition of sustainable development must come from social choice and discourse within the public sphere (Wironen 2007, see also Arias-Maldonado 2007). This allows reason and universal values to guide development towards sustainability while still allowing for diversity and a critical understanding of what the concept entails, and acknowledges the fundamentally normative aspect of sustainability (cf. Arias-Maldonado 2007). In Habermas’ view, modernity brought with it an increased focus on instrumental rationality and efficiency, which created a *system* of capitalism and bureaucracy, which is partly separate from the *lifeworld* that is social interaction freed from devotion to efficiency (cf. Habermas 1998). Sustainable development in Wironens conceptualization becomes a process of the *lifeworld* freeing itself from colonization by the *system*.

The practical demands of communicative sustainability are the creation of better fora for public deliberation (Wironen 2007 p. 38), which is also advocated by many political theorists who focus on environmental issues (cf. Biermann and Gupta 2011). However, Wironen also points out that participation in this type of public discourse presupposes certain capabilities among people, so that they can participate in deliberation in a meaningful sense. As is discussed by Dingwerth (2007) public deliberation has vastly different potential to contribute to policy in countries with informed, educated citizens, than in countries with less empowered citizens. Also, deliberation often receives criticism for having the potential to maintain existing power-structures rather than transform them (Dingwerth 2007 p. 49).

This recognition of the importance of individual capabilities for public discourse connects with the view of sustainable development as increasing human freedoms outlined above. If communicative sustainability requires capabilities for people to participate in public discourse, these capabilities are instrumentally important to sustainable development, understood as the freeing of the *lifeworld* from the *system*. The restrictions placed on the market economy and GDP growth by focusing on human capabilities that are discussed by Anand and Sen (2000) can be understood as communicative rationality; the *lifeworld* reclaiming dominance over the system. As capabilities of people to participate in public discourse on understanding sustainability increase, the *lifeworld* grows stronger still. In a similar way to how Trocchia (2009)

describes the need for certain “political preconditions” to Habermasian communicative sustainability, I propose that Anand and Sen’s view of sustainable development puts focus on certain “capability preconditions” for communicative action, while also being intrinsically a part of sustainability.

4.5 Summary and implications for this study

Sustainable development requires addressing multiple spatial and temporal scales, since it is an issue that affects people globally, and future generations. Regardless of which understanding we have of sustainable development, the information needed to assess whether a decision is in line with sustainable development or not is complex.

Oftentimes, the assessment cannot be limited to determining whether an action will preserve some aspect of nature, or alleviate one of the seven major challenges of sustainability or not, but must be considered from the viewpoint of maintaining GDP preserving non-substitutable natural resources, or contributing to substantive freedoms.

In the reframing of legitimacy, this theory was used as a sounding board to draw attention to the theoretical challenges of sustainability outlined above, to ask the question of whether the current framing of legitimacy in the Earth System Governance Project sufficiently addresses those key issues, and to investigate the implications of sustainable human development for theories of legitimacy. Sustainable development is seen in this study as sustainable human development, ie. increasing the capabilities of people, and sustaining their freedoms to enjoy a life that they want, and also have a right to enjoy nature and its amenities such as fresh air, biodiversity etc.

5. Findings: Legitimacy framed in the Earth System Governance

Project

What are the sources of accountability and legitimacy in earth system governance? (Biermann et al. 2009 p. 57)

As described in the methodology section, a number of recent publications taken from the ESG website under the heading of legitimacy and accountability were used as data to find how that issue is framed within the research program.

The results of the text analysis are presented below in accordance with the two pairs of concepts from the theoretical background; input and output sources of legitimacy, and internal and external accountability, after which they are summarized as a “framing” of legitimacy within the Earth System Governance Project. No completely unambiguous framing could be found within the texts studied, as they sometimes contradicted each other. This is not surprising, as the publications had different authors, coming from varying fields of research and academic background. Nevertheless, a broad-stroke framing of the issue in Earth System Governance Project could be found, which is presented below. The framing is summarized in table 2.

Input legitimacy	Strongly emphasized in the Earth System Governance Project , as seen by the publications focusing on inclusion of stakeholders, and representation of diverse interests in decision-making
Output legitimacy	Framed as relevant but methodologically difficult to address, especially as the science of the earth system is seen as very uncertain and therefore questionable as a source of legitimacy.
Internal accountability	Discussed in the texts, with an emphasis on creating better systems of sanctioning from constituents towards their representatives, improving the mandate of the institutions studied.
External accountability	Discussed as important for researchers to develop better mechanisms for.
Other findings	Many of the texts studied express concern over a potential disconnect or trade-off between high degrees of input legitimacy and substantive outputs from decisions.

