Science-policy platforms in global environmental governance

The case of the UNCCD SPI

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Abstract

The United Nations Convention to Combat Desertification (UNCCD) is one of the so-called 'Rio Conventions', three multilateral environmental agreements (MEAs) ensued from the 'Earth Summit' of 1992. Unlike its two 'sisters' (the United Nations Framework Convention on Climate Change and the Convention on Biological Diversity), the UNCCD presents a peculiar twofold 'environment and development' soul. Such a nature is reflected not only in the mere policy aspects dealt with within and by the Convention, but also in the challenges faced by the UNCCD's mechanisms with respect to providing scientific advice to the Conference of the Parties (COP). In light of this, the recently established UNCCD Science-Policy Interface (SPI) could be perceived as a promising platform to address some of the long-standing science-policy problems affecting the Convention and to improve the dialogue between the scientific community and policy makers with regard to issues of desertification, land degradation and drought. Using the analytical lenses of the 'linear model' and the 'honest broker of policy alternatives', two ideal-types proposed by Pielke (2007), this study focuses on how the SPI process came about by critically analysing how the structural features of the UNCCD had an influence on the platform. The research is complemented by a comparison of the SPI with other science-policy platforms existing in the global environmental governance arena, such as the Intergovernmental Panel on Climate Change (IPCC), the Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES) and the Intergovernmental Technical Panel on Soils (ITPS).

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This thesis is the result of over one year of research work, informed by my strong interest in the history, workings and dynamics of the United Nations Convention to Combat Desertification (UNCCD). I have to admit that, at times, it was challenging to combine this compelling academic endeavour with my simultaneous professional activities. However, a mix of motivation, determination and enthusiasm underpinned my efforts and allowed me to complete this whole journey.

I am very grateful to all my informants for taking the time to share with me their valuable insights into the UNCCD Science-Policy Interface (SPI). In addition, I am particularly indebted to the staff of the UNCCD secretariat, who facilitated my visit at the secretariat's premises in Bonn and provided me with useful documents and materials for this research.

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List of acronyms

AGSA Advisory Group for the Provision of Scientific Advice

AGTE Advisory Group of Technical Experts

CFS Committee on World Food Security

COP Conference of the Parties

CPOs Causal-process observations

CRIC Committee for the Review of the Implementation of the Convention

CSOs Civil society organisations

CST Committee on Science and Technology

DLDD Desertification, land degradation and drought

EGU European Geosciences Union

ENB Earth Negotiations Bulletin

FAO Food and Agriculture Organization

G-77 Group of 77

GEF Global Environment Facility

GoE Group of Experts

GM Global Mechanism

GSP Global Soil Partnership

IASS Institute for Advanced Sustainability Studies

IGS Independent Non-Governmental Group of Scientists

INCD Intergovernmental Negotiating Committee

IOs International organisations

IPBES Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services

IPCC Intergovernmental Panel on Climate Change

IPED International Panel of Experts on Desertification

ITPS Intergovernmental Technical Panel on Soils

JIU Joint Inspection Group

KMST Knowledge Management, Science and Technology

LDN Land Degradation Neutrality

MEAs Multilateral environmental agreements

NAPs National action programmes

NFPs National Focal Points

NGOs Non-governmental organisations

ODA Official development assistance

OECD Organization for Economic Cooperation and Development

PACD Plan of Action to Combat Desertification

RAPs Action programmes at regional level

RoE Roster of independent Experts

RSTHs Regional Science and Technology Hubs

SBSTA Subsidiary Body for Scientific and Technological Advice

SBSTTA Subsidiary Body on Scientific, Technical and Technological Advice

SDGs Sustainable Development Goals

SPI Science-Policy Interface

SRAPs Action programmes at sub-regional level

SSK Sociology of scientific knowledge

STAP Scientific and Technical Advisory Panel

STCs Science and Technology Correspondents

STS Science and technology studies

UN United Nations

UN CBD United Nations Convention on Biological Diversity

UNCCD United Nations Convention to Combat Desertification

UNCED United Nations Conference on Environment and Development

UNCOD United Nations Conference on Desertification

UNEP United Nations Environment Programme

UNFCCC United Nations Framework Convention on Climate Change

VGGT Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security

WMO World Meteorological Organization

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1. INTRODUCTION

1.1. Background: The UNCCD and the "Rio Conventions"

The time span between the late 1980s and the early 1990s witnessed crucial changes at the global level, with the political, geopolitical and economic impacts of events such as the end of the Cold War and the collapse of the Soviet Union being the object of innumerable studies and scholarly contributions from all the social sciences. From a global governance perspective for instance, it is widely accepted that the new political setting provided the opportunity for an overhauling of the then-obsolete global institutional setting. The environmental field is not an exception to this and the year 1992 could be considered a watershed in this respect: during this year, the United Nations Conference on Environment and Development (UNCED) was held in Rio de Janeiro. One of the reasons why this global gathering is still regarded as particularly successful can be found in its tangible outcomes, in particular in the strong institutional concretisation that this Conference gave to the sustainable development aspirations conceived in the 'Brundtland Report' of 1987. In other words, at the UNCED, "world leaders attempted to turn their backs on the old world order" and tried to "operationalize a new 'sustainable development' paradigm" (Chasek, Wagner and Doran 2012, 253).