Table 2: The framing of legitimacy in the Earth System Governance Project

5.1 Input and output sources legitimacy

It is clear from the analysis of the various publications that the main focus that the Earth System Governance Project has in its research into legitimacy of non-state actors is on the input side of the legitimacy model. This strong focus showed in how the texts analyzed discuss various ways of improving input through participation (cf. Géro et al. 2010, Corbera and Schroeder 2010, Bäckstrand et al. 2010, Falaveela et al. 2011, Biermann and Zondervan 2009a), transparency (Gupta 2010), deliberation (cf. Bäckstrand et al. 2010, Dryzek and Haley 2010,.) and discursive balance (cf. Biermann et al. 2010).

5.1.1 Input

Participation and inclusiveness in decision-making is discussed as highly relevant for legitimacy in the Earth System Governance Project -publications. In (Corbera and Schroeder 2010) legitimacy is described as concerning *“the way rules and outcomes are negotiated, administered and accepted by stakeholders, including a fair distribution of decision-making power”* (Corbera and Schroeder 2010 p.94). In a similar vein, (Géro et al. 2010) emphasizes the importance of participation in creating legitimate decisions: *“when focusing on accountability, participation emerges as a key theme”*. In Falaveela et al. (2011) the authors discuss legitimacy and accountability as being dependent on inclusiveness in decision-making, specifically through participatory processes and stakeholder involvement. In Bäckstrand et al. (2010), participation is discussed in relation to a large number of specific governance institutions, with focus on different stakeholders depending on which institution is being examined, f.ex. state vs. non-state stakeholders in Johannesburg partnerships, or local vs. international stakeholders in CDM³⁶ (cf. Bäckstrand et al. 2010 p.92-93). Biermann and Zondervan (2009a) suggest that it might be necessary to institutionalize the participation of representatives from non-state actors in poorer nations in some governance institutions’ decision-making (ibid. p.10). In her discussion on the role of NGOs in international decision-making, Dombrowski (2010) further assesses the problem of representation and participation in earth system governance, when she asks whether NGO participation in decision-making can address the lack of democratic legitimacy in many international institutions.

Another type of input source of legitimacy that is discussed in many of the texts is deliberative democracy, model of decision-making in which the public participates in deliberation and discussion on equal terms in collective decision-making (Bäckstrand et al. 2010 p.5). Communicative action: the reasoned debate of people, free from manipulative influences, is at the heart of the deliberative democracy concept. (ibid.). Dryzek (Dryzek and Haley 2010 p.7) expands on the concept of deliberative democracy in one of the Earth System Governance Project publications and outlines a conceptualization of elements that need to be present for the deliberative system to function, elements such as: empowered public space, meta-deliberation and decisiveness of the deliberative procedures.

In an article on the topic of transparency as a part of legitimacy (Gupta 2010), the text is explicit in saying that the study is looking at transparency’s potential to improve the input in decision-making first and foremost: *“Transparency’s potential to inform and empower is central to all analyses here, with environmental improvements often only indirectly addressed.”* (Gupta 2010, p.4). Gupta does discuss transparency’s role in both input and output from decisions, but underlines its primary connection with goals that are *“procedural in nature”* (ibid. p. 1). While maintaining that transparency might contribute to substantive output from decisions, Gupta proposes that research in some cases show that the causal relationship between transparency and output might be one where substantive output comes first, and higher transparency follows, rather than the other way around.

Many of the Earth System Governance Project texts also discuss the importance of legitimacy understood as *“guaranteeing a balance of interests and perspectives”*

³⁶ “Clean Development Mechanism”, a tool outlined in the Kyoto protocol with the goal of reducing carbon emissions and contribute to sustainable development. For more information see Lövbrand et al. 2009.

(Biermann et al. 2010 page unnumbered, Biermann et al. 2009 p.54 also p.56), which also puts focus on the input-side of legitimacy. *“It is important to have multiple and contesting discourses, engaged by all those those affected by network decisions”* (Dryzek and Haley 2010 p. 8). Corbera and Schroeder (2010) also brings up this issue, when posing as an important research question: *“is the balance and interests of /.../ stakeholders ensured?”*

In the most recent of the publications (Biermann and Gupta 2011), Biermann and Gupta conclude their article by sketching a number of ways in which earth system governance can be made more legitimate and accountable. These suggestions focus on creating better input into decision-making, through *“balanced inclusion of competing perspectives”, “involvement of civil society”* and *“introduction of qualified majority-voting.”* (Biermann and Gupta 2011, page unnumbered).

As these examples show, much current research into governance from the Earth System Governance Project is centered on the problem of analyzing input-side sources of legitimacy, through ensuring inclusiveness, participation and deliberative procedures. In the publications this translates into developing theoretical models for helping institutions become better in maintaining the mandate from their constituents, and to ensure that they are accountable to those constituents. In doing this, the Earth System Governance Project studies problems that are common across all types of governance actors working on the international scale, not just ones dealing with sustainable development or other issues that are *“set to steer societies towards preventing, mitigating and adapting to global and local environmental change”* (Biermann et al. 2009 p.4). In most cases, the importance of various non-state actors’ actual effectiveness in terms of getting useful results that contribute to sustainability or this steering is not discussed in the texts studied.

5.1.2 Output

In the publications studied where output is discussed it is presented as highly relevant in relation to sustainability and legitimacy, in fact: *“it has been argued that the overall legitimacy of environmental policies largely rests on its environmental effectiveness in terms of biophysical improvements and strengthened ecological protection”* (Bäckstrand et al. 2010 p.42). Similarly, Biermann et al. (2010, page unnumbered) posits that organizations in the national arena often derive legitimacy from *“the environmental good they seek to protect”* in other words: output is an important source of legitimacy. Both Corbera and Schroeder (2010) and Bäckstrand et al. (2010) advocate further study into the environmental outcomes of decisions taken:

“There are very few studies of environmental effectiveness [of policies] in biophysical and ecological terms” (Bäckstrand et al. 2010 p.42).

“there is a need to understand /.../ how national PAMS³⁷ to address deforestation, degradation and enhancing forest carbon stocks transform practices, institutions, and livelihoods” “there is a need to conduct ecological assessments”. (Corbera and Schroeder 2010 p.96)

Despite this presentation of output as highly relevant for legitimacy, output in terms of efficacy is often left aside in the texts studied. One reason for this that is brought

³⁷ “Policies And Measures”, cf. Corbera and Schroeder 2010

forward in the data is the methodological difficulty in measuring what effects governance institutions have, as well as what the long-term effects on environmental impacts are (Bäckstrand et al. 2010 p.42, see also Bäckstrand 2006, and 2006b). There is a methodological difficulty in determining whether specific outcomes of decisions (such as a decrease of carbon emissions) are caused by decisions taken by institutions, or would have occurred anyway as a result of developments outside the purview of those institutions³⁸. A second, related problem is that oftentimes environmental governance institutions do not have clear goals for environmental or sustainability effectiveness, which further complicates studying their output sources of legitimacy (cf. Bäckstrand et al. 2010 p.91).

Beyond this problem of determining the effects of decisions, the analyzed texts from the Earth System Governance Project present a special problem with determining output legitimacy in earth system governance, that of scientific uncertainty:

“Earth system governance is also affected by high degrees of uncertainty. This uncertainty relates, first, to the scientific basis of decision-making.” (Biermann and Gupta 2011, page unnumbered).

According to Biermann and Gupta (2011), scientific forecasts and knowledge are needed to determine whether different kinds of output from decisions can be considered legitimizing or not, but these forecasts are uncertain as key parameters of the earth system are insufficiently understood. Also, according to Biermann and Gupta (ibid.), because many of the scientific issues that underlie the need for earth system governance are normatively contested, scientific uncertainty becomes even more of a problem. Governance of biotechnology, for example, is informed by science but also rests on contested visions of a future with or without genetically modified crops. Scientific knowledge is necessary to determine the usefulness of output from decision-making, but its uncertainty in relation to earth system governance makes it methodologically difficult to use in a legitimizing role.

5.1.3 Trade-offs between input and output

One topic that is raised in the Earth System Governance Project publications is the problem of potential trade-off between effectiveness of decision-making and decisions that are environmentally beneficial (output) and high standards of inclusion, participation, deliberation, accountability, etc. (input) (cf. Dombrowski 2010 p.413, Biermann et al. 2010). This potential trade-off, and the disconnect between input and output in decision-making, is the main topic examined in the case-studies of Bäckstrand et al. (2010). The various researchers in that book question the connection between input legitimacy understood as deliberative democracy and output in terms of environmental protection, and find that the connection is hard to verify empirically or theoretically. Bäckstrand et al. (2010) point out that many scholars do not see any guarantees that better deliberative practices will lead to more ecologically sustainable outcomes (Bäckstrand et al. 2010 p. 51-52, see also Maria-Aldonadas 2007) and that *“green deliberative scholars to have to date not offered convincing evidence that their promise [that deliberative democracy leads to environmental protection] holds, even in theory”* (Bäckstrand et al. 2010 p. 60).

³⁸ A problem common to all policies, not just those dealing with environmental issues. cf. Paterson (2001 p.13)

Gupta discusses how links between transparency and environmental outcomes may be explicit, implicit or non-existent (Gupta 2010a p. 4), and that sometimes, procedural rights to participate in decision-making (input) are decoupled in practice from rights to a healthy environment (output). Biermann and Gupta (2011 p. 6) further underline the potential trade-offs between input and output legitimacy, especially in relation to extreme events that may be the effect of climate change and other earth-system changes.