In terms of international environmental governance, the UNCED was instrumental in paving the way to the creation of the so-called "Rio Conventions", three multilateral environmental agreements (MEAs) aimed at addressing the urgency of interwoven environmental global challenges: the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Convention to Combat Desertification (UNCCD) and the Convention on Biological Diversity (UN CBD). Despite having common roots in Rio, these three MEAs do not share the same spirit and are the result of very different negotiations processes. Undeniably, the cross-cutting nature of climate, biodiversity and desertification challenges stimulates the Parties and the secretariats of the three Conventions to seek convergence on several thematic and strategic issues, both at scientific and policy levels. This aspect is somehow underscored on the introductory webpage of the UNCCD, too (UNCCD 2016a):

> "As the dynamics of land, climate and biodiversity are intimately connected, the UNCCD collaborates closely with the other two Rio Conventions; the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC), to meet these complex challenges with an integrated approach and the best possible use of natural resources."

Furthermore, in the domain of land and soils, a renewed drive towards cooperation between the three Conventions seems to derive from the post-2015 agenda (cf. Akhtar-Schuster et al. 2016b; Montanarella and Lobos Alva 2015). Yet, even if currently the SDG agenda might indeed provide new opportunities to foster linkages between the UNCCD, the UNFCCC and the CBD, one might easily infer that the relation between these 'three sisters' is not without imbalances: it would not be unfair to claim that one of them needs the other two more than vice versa. In fact, the UNCCD is a rather different creature compared to the UNFCCC and the CBD and differences are not only and simply found in the contributions made by Parties to each core budget[1]. The full title of the UNCCD reads "United Nations Convention to Combat Desertification, in those countries experiencing serious drought and/or desertification, particularly in Africa": these last three words say quite a lot of the different status and nature of the Convention when compared to the UNFCCC and the CBD. In addition, wordings such as "eradication of poverty", "priority for Africa"[2], "socio-economic factors contributing to desertification processes", contained in the text of the Convention, contribute to further reinforce this idea. There is indeed an open debate on whether is the UNCCD is actually an environment or a rather a development convention. Evidence of this 'development-beyond-environment' spirit in the UNCCD is abundantly documented in existing literature. While Kjellen (1997) and Najam (2004) highlighted the North-South divide at the Rio Summit on the issue of desertification along with the successful efforts of the heterogeneous G77 in advancing the negotiation of the UNCCD, Chasek (1997) claimed that the UNCCD was established and designed to serve the interests of Southern hemispheric states and labelled it a 'sustainable development treaty' (and not just an international/multilateral environmental agreement), "because it considers economic and

[1] The core budget for the biennium 2016-2017 was16.2 million Euros for the UNCCD (UNCCD 2015b) and 54.6 million Euros for the UNFCCC (UNFCCC 2016). For the biennium 2015-2016, the CBD had a core budget of 25 million US dollars (CBD 2014).

[2] Article 7 of the Convention (UNCCD 1994), 'Priority for Africa', reads: "In implementing this Convention, the Parties shall give priority to affected African country Parties, in the light of the particular situation prevailing in that region, while not neglecting affected developing country Parties in other regions".

social development needs while also addressing a serious environmental problem (ibid., 147). Further research contributed to strengthen this claim, with Bauer (2009, 293) reporting that many UNCCD stakeholders "do not necessarily view the fight against desertification as an environmental issue or conceive of the convention as an environmental treaty. Rather, they consider it a development convention and an instrument to fight poverty in the developing world". According to Bauer (ibid.), the UNCCD secretariat "is eager to promote the desertification convention as 'the sustainable development convention' and hence as an institution different from its 'sister conventions,' the United Nations Framework Convention on Climate Change and the Convention on Biological Diversity". On the top of that, Bauer and Stringer (2008) went even further, implying that the need to solve the misunderstanding over whether the UNCCD is an environment or a development convention was crucial to address some of the governance issues affecting the work of its secretariat.

It should be therefore no surprise if the UNCCD is sometimes referred to as "the Convention of the poor" (Cowie et al. 2007, 228) and if rich countries have shown lukewarm enthusiasm about allocating resources to it. Within such setting, 'forum-shopping' (or 'regime-shifting') tendencies by some developed country Parties are not unlikely and could perhaps contribute to explain the reasons behind Canada's withdrawal from the Convention in 2013. This further suggests that the three Rio Conventions enjoy a rather different 'status' or 'regard' among their Parties, especially among the rich countries. However, as outlined above, not only do the UNCCD, the UNFCCC and the CBD share common roots in the 'Rio Summit', but they also deal with specifically interconnected issues. What it is worth to point out instead, is the strong regional focus of the UNCCD compared to the others: this is not only reflected in the structure of the Convention (which includes five "Regional Implementation Annexes" in its text), but in particular in the geographical scope and socio-economic impact of desertification, land degradation and drought (DLDD) issues. The solution to issues such as climate change and global warming cannot simply be sought at local and regional levels, but require much broader international and coordinated action. Similarly, biodiversity loss is likely to have environmental impacts that go well beyond the regional dimension. Conversely, the battle against desertification does not need to be actively fought in all areas of the planet, but mainly in what the UNCCD defines "affected country Parties". Taking this aspect into account is not only essential when considering the alleged socio-

economic (or 'developmental') mission carried by the UNCCD, but it can also be an important and convenient point of departure for anyone wishing to conduct an assessment of the science-policy process in the Convention.