5.2. Internal and external accountability

Both internal and external accountability is addressed within the publications studied, for example in Corbera and Schroeder (2010 p.94): *"legitimacy derives through the accountability of governments to their constituents as well as through wider public scrutiny and acceptance of actions."*

Biermann and Gupta (2011) discuss the distinction between the two types of accountability and development of both as essential in earth system governance, and DT also emphasize the need for political scientists to develop ways of improving external accountability. One question that is framed as central by the Earth System Governance Project texts studied (cf. Biermann and Gupta 2011) is the question of how to determine who constitutes a stakeholder (a *principal*) in decision-making that should be able to hold institutions accountable.

5.2.1 Internal accountability

In Biermann and Zondervan (2009a p.10) the authors define legitimacy in this way: *"stakeholders need to see that governance is legitimate: its actions and representatives must be accountable to their constituencies.* The article goes on to discuss how members and donors can hold national governance institutions accountable (a point which is echoed in Biermann et al. 2010), but that the ties between membership and accountability become more complex in an international setting (Biermann and Zondervan 2009a).

Dryzek (Dryzek and Haley 2010) advocates deliberative accountability, which he contrasts with narrative accountability. Deliberative accountability, according to Dryzek and Haley, involves *"two-way communication between the representative and the represented, in which both ask questions and give answers"* (Dryzek and Haley 2010 p.16) whereas narrative accountability is a *"one-way process in which the representative provides the represented with an account or explanation of their actions."* (Ibid.). In his advocacy of deliberative accountability, the authors put emphasis on the importance of sanctioning powers of those holding other accountable, the fourth element of accountability discussed by Biermann and Gupta 2011³⁹. In regards to the second of Biermann and Gupta's elements, Dryzek and Haley's positioning of accountability as a relation between represented and representatives, rather than as a relation between decision-makers and those affected, indicates that they are addressing internal accountability.

5.2.2 External accountability

Biermann and Zondervan (2009b p.77) discuss the value of accountability through *"media attention and voluntary certification schemes"*, both of which are tied to external

³⁹ See chapter 3.

accountability towards those affected by decisions, rather than constituents of organizations. These methods towards accountability can be said to function according to the logic of public reputational accountability and market accountability. Biermann and Gupta (2011) also see labeling schemes as a mechanism of external accountability that can be useful for earth system governance, especially in relation to market accountability. However, the authors express the view that external accountability, while highly important, is difficult to establish functioning mechanisms for (Biermann and Gupta (2011)).

5.3 Summary: the framing of legitimacy

The earth system governance research currently being conducted frames the problem of legitimacy of non-state earth-system governance actors as one of creating better systems of input legitimacy so that more actors are included in decision-making, and procedures of decision-making are improved. Outputs of decisions are mostly left aside in the Earth System Governance Project texts studied on account of their being difficult to measure, but are discussed as being relevant for further study. The connection (and potential trade-off) between increased input to decisions (through participation etc.) and output is another issue discussed in the texts.

Accountability in the Earth System Governance Project texts studied is framed as a research problem relating to both internal and external accountability. Most focus in the Earth System Governance Project texts is on internal accountability, which is to say the accountability of institutions to their members, improving the mandate of the institutions studied.

6. Discussion: Sustainability and legitimacy

“From the intergenerational perspective, the planet is a global commons shared by all generations, such that those of us living today are bound by a “planetary trust” that entails certain rights and obligations” (Litfin 2000 p.126)

Many of the unresolved issues of the current framing of legitimacy within the Earth System Governance Project that I discuss below are mentioned in a few of the studied Earth System Governance Project publications (especially in Biermann and Gupta 2011, Bäckstrand et al. 2010, and Dombrowski 2010) but are expanded upon here by using sustainable development theory.

6.1 Input is insufficient

The focus within the framing of legitimacy in the Earth System Governance Project on input as a source of legitimacy and mechanisms of internal accountability indicate that the researchers are working with an understanding of governance based on a mandate from those governed. This understanding is an expansion of the liberal democratic conceptualization of the relationship between government and those governed. Within this understanding, the most relevant thing is that the *principals* that are stakeholders and members of various governance institutions should have a say in decision-making and should be able to hold decision-makers accountable through clear methods of sanctioning etc.

However, from a sustainability science perspective it is questionable whether creating a strong *mandate* of governance institutions is sufficient to tackle the challenges presented by sustainable development. There are a number of reasons for this, one of which we have seen is addressed by many of the publications from the Earth System Governance Project: the potential disconnect between a strong mandate and substantive outcomes of decision-making. This disconnect is explored at length by Bäckstrand et al. (2010), as well as Maria-Aldonadas (2007), especially in relation to deliberative democracy as a way of ensuring sustainable development outcomes. Robert Goodin expressed this contention quite succinctly in 1992: *“to advocate democracy is to advocate procedures, to advocate environmentalism is to advocate substantive outcomes”* (Goodin 1992, cited in Bäckstrand et al. 2010 p.50).