1.2. Features and structure of the UNCCD

At the international level, the first important step on combating desertification dates back to 1977, when the United Nations Conference on Desertification (UNCOD) adopted a Plan of Action to Combat Desertification (PACD). Yet, as pointed out above, the process towards a Convention on desertification gained momentum only fifteen years later, with the Earth Summit in Rio de Janeiro. On the UNCCD website, it is underlined how the UNCED "supported a new, integrated approach to the problem [of desertification], emphasizing action to promote sustainable development at the community level" (UNCCD 2016d). But even if resulting from the same Rio process that generated the UNFCCC and the CBD, the UNCCD was adopted only on 17 June 1994 and entered into force on 26 December 1996 (ibid.). A clear reference to the sustainable development aims deriving from Rio is also included in the objective of the Convention, stated in Article 2 (UNCCD 1994):

> "The objective of this Convention is to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, particularly in Africa, through effective action at all levels, supported by international cooperation and partnership arrangements, in the framework of an integrated approach which is consistent with Agenda 21, with a view to contributing to the achievement of sustainable development in affected areas".

The Convention is based on principles of "international solidarity and partnership" between Parties, which are asked to ensure that decisions on the design and implementation of programmes "are taken with the participation of populations and local communities" (ibid.). The implementation of the UNCCD, which attaches particular importance to scientific research, technology transfer mechanisms and related mobilisation of financial resources, is based on national action programmes (NAPs) developed by national governments, through a participatory approach involving donors, NGOs, scientific institutions, local communities and other stakeholders. The NAPs, supported by action programmes at sub-regional (SRAPs) and regional (RAPs) levels, are used to identify the causes of desertification as well as context-

specific measures to prevent and reverse it. The NAPs are developed in consistency with the five Regional Implementation Annexes to the Convention.[3] The Annexes are "meant to set out the focus and content of action programmes for particular subregions and regions", also providing "a framework for regional coordination and collaboration" (UNCCD 2016f). It can be argued that the particular relevance and central role of the Annexes to the Convention further contribute to underscore the strong 'regional spirit' of the UNCCD, in a way that stresses on the importance of taking into account particular socio-economic and ecosystem contexts for the design and implementation of national action plans.

The UNCCD has a permanent secretariat based in Bonn, Germany. The main reasons why Bonn was chosen included the generous financial offer by Germany, the long-standing cooperation between Germany and some African countries, as well as proximity to the UNFCCC secretariat (ENB 1997, 10). The UNCCD secretariat is headed by an Executive Secretary appointed by the UN Secretary General, following consultation with the Bureau of the Conferences of the Parties (COP). The COP, the decision-making body of the Convention, meets biannually and is supported by two subsidiary bodies: the Committee for the Review of the Implementation of the Convention (CRIC) and the Committee on Science and Technology (CST). In addition, the UNCCD is also assisted by the Global Mechanism (GM), a body in charge of facilitating the promotion of funding for projects and activities related to the implementation of the Convention.

1.3. The scientific advice process in the UNCCD: from the difficulties of the CST to the promise of the SPI

In the texts of the Rio Conventions and in various decisions of their Conferences of the Parties, the role of science is often underlined. This is due to the assumption that the provision of scientific advice and policy-relevant scientific information is a valuable support to the choices of policy-makers. Besides displaying a common historical background and thematic synergies, the Rio Conventions also present similar organisational and institutional structures: each of them has a scientific subsidiary body in charge of providing scientific advice to the respective Conference of the Parties. Indeed, the Subsidiary Body for Scientific

[3] Annex 1 for Africa, Annex 2 for Asia, Annex 3 for Latin America and the Caribbean, Annex 4 for Northern Mediterranean and Annex 5 for Central and Eastern Europe.

and Technological Advice (SBSTA) of the UNFCCC, the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) of the CBD and the Committee on Science and Technology (CST) of the UNCCD reveal limited differences in their Terms of References (or 'modus operandi', in the case of the SBSTTA) and many similarities in the challenges they have to face. Even if the SBSSTA and SBSTA might not be immune to criticism, literature focussing on the UNCCD has shown that the performance of the CST since its outset was perceived as particularly poor (ENB 2001, 15; Kohler et al. 2012, 68). There are certainly various reasons for the impasse of the CST, ranging from the strong North-South divide that characterised the UNCCD since its negotiations to the contested nature (environment or development) of the Convention. UNCCD Parties have raised concerns about the CST's inefficiency and ineffectiveness, attributing this mainly to its large size and composition (ibid.). The functioning of CST was perceived by some delegates as "controversial from its inception" and the CST itself a "more politically motivated" entity than a mere scientific body (ENB 2001, 15). Other negative remarks included the perception of limited independence compared to bodies such as the IPCC, but also 'lack of teeth' and limited expertise (ibid.). As recalled by Kohler et al. (2012, 68), similar concerns were already raised at the very first session of the UNCCD COP, in 1997: on that occasion, some delegates expressed a fear that the CST may be dominated by politically oriented members without getting down to 'scientific business', in a situation analogous to that previously experienced within the SBSTTA of the CBD, whose early meetings resembled "mini-COPs where political considerations were prioritized over substantive scientific issues" (ENB 1997, 10).

In fact, even if the factors outlined above contributed for several years to undermine the work of the CST in particular, the UNFCCC and the CBD processes of scientific advice were not immune to the common challenges of bridging science to policy. Attempts to close such gaps were conducted in both the fields of climate change and biodiversity well ahead of the establishment of the UNCCD SPI. The Intergovernmental Panel on Climate Change (IPCC), set up in 1988 by UNEP and the WMO, was established even before the UNFCCC and nowadays plays a key role in synthesising and providing policy-relevant science-based information to support the decision-making of that Bonn-based Convention. Similarly, though not being formally part of the CBD process, the more recent Intergovernmental science-policy

Platform on Biodiversity and Ecosystem Services (IPBES) addresses the scientific needs of multilateral environmental agreements dealing with biodiversity and ecosystem services on a global scale.

In the framework of the UNCCD, efforts to bridge science and policy gained momentum with more difficulty, as the Parties to the Convention only recently addressed the difficulties of the CST to cope with the need to enhance the quality and effectiveness of the provision of scientific advice in the domain of DLDD. The establishment of the UNCCD Science-Policy Interface (SPI) is a promising outcome with this respect, as it also fosters new hopes towards the implementation of the Convention and the achievement of its related targets. A first significant step in the process of officially recognising the importance of science in the UNCCD was done along with the adoption of "The Strategy", a ten-year strategic plan launched in 2008 by the UNCCD Parties to enhance the implementation of the Convention: this included a specific objective aimed at making the UNCCD "a global authority on scientific and technical knowledge pertaining to desertification/land degradation and mitigation of the effects of drought". Following years of work conducted by ad hoc UNCCD committees on scientific and technological advice, the decision to establish the UNCCD Science-Policy Interface (SPI), taken in September 2013 at the Eleventh Session of the Conference of the Parties, can be regarded as the final stage of this process. The stated goal of the SPI, as reported in Decision 23/COP.11, is to "facilitate a two-way dialogue between scientists and policy makers in order to ensure the delivery of policy-relevant information, knowledge and advice on desertification/land degradation and drought" (UNCCD 2013a). The SPI is precisely the focus of the present study.

1.4. Research questions and rationale for the study

Due to the increasing relevance of science-policy platforms in the domain of global environmental governance and the key role played by science in different UN and MEAs processes, a study of the UNCCD Science-Policy Interface is beneficial to provide a clearer understanding of the UN position with respect to building and hosting effective global governance structures. This assumption is not only based on the political implications that a global science-policy body on desertification can trigger, but it is also underpinned by other

considerations, especially in light of previous research conducted both on the UNCCD institutional architecture (Biermann 2009; Bauer and Stringer 2008; Chasek et al. 2011; Rechkemmer 2004; Corell 1999a; Long Martello 2004) and on science-policy platforms similar to the SPI such as the IPCC and the IPBES (e.g. Beck 2011; Hotes and Opgenoorth 2014; Hulme and Mahoney 2010; Beck et al. 2014).

As a primary research question, the study will investigate and critically analyse how the UNCCD SPI process came about, with particular regard to the challenge of linking science and policy. The concepts of 'linear model' and 'honest broker of policy alternatives' will be used as analytical lenses to support this endeavour.[4] In particular, an attempt will be made to understand to what extent the SPI follows the 'linear model' or rather represents a platform potentially acting as an 'honest broker of policy alternatives'. The research will thus investigate the extent to which the UNCCD SPI is the result of a legitimate, transparent and inclusive process and in which way it is affected by the structural characteristics and problems of the UNCCD. The study will also include an accessory research question: how does the UNCCD SPI differ from other global environmental governance science-policy processes such as the Intergovernmental Panel on Climate Change (IPCC), the Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES) and the Intergovernmental Technical Panel on Soils (ITPS)?

1.5. Significance, challenges and limitations of the study

Against the background outlined above and according to the relevant decisions of the UNCCD Conference of the Parties, the Science-Policy Interface may be described as an institutional body with the potential of improving global governance in the domain of desertification, land degradation and drought by enhancing the role of science in the UNCCD process and ensuring a timely delivery of science-based information to policy-makers.

[4] The 'linear model', as defined by Pielke, is a "specific guidance for the role of science in the context of specific decisions" which is "often used to suggest that achieving agreement on scientific knowledge is a prerequisite for a political consensus to be reached and then policy action to occur" (2007, 13). In other words, it advocates a "relation of science and society where consensus on science is a necessary and sufficient precursor to achieving a political consensus" (ibid., 77). Pielke identifies in the "honest broker of policy alternatives" the ideal-type capable of going beyond the linear model.

Besides contributing to academic knowledge on science-policy interfaces operating within international environmental agreements, attempting to provide an answer to the research questions above can be particularly significant from a policy perspective, too. As outlined in the mandate of the SPI (included in Decision 23/COP.11), the platform is in fact tasked by the Conference of the Parties to analyse, synthesise and translate relevant scientific findings and recommendations on desertification, land degradation and drought and to interact with existing multiple scientific mechanisms such as the IPBES, the IPCC and the ITPS (UNCCD 2013a). In order to dissipate possible misinterpretations, it is worth to clarify that this research does not have any pretensions to be policy-prescriptive. It might rather be policy-relevant: enriching the scope of this research by attaching attention to policy-oriented considerations need not come at the detriment of academic rigour. On the contrary, it might contribute to a better understanding of the increasingly fragmented setting of global environmental governance, as it could help to generate hypotheses and suggest conclusions based on similarities and differences between particular science-policy processes within the UN system.