Focus on improving the mandate of governance institutions and input to decision-making through stakeholder dialogue and deliberative practices is also challenged by a neo-Gramscian critique, coming from radical environmentalism (cf. Bäckstrand and Lövbrand 2006). In this critique, many methods of increased input in decisions such as deliberative procedures are seen as inadvertently tied to power relationships that exist prior to the deliberations. Therefore, some theorists are skeptical of the transformative potential of deliberative democracy or more qualified input mechanisms in decision-making (Arias-Maldonado 2007). Some empirical research also supports this view, for example much emphasis is placed on transparency as a tool for increasing accountability in the research done by the Earth System Governance Project, but Dingwerth and Eichinger, (Dingwerth and Eichinger 2010) find in their study of the Global Reporting

Initiative⁴⁰ that where civil society is already strong, transparency can function in this way, but in itself it doesn't necessarily create empowerment or a strong civil society. Gupta draws the same conclusion (Gupta 2010a): transparency may empower the disenfranchised, but more often than not it preserves current power positions. Jamil Khan (Bäckstrand et al. 2010 p. 211) also discusses this problem in relation to networked governance, which tends to favor: "*strongly organized interests /.../ over those less organized.*"

As this potential disconnect is still being explored, it is unclear whether improving systems of internal accountability and other forms of input legitimacy in order to create stronger mandate in non-state governance institutions will indeed lead to more substantive outcomes that are in line with sustainable development. When bringing in the challenges of scales of sustainable development discussed above⁴¹, a second problem is also added that makes mandate-based legitimacy even more problematic.

The *principals* of any decisions that relate sustainable development are complex to define, as the scales of decision-making go across time as well as space. This issue is discussed to some extent in the Earth System Governance Project, by f.ex. Biermann and Gupta (2011) who refer to this problem in a discussion of the spatial and temporal interdependence of decisions relating to the earth system and sustainable development. Spatial interdependence, the impacts of decisions taken within local contexts on the global environment in the earth system is part of the reason that non-state actors are gaining influence, as many sustainability concerns cannot be addressed within the *polis* of national territories. This spatial interdependence and the accountability of such non-state actors that could potentially address it are the focus of the Earth System Governance Project. However, sustainable development also puts a large focus on the temporal interdependence aspect of decision-making. The *principals* that are affected by decisions are future generations, and this is really hard to take into account in a mandate-based legitimacy. Future generations are, per definition, not able to participate in decision-making today, and cannot hold their representatives accountable in a meaningful sense. In short, there can be no mandate from future generations given to decision-makers today.

6.1.1 Trusteeship-based legitimacy

These problems with a mandate-based governance legitimacy in sustainable development suggests that it would be fruitful to look at another understanding of the role of decision-making and political institutions, that of being *trustees* of sustainability (Anand and Sen 2000). While the concept of legitimate authority coming from a mandate from the governed ties in with the classic view of a principal-agent relationship within a territory, the concept of a trusteeship type of legitimacy is connected more with an acceptance of universalism of ethical demands (Anand and Sen 2000) and recognition that this universalism might need political power to act as a guarantor. Taking this view of the role of political institutions shifts emphasis towards outputs of decisions, as those outputs are the indications of whether institutions live up to their role as trustees. As outlined by Bosselmann (2008 pp. 169-171) there are some examples of national legislation in which the state is implied as a trustee of ecological

⁴⁰ The Global Reporting Initiative (GRI) is an NGO that works with sustainability indicators. For more information, see Dingwerth and Eichinger 2010.

⁴¹ In chapter 3

resources, and there are also theoretical ideas surrounding how this trusteeship can be implemented at the global level.

The two views on the role of governance are not always in accordance with one another. As Dombrowski (2010) puts it: *“attempts to become more representative of living constituencies do not necessarily make NGOs more suited to represent future generations”* *“a possible trend towards greater accountability by NGOs to living stakeholders could also compromise their ability to act as trustees for future generations”*. While Dombrowski is talking about NGOs here, the same logic can be applied to all governance actors.

The implication of sustainable development is that a trusteeship role of institutions is more important than that of them being representatives of a mandate from *principals*. A trusteeship role brings with it a focus on output as a source of legitimacy, which brings us to the question of how output is framed in the Earth System Governance Project.

6.2 Output is complicated

As has been shown, researchers in the Earth System Governance Project frame output-sources of legitimacy as highly relevant for overall legitimacy of earth system governance actors. Two main types of output are presented in the analyzed publications. The first type relates output from decisions to the stated goals of the decision-making institution. Effective institutions are those that achieve their stated goals, or institutions whose members obey the policies decided upon. However, this type of output is insufficient from a sustainable development (and indeed earth system governance) point of view, as it has no normative discussion on which types of goals that should increase output legitimacy. This is recognized to some extent in the Earth System Governance Project publications (e.g. Bäckstrand et al. 2010, p. 40 discuss the relevance of biophysical changes, rather than just stated goals).

As a result, the second type of output discussed in the publications is the outcome of decisions as estimated by scientists; through *inter alia* reduction of carbon emissions. Here, the Earth System Governance Project texts studied bring natural science into the political discourse as a source of legitimacy. In order to measure the environmental impacts of various policies, natural scientific research is needed, and serves as a source of output-legitimacy (cf. Paterson 2001 p.13).

This appeal to natural science for legitimacy can be seen as an ongoing trend in the political arena, especially in relation to the issue of climate change (Litfin 2000). As environmental issues have moved to the forefront of political debate, science has become the *“universal legitimator”* of the modern era (Litfin 2000 p. 122). As political institutions rely on science for legitimacy, the basis of that legitimacy shifts from consent (input) to scientific expertise (output) (Litfin 2000 p.142). Science as a legitimator is also tied to the nature of sustainable development, especially its spatial and temporal scales. These scales are beyond the perceptive abilities of individual human beings (cf. Litfin 2000 p.132), which is why we need science’s predictive models and measuring techniques to investigate the boundaries and characteristics of the various ecosystems we seek to protect. However, as is pointed out in the Earth System Governance Project (cf. Biermann and Gupta 2011) the very science that could act as a legitimizing force is in itself questioned and uncertain to the extent that it oftentimes cannot fulfill this function. As is discussed in the Earth System Governance Project texts, this is especially true with science that relates to contested political issues such as that

of sustainable development or climate change. Science draws its authority from being perceived as disinterested and objective (Litfin p.122, 131, see also Arias-Maldonado 2007), as a result, by engaging in normative questions science undermines its own authority. Despite this loss of authority that science can encounter as a result of entering into policy discussions, Litfin (2000 p.137) claims that it can serve as a basis for intergenerational equity.

6.2.1 Further complications from sustainable development

As I have outlined in the chapter on sustainable development, the scientific issue at hand is not as simple as measuring one specific thing such as carbon emissions and climate change. There is a problem of choosing which tools for determining output to use, and which data to measure, that goes beyond technical questions and brings us back to the value-judgment of what constitutes sustainability (Arias-Maldonado 2007). Thus, focusing on outputs returns us to the contested concept of sustainable development and the highly relevant question of what is to be sustained. Depending on how one answers that question, individual issues such as deforestation or carbon emissions must be interpreted in relation to sustainable development. Mitigating climate change is a means to sustainable development (such as maintaining GDP growth possibilities for future generations⁴² rather than an end in itself.

What this implies is not that biophysical measurements of effects of various decisions and policies from non-state institutions are irrelevant, but rather that the scientific criteria against which outputs should be compared should be broader than focused on specific environmental indicators, and encompass an underlying understanding of how those indicators relate to sustainable development. The scientific expertise from which institutions draw their legitimacy in earth system governance needs to be able to handle the normative questions of sustainable development, without losing its own authority.

However, we must take into consideration the reasons why outputs of decisions are not discussed to a large extent in today's research by the Earth System Governance Project. Looking at the findings in chapter four, we find that one major reason given is the methodological complexity and scientific uncertainty involved in measuring efficacy of various policies and governance institutions (a point which is also raised by Zürn 2005). This is partly an issue of determining whether a specific policy had the impact intended⁴³, but more interestingly an issue of determining whether the output itself will ultimately contribute to the good that we want to achieve, ie. sustainable development / sustainability.

Regardless of which understanding of sustainable development one uses as a theoretical starting point, this is not a simple question to answer, as it requires much information that is complex. From a "weak" sustainability perspective all factors must be brought into consideration by using a cost-benefit analysis, and the destruction of natural capital must be compensated by an equal or greater increase in human capital. From a "strong" sustainability perspective scientists would have to determine if non-substitutable natural capital will be destroyed (in which case the decision is illegitimate) and, if not, perform cost-benefit analyses. It is a methodologically daunting task (Bäckstrand 2006b) that might explain why most focus in the Earth System Governance Project lies

⁴² In e.g. Solow's (1991) view of sustainable development, cf. chapter 4.

⁴³ Ie. would the effects have occurred even without the policy?

on determining input-side legitimacy. I have outlined why I view conceptualizing sustainable development as Sustainable Human Development, rather than as maintaining GDP, from a theoretical starting point. When considering the practical difficulties raised in the Earth System Governance Project literature surrounding measuring the outputs of decisions, a pertinent question to ask is if viewing sustainable development as human development can help to reduce the informational complexities involved? I believe that it can.