The challenges and limitations of the study may be traced to three main categories: the theoretical approach, the methodology and the personal exposure of the author. As far as the first aspect is concerned, the challenge relates to the difficulty in identifying a well-tested or widely accepted theoretical framework for the analysis of science-policy interfaces. On the methodological side, some difficulties would be expected in both terms of validity and reliability: with respect to the first aspect, obstacles could be found in the actual capacity to trace details and causal patterns in the process as well as to obtain credible and thorough data from qualitative interviews, while, in terms of reliability, it would be nearly impossibility to draw generalizable conclusions due to the small-N nature of the study (in fact, the aim is to gain valuable insights which maybe be of relevance in other settings). Finally, the author's past professional involvement in the UNCCD secretariat might generate issues of personal bias, mainly because of his previous and relatively lengthy hands-on contact with the institutional phenomenon studied. However, this possible drawback could be compensated by a relative ease of access to meaningful primary sources, which might be otherwise difficult to obtain due to issues of confidentiality or lack of familiarity with the context.

2. THEORETICAL APPROACH

2.1. Navigating between the 'linear model' and the 'honest broker': which place for the SPI?

The research questions of this study focus primarily on the whole SPI process, on its actors and on the broader role of science in the UNCCD. One of the main challenges of this research endeavour is to identify a theoretical framework capable of encompassing the complexity and the interactions of all these different factors. An easy starting point for analysing the SPI can be found in the wording Decision 23/COP.11, by which the Conference of the Party of the UNCCD decided to establish the SPI. It reads (UNCCD 2013a):

> "1. *Decides* to establish a Science-Policy Interface to facilitate a two-way science-policy dialogue and ensure delivery of policy-relevant information, knowledge and advice on desertification/land degradation and drought."

Even if short, this excerpt includes the main characteristics that the COP envisaged for the platform it was about establish. Some important elements can be extracted from it. First, it appears clearly that this new body would have to deal with both science and policy, and the relation or 'dialogue' between them. Second, the COP stated that the nature of this 'dialogue' would have to be 'two-way'. Third, in spite of the latter aspect, there is also a 'one-way' request for the SPI: the delivery of policy-relevant information to the COP itself. These factors suggest that the design of the UNCCD SPI could be or could become something different from that of a rigid brokering platform tasked to transfer knowledge based on 'pure' or 'basic' scientific research (upon which there is alleged consensus) from the scientific community to the policy domain. In order words, it may be reasonable to claim that the SPI is a platform that is explicitly seeking to replace the so-called 'linear model', a structure of science-policy relation based on a strict separation between the two domains and in which a prior consensus on science is a necessary to reach political consensus. In his book "The Honest Broker", Pielke (2007) hinted that an ideal bridging actor named 'honest broker of policy alternatives' could be the solution to make a transition from the linear model to more

dynamic structures of science-policy interaction characterised by a democratic or 'stakeholder' approach and less prone to the politicisation of science.

The choice of adopting a theoretical grounding inspired by Pielke's work came after having examined other possible alternatives. One of this was the "sociology of science" pattern traced by Merton (1973): however, while its focus on scientists (rather than science itself) could have been a suitable theoretical path to analyse the social dynamics existing within institutions dealing with scientific and technical affairs, this model did not seem adequately equipped to address issues at the science-policy interface. Similarly, relying on the rival stream of "sociology of scientific knowledge" (SSK) would have not been particularly relevant either, as such an approach would have likely entailed an in-depth analysis of additional factors such as the social conditions for conducting scientific research, without offering a convenient framework to grasp the intricate relationship between science and policy in a global environment and development institution such as the UNCCD. Furthermore, it was considered that these models were quite dated and hence not ideally positioned to appreciate the complexity of science-policy and global governance changes occurred over the last decades. For these reasons, the theoretical model proposed by Koetz, Farrell and Bridgewater (2011) was regarded as an innovative framework for the analysis of international science-policy platforms: nevertheless, the latter appeared as a policy-oriented framework laying significant emphasis on issues such as effectiveness and needs for reform, therefore showing a strong normative orientation which would have been incompatible with the purposes of the present study. Even though not fully immune from normative interpretations, Pielke's theoretical design seemed more suitable to examine science-policy interfaces from an analytical and critical perspective, notably by adopting the 'honest broker' ideal-type as a reference tool to support the investigation.

This thesis is intended to assess to what extent the SPI can be regarded as adopting an 'honest broker' model in the UNCCD regime and to what extent such a science-policy platform goes (and can help the UNCCD regime to go) beyond the 'linear model'. Besides elaborating on the concepts of 'linear model' and 'honest broker', this chapter will touch upon issues of 'boundary', values and uncertainty, which are crucial to better appreciate the tension between science and policy.

2.2. Science and policy, knowledge and power, uncertainty and values

Should science be separated from other cultural practices and products, and from social processes more in general? If so, how should such separation be decided upon? Providing a clear-cut answer to these questions probably entails 'swearing allegiance' to a well-defined ontological and epistemological stance, or at least positioning oneself within an easily recognisable theoretical stream. According to Gieryn (1995, 393-94), two main opposed sides can be identified in this philosophical battlefield: essentialism and constructivism. While essentialists "argue for the possibility and analytic desirability of identifying unique, necessary, and invariant qualities that set science apart from other cultural practices and products", constructivists claim that "no demarcation principles work universally and that the separation of science from other knowledge-producing activities is instead a contextually contingent and interests-driven pragmatic accomplishment".

On the essentialist side, 'demarcation' or 'boundary-setting' attempts were devised in the domains of philosophy, sociology and history: Popper (1972) adopted the solution of 'falsifiability', Merton (1973) referred to social and moral 'norms', while Kuhn (1962/1970) resorted to the historically-grounded concepts of 'paradigms' and 'paradigmatic consensus'. The tradition of sociology of scientific knowledge (SSK), even if perceiving the "making, maintaining, and modification of scientific knowledge" as a "local and mundane" affair suitable for case-study approaches, appeared quite anchored to essentialist understandings: while Merton sought the answer to social-order of science in a "set of allegedly unique social norms making up the 'ethos of science'", Kuhn-inspired SSK recognised "the regulative principles of social order in science" in "*scientific knowledge itself*" (Shapin 1995, 301-04).