6.3 Moving forward through Human Development

The role of political institutions is discussed in sustainable human development as a trustee for future generations (cf. Anand and Sen 2000 p.2034), because the market cannot be relied upon to take the future fully into account. Human development thus places itself on the trusteeship side of the mandate versus trusteeship debate of the role of governance. As we have seen, the implication of this is that output is highly relevant when determining the legitimacy of governance institutions.

However, according to Sen, this output is not as simple as maintaining certain natural resources, sustaining the nature of the lives people can live is much more complex. According to Anand and Sen (p. 2036-2037) there is both a danger of *overspecification* of which resources need to be sustained (which could lead to difficulties in preserving those resources), and of *underspecification* (which could lead to such general terms of what should be sustained that future generations' rights might be set aside). As a way of balancing between these two extremes, substantive freedoms should be taken into account, as well as the rights of people to enjoy fresh air, species of animals, and other aspects of nature (Anand and Sen 2000, Sen 2004).

At first glance, measuring outputs of decisions in terms of human capabilities and freedoms may seem even more complex and subject to arbitrariness than measuring them in biophysical indicators or externality-adjusted GDP. However, the information needed is less complicated in one important sense because Sen addresses the temporal scale of sustainable development by moving it back to present time. In Sen's conceptualization, capabilities of present day people are not only intrinsically a part of sustainable development, but also instrumental in guaranteeing sustainability in the future (Anand and Sen 2000). Through this logic, human development places a large emphasis on intra-generational justice, so a substantive outcome of increasing capabilities of the least privileged living today is a central feature that is both an end in itself and a means towards sustainable development. This gives researchers and activists a quite clear way of measuring substantive output from political decisions: if the outcomes of decisions from non-state institutions contribute to increasing capabilities of underprivileged persons today, they are integral to sustainable development.

The informational basis in Sen's thinking of SD is dependent on looking at functionings of people as a way of indirectly measuring their capabilities (Sen 1999 p. 132). Through using the capabilities approach and measuring human freedom in addition to carbon emissions and similar biophysical data, science can retain its perceived disinterest and authority while also engaging with the normative requirements from sustainable development to a higher degree.

Because some of the capabilities and important freedoms that Sen outline are freedoms to participate in political processes, this approach puts emphasis once again on the same values that are seen in the Earth System Governance Project: participation, deliberation etc. However, using sustainable human development as a theoretical starting point reframes these values as *comprising* sustainability in themselves. The problems of disconnect between input and output of decisions becomes less critical, as the capability of participation in political decisions of different people, especially the least privileged, is in itself a part of sustainability.

Using this understanding of sustainable development also has an effect on how mechanisms of accountability can be addressed. In line with Robert Keohane (as well as the Earth System Governance Project) human development implies that external accountability should be developed further in relation to non-state institutions. As focus in sustainable human development is on intragenerational equity, with an imperative to increase the substantive freedoms of the least privileged, systems of accountability need to be developed where those least privileged have a chance to hold institutions accountable.

Pluralistic systems of accountability, which Keohane (2006) discuss as ways of creating external accountability, rely on a diffusion of power to more actors in order to function. In their analysis of the relevance of transparency as a way of increasing accountability, this is also the conclusion that Dingwerth and Eichinger (2010), as well as Gupta (Gupta 2010a) reach; actors who are already empowered to some degree benefit from transparency of information, but transparency in itself does not always empower. In light of this, increasing capabilities of the least privileged to participate in political dialogue also serves the purpose of diffusing power in this sense. The theoretical justification for adopting the human development approach to sustainable development was to ensure capabilities of people to participate in public discourse in order to establish sustainability through communicative rationality and a freeing of the *lifeworld* from the system's colonization (cf. Wironen 2007). External accountability can increase in a virtuous cycle of increased capabilities leading to increased external accountability, which via a focus on legitimacy derived from outputs in substantive freedoms leads to more empowered mechanisms of external accountability and *lifeworld*.

The human development understanding of sustainability allows researchers to discuss legitimacy as comprised of both input and output sources, resolves the problem of temporal interdependence to some degree, and helps remove some of the authority-lowering uncertainty of the science needed to measure outputs.

6.4 Reframing the issue of legitimacy

The role of political institutions, including non-state institutions, is to serve as trustees for the interests of future generations, especially their rights and capabilities to enjoy substantive freedoms and nature. Contribution to sustainable development is the main source of legitimacy in earth system governance. While internal accountability and participation in decision-making by a diverse set of actors and discourses are important, the primary source of legitimacy of non-state actors is the outcomes of their decisions in increasing freedoms of people. Measuring these outcomes should be done with a strong focus on the rights of the currently least privileged to enjoy nature.

Input legitimacy	Important to the extent that it is a part of increasing
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	capabilities of participating in political decision-making of those least privileged.
Output legitimacy	Highly important, and should be measured in capabilities of those least privileged to enjoy a life that has substantive freedoms, especially in relation to nature.
Internal accountability	Important to the extent that it is a part of increasing capabilities of participating in political decision-making of those least privileged.
External accountability	Those least privileged who are affected by any decision are the people who should be able to hold others accountable, and increasing their capabilities is a way of ensuring they can do this.