Constructivists, while rejecting essentialists' criteria such as those proposed by Popper, Merton and Kuhn, were still to face a paradox:

> "If there is nothing inherently, universally, and necessarily distinctive about the methodology, institution, history, or even consequences of science, then why and how is science today routinely assigned a measure of 'cognitive authority' rarely enjoyed by other cultural practices offering different

> accounts of reality? ... On what grounds is this authority warranted, if not for some epistemological or social quality essential to science and not found outside it?" (Gieryn 1995, 304-05).

The constructivist answer lies precisely in focussing on sociological episodes of 'boundary-work', in a way that "the task of demarcating science and non-science is reassigned from analysts to people in society" who then "contend for, legitimate, or challenge the cognitive authority of science": the results are "pragmatic demarcations of science from non-science…driven by a social interest in claiming, expanding, protecting, monopolizing, usurping, denying, or restricting" this authority (Gieryn 1995, 405). This social constructivist perspective has the power to "undermine all claims to authority" by showing that there are no ways to "separate science from values in any policy area", any line drawn being "artificial, temporary, and convenient to the purposes of the person or group drawing the line" (Cozzens and Woodhouse 1995, 541). Science becomes then the provisional and contextual result of boundary-work and nothing more than a "space" that "acquires its authority precisely from and through episodic negotiations of its flexible and contextually contingent borders and territories": whatever ends up inside or outside this space is "a local and episodic accomplishment, the consequence of rhetorical games of inclusion and exclusion" played out by "agonistic parties" seeking to "justify their cultural map for audiences whose support, power, or influence they seek to enrol" (Gieryn 1995, 405-06). The overall point is "not merely that political uses of science are inevitable", but that "it is not even possible to think about what the science is apart from its various constructions" (Cozzens and Woodhouse 1995, 541). Therefore, following Jasanoff (1987), the whole relation between science and policy can be perceived as a continuous 'boundary' negotiation.

Attempts to address the relation between science and policy (and politics) have been made by defining 'politics of science' and 'science policy'. A possible definition of the former is the "mobilization of science as a resource in international relations" or the "use of science by interest groups or social classes to increase their power and influence in society, and the exercise of social control over knowledge" (Elzinga and Jamison 1995, 572). The latter could be referred to as "collective measures taken by a government in order to "encourage the development of scientific and technical research" and "exploit the results of this research for general political objectives" (Salomon 1977, 45-46). As far as science policy at the international level is concerned, the Organization for Economic Cooperation and

Development (OECD) left a clear imprint in decades immediately following the Second World War, becoming a forum where "government ministers responsible for science in the leading Western capitalist industrial nations regularly meet to develop a common frame of reference" (Elzinga and Jamison 1995, 573). In its first report on the topic ("Science and the Policies of Governments", also called "Piagnol report", 1963), not only did the OECD formulate a distinction between "policy for science" and "science for policy" (including identifying the categories of 'basic research', 'applied research' and 'technological development' for calculating the flows of funds to various types of activities), but it also provided member governments with recommendations to follow "in supporting scientific and technical research and in establishing scientific advisory bodies to government". According to Elzinga and Jamison (1995, 584), one of the most striking impacts of the document is that it "transformed a political ambition or vision into a strategic policy doctrine": the tenet was that science should be seen as "a productive factor on par with labor and capital in the pursuit of economic growth". In 1971, an OECD panel chaired by Harvey Brooks issued another report, "Science, Growth and Society: A New Perspective", stressing the need "for greater societal control over applied research and a broadening of the domain of science policy to include the entire range of governmental policy sectors" (ibid., 587-88).

It was also Harvey Brooks (1964, 76-77) that proposed a basic and concise definition of both 'policy for science' and 'science for policy': the former was described as a decision-making process about how to fund or structure the systematic pursuit of knowledge, the latter as the use of knowledge to facilitate or improve decision-making. Such two-fold definition might nowadays sound out-dated, and perhaps even too simplistic: as Pielke pointed out, not only does it reinforce a perception that science and policy are separated activities, but it also overlooks the relation of 'co-production' existing between the two, for which science for policy and policy for science actually shape each other (2007, 79). For instance, a 'separatist' position has over time proved to be convenient for government officials, bureaucrats and political specialists seeking to serve their different interests and purposes, ranging from seeking "safe havens in turbulent political environments" to "raising the technical content of their policy areas in ways that enhance their authority and keep public discussion at a minimum" (Cozzens and Woodhouse 1995, 541). However, the scientific community can benefit from a mutually supportive mechanism too. While, on the one hand, "scientists are

being asked by policy-makers to contribute more directly to the needs of society", on the other hand "scientists too justify their demands for public support by basing them on promises of benefits to society": this leads to a convergence of goals between the two sides as well as "convergence between the conduct of scientific research and expectations for it to be useful or relevant" (Pielke 2007, 31). It can be argued that both sides of the coin are equally important in the domain of international organisations, including the UN system. This is why the scope of this research focuses on both angles: while the 'policy for science' side can be searched in the role played by the COP in guiding the activities of the CST and in devising the SPI, 'science for policy' can be then investigated in the activities conducted by the SPI in support of the COP.

However, the relation between science and policy does not always lead to 'win-win' situations. On the contrary, scholars have shown how over the last decades this coexistence has become increasingly problematic, in particular as policy areas such as the environment are concerned. Haas (1992, 11) observed that even if the growing technical nature of problems contributed to an increase in the deference paid to technical expertise, notably that of scientists, accompanied by the expectation that scientists could make policy making more rational (because of their common faith in the scientific method), the reality showed that policymaking decisions involved the assessment of complex and nontechnical issues, "centring around who is to get what in society and at what cost". He unmasked the myth of the neutrality of science and scientists in the policy area in the following few sentences:

> "Despite the veneer of objectivity and value neutrality achieved by pointing to the input of scientists, policy choices remain highly political in their allocative consequences. Especially in cases in which scientific evidence is ambiguous and the experts themselves are split into contending factions, issues have tended to be resolved less on their technical merits than on their political ones. That scientists working within the bureaucracy have a common faith in the scientific method does not guarantee their solidarity, nor does it make them immune to pressures from the institutions in which they work or from political temptation." (Ibid.)

Jasanoff (1987, 195-230) described the competitive relation between science and policy that arose from the 1970s on in the United States in terms of disputed borders continuously redefined by scientific and administrative regulatory actors by the use of

'boundary-defining language'. Reaffirming that the role of language is "pivotal" in boundary disputes between scientists and other claimants to cognitive authority for establishing claims about the nature of science, she warned that the authority of science is "seriously jeopardized when scientists are called upon to participate in policy-making" (ibid., 196-97). In the cases described by Jasanoff, competing claims of authority between science and government with regard to the right to interpret scientific findings led to overlaps between the processes of scientific and legal inquiry, with detrimental effects for the cognitive authority of science. Such situation would challenge other readings such as the one by Barnes and Edge (1982, 2), who claimed that science had a quasi-monopoly in being the source of cognitive authority in modern societies: "anyone who would be widely believed and trusted as an interpreter of nature needs a license from the scientific community". According to Jasanoff (1987, 198), the processes of deconstruction carried out by governmental agencies and regulatory actors posed even risks to the scientist's self-image: allowing policy-makers to expose the indeterminacy of science or to highlight disagreements in the interpretation of data within the scientific community would then lead to suggest that one could virtually find experts ready to arbitrarily support any reading of evidence, therefore challenging the view of science as a disinterested search for truth. Scientists are thus forced to "safeguard the classic normative view of science against charges of excessive indeterminacy" and to defend their claims to cognitive authority by drawing their own boundaries between science and policy, "thereby coming into potential conflict with policy-makers pursuing opposing interests" (ibid., 199).

The tension between science and policy, which according to Jasanoff was often played out in the US in the 'realm of language', can be compounded by factors such as uncertainty and conflicting values, and turn into an even more complex and intertwined political struggle when moving to the international arena. Regarding this, Pielke (2007, 39-40) referred to the need for scientists to understand the political context of a particular decision situation, if they are to make a contribution to effective decision-making: in particular, he stressed on the different role played by science in situations of values consensus and low uncertainty as well as in opposite circumstances (low consensus on values and high uncertainty on science). While in the first case, summarised in the ideal-type of *Tornado Politics*, information plays a key role, participants in the decision-making process share the same goals and the scope of choice is highly restricted (to two well-defined options), the second scenario (named by

Pielke *Abortion Politics*) presents stakeholders with different goals and/or diverging values and no relevant information capable to reconcile the different views (ibid., 40-42). The consequence is that, in the latter situation, additional knowledge or information would do very little to solve issues of values and would instead end up being (mis-)used as a persuasive tool to conduct the exercise of power and to feed the political conflict (ibid., 50). As underscored by Nelkin (1995, 455), even if the discovery of new scientific evidence may change the character of disputes, if the underlying stakes are economic or political, technical arguments are unlikely to have an impact in moral disputes.

A perverse effect of this is that critiques to competing scientific interpretations often take the form of politicised or ideological attacks, as described in an analysis carried out by Herrick and Jamieson (2000, 11-16):

> "Despite the use of the phrase, 'junk science,' most of the articles reviewed were critiques of environmental or public health policies based on *politics or values rather than on science*. In other words, the imprimatur of science is being smuggled into deliberations that actually deal with values and politics." (ibid., 15)

The rush to provide more and 'better' information (typical of decision-making situations with no or few shared values and goals) can be also interpreted as a move, deliberate or not, to reduce or eliminate uncertainty: such is the reading normally adopted by natural scientists and engineers who advocate a quantification of uncertainty and view its reduction as a synonymous of 'advancing knowledge' (Pielke 2007, 56). When presenting the NUSAP, a quantitative-based model system for the management and communication of uncertainty in science for policy, Funtowicz and Ravetz had to admit that the emerging scientific and urgent environmental issues are very different from traditional scientific problems, as they are "global in scale and long-term in their impact", and that "quantitative data on their effects, and even data for baselines of 'undisturbed' systems, are radically inadequate" (1990, 7). Regardless of the different epistemological understandings of uncertainty (which Pielke broadly defined as a situation in which "more than one outcome is consistent with our expectations"), even the most objective descriptions of uncertainties are subjective, as "there are no such things as objective uncertainties except in fully characterized, closed systems…such as those found in controlled laboratory experiments"