Table 3: Legitimacy reframed through sustainable human development.

6.5 Concluding remarks

Sustainability science has significance for studying and assessing the legitimacy of emerging non-state governance institutions, and can help green political theory develop better models of legitimacy in global governance. This study started out by examining how legitimacy was framed in the Earth System Governance Project in order to help contribute to their research into this highly relevant issue in a constructive way. By viewing the problem through the lens of sustainability science, some critical issues of defining which actors are *principals* as well as scientific output in relation to the legitimacy of institutions were brought to the fore. Adopting a view of sustainable development as expansion of human freedom was advocated as a way of addressing some of those critical issues by reframing them. In this way, the answer to the overarching research question of this study is that sustainable development theory can expand on theories of legitimacy by putting focus to the political implications of sustainability.

The extra focus on the output-side of legitimacy that I have argued for in this thesis does not imply that the input side is unimportant, quite the contrary. As has been exemplified through discussion on the freedoms that Sen advocates, being able to participate in political and social decision-making is constitutive to human freedom, in both an instrumental and intrinsic fashion. If one is not allowed political rights, one loses important parts of one's freedom.

When researching and assessing legitimacy, especially in areas of sustainable development, a comprehensive view is needed, which is what I've shown in this study. As Biermann and Gupta (2011) assert:

“the study of the accountability, legitimacy and democratic quality of earth system governance is still in its infancy”.

While I don't believe that bringing in sustainability science and a deeper discussion on the role of researchers' conceptualization of sustainable development into the theoretical debate ultimately resolves all of the major theoretical challenges of legitimacy, I hope that it can broaden the discussion. As the earth system governance research initiative is still in its formative stage, my hope is that this paper exploring the potential role of sustainable development theory and sustainability science in green political research can help expand the research debate within the initiative.

While I have in this study discussed the framing of legitimacy of non-state actors, many of the arguments made here also apply at the state level. The Earth System Governance Project is primarily concerned with non-state governance, but the challenges of sustainable development apply to nation-states as well. In general, the state has a clear-cut way of defining who is a stakeholder in decisions (i.e. the citizens of that state), but the temporal interdependence of sustainable development creates difficulties for the state to construct clear definitions of *principals* as well.

Part of what makes research into non-state actors and their legitimacy interesting, however, is the complexity of the issue. If researchers and practitioners can find viable models of the legitimacy of these types of governance actors, it seems likely that improving legitimacy in relation to sustainable development within nation-state should be less of a challenge due to its already established lines of accountability etc. It is not unlikely that as theory is developed, we might see a development where instead of trying to apply the legitimacy theories similar to those of the state on non-state actors, researchers start studying the legitimacy of states with theories developed in the research of earth system governance actors.

6.5.1 Criticisms of HD

The capability approach to sustainable human development is often criticized for being too imprecise, and hard to operationalize (Clark 2005). While there have been numerous attempts⁴⁴ to determine which capabilities should be included on the “checklist”, none have convincingly come out as the final word in the matter (Clark 2005). Sen himself has responded that the search for an exhaustive list of important capabilities is misguided if it is purely theory-driven. Identification of capabilities to be addressed should come about in a participatory, deliberative sense (Sen, quoted in Clark 2005) and presumably this applies to freedoms in relation to nature as well. Also, critics sometimes claim that the informational requirements of assessing various capabilities of large populations are extremely high (Clark 2005). Further research should aim to operationalize the capabilities approach into measurable information and apply this assessment framework on governance actors.

Another potentially important criticism against using human development as my definition of sustainable development can be taken from more radical green theories that may be skeptical about the obvious anthropocentrism inherent in a conceptualization of nature and wildlife etc. primarily as ‘objects’ that human beings can have a ‘right to enjoy.’ Here, I will refer to Wironen (2007) as well as Arias-Maldonado (2007) who discuss the impracticality and illogical consequences of trying to create an understanding of sustainable development that gives intrinsic rights to nature etc.

6.5.2 Practical implications

In this exploratory study I have conducted analysis of research being done and I have argued for using sustainable human development as a factor in output legitimacy assessment of non-state governance institutions. As a sustainability scientist I feel that this should not be limited to theoretical research but that science should inform the creation of various governance institutions. According to many researchers studying the clean development mechanism for example (cf Lövbrand et al. 2009, Bäckstrand et al. 2010), there are few criteria in the mechanism for assessing its contribution to

⁴⁴ For an example of such an attempt, see Nussbaum 2008

sustainable development, despite it being a stated goal of the CDM. Bringing in human development and capabilities would be a way of applying the results of this study in policy-making.

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