Pielke 2007, 55-59). Since uncertainty is a perception, it is no surprise that scientific uncertainty often becomes an instrument or resource used by different actors to shape the view of others and win political confrontations. Even if conflicting actors agree that science is the appropriate battleground for their struggle (as it is a highly valued source of information), they use it to legitimise their interests, cherry-picking or misusing scientific information to and bolster their positions (Pielke 2007, 61-62; Sarewitz 2000, 83). As Sarewitz wrote:

> "In such cases, the scientific experts on each side of the controversy effectively cancel each other out, and the more powerful political or economic interests prevail, just as they would have without the science." (2000, 83)

The result of this exercise of "stretching scientific claims" at the risk of harming one's credibility and cause (Pielke 2007, 63) can easily cause damage to the image and reputation of science and scientists as shown above (Jasanoff, 1987). As argued by Sarewitz, the problem is not a lack of objectivity, but rather an excess of it, because "science is sufficiently rich, diverse and Balkanized to provide comfort and support" for a wide range of subjective, political positions on complex issues ranging from climate change to nuclear waste disposal, from acid rain to endangered species (2000, 90). The idea to 'reduce uncertainty' is incoherent due to the fact that "there will never be a single problem for which a single, optimizable research strategy or solution path can be identified", but rather "many different problems defined in terms of many competing value frameworks and studied via many disciplinary approaches" (Sarewitz 2004, 389). This makes political debates about issues such as climate change to be played out with the weapon of science, where scientific uncertainty is used a justification for inaction (cf. Pielke 2007, 70-74). In a similar scenario not only disputes on environmental matters tend to change the "popular conception of science from naive trust to embittered cynicism", but also procrastination becomes a privileged policy option for bureaucracies, with uncertainty and 'inadequate information' used as the best excuses for delay (Funtowicz and Ravetz 1990, 11-15).

The increasingly complex and technical nature of the different issues dealt with at the international level has highly contributed to uncertainty, in particular as far as international environmental issues are concerned: this compels decision-makers to consult experts in order to reduce the risks of making policy choices "that might jeopardize future choices and

threaten future generations" (Haas 1992, 13). Tackling environmental issues at the international level often involves dealing with phenomena that are not completely known, resulting in a sort of uncertainty labelled by Pielke *epistemic* uncertainty or *myopia*: even though, unlike *aleatory* uncertainty, *espistemic* uncertainty can be reduced, dealing with open systems ("as is almost always the case when dealing with human or natural systems") makes it impossible to know the level of uncertainty with absolute certainty (2007, 68-69).

2.3. The pitfalls of the 'linear model'

In the previous paragraph, it was shown how the relation between science and policy has the tendency to be negotiated under dynamic, unpredictable and recurrent 'boundary' conditions and how this science-policy tension is additionally influenced by factors such as values and uncertainty. The purpose of the present and the following paragraphs is to illustrate how such tensions and factors can actually contribute to reinforce the 'linear model', which is referred to at the beginning of the chapter as a key 'test bed' for the UNCCD SPI.

But what is it actually meant by 'linear model'? Sarewitz (1996, 97) defined it as "a view of technological innovation" through which "the effort to transform scientific ideas into tools for the direct resolution of societal problems is given shape". According to his definition, the linear model envisions the "path from fundamental scientific research to useful products" as "an orderly progression" that starts with the "creation of new knowledge in the basic research laboratory" in order to move "sequentially through the search for applications" into society (ibid.). Pielke's definitions focus more on the authority of science and on the necessary consensus on it for decision to be made. He referred to the linear model as "guidance for the role of science…often used to suggest that achieving agreement on scientific knowledge is a prerequisite for a political consensus to be reached and then policy action to occur" (2007, 13). In more simple terms, such a model is based on a "relation of science and society where consensus on science is a necessary and sufficient precursor to achieving a political consensus" (ibid., 77).

The linear model, inspired by the ideal of a strict separation between science and society, therefore follows a sequential and predictable path. As Sarewitz (1996, 97) significantly put it,

> "Like the god of deism, the federal government has merely to provide adequate support for basic research in order to set the whole sequence in motion."

The linear model posits on the idea that 'basic' or 'pure' research is a resource for 'applied' research that can serve the needs of policy-makers and society: recommending a division of labour between scientists who 'do' science and other who apply it, it is based on the assumption that in order "to increase the output (i.e. societal benefits)", it is necessary "to increase the input (i.e., support for science)" (Pielke 2007, 85). There is therefore a close association between the linear model and the argument that reducing scientific uncertainty leads to a political consensus (ibid., 86-87).

Pielke (2007, 15-18) identified four possible roles that scientists can play in the policy domain:

- the 'pure scientist', a researcher who has no interest in or connection with the decision-making process and simply shares scientific information, without consideration for its use or utility;
- the 'science arbiter', an active scientific resource at disposal of the policy-maker, who has direct interaction with policy makers but does not taking a stance on policy and politics. Focusing on positive questions that can be resolved through scientific inquiry, the 'science arbiter' avoids normative questions and tries to remain above the political fray;
- the 'issue advocate', a scientists who conveys his/her preferred option or alternative to the policy-maker and align him/herself with a group or a political agenda;
- the 'honest broker of policy alternatives', a scientist who seeks to expand and clarify the "scope of choice for decision-making in a way that allows for the decision-maker to reduce choice based on his or her own preferences and

values": even if actively engaged in the decision-making process, the 'honest broker' is not partisan of a particular choice or alternative, but seeks to clarify and expand the scope of choice available to decision-makers.

According to him (2007, 76), the linear model encourages the mapping of political interests onto science and creates incentives for 'pure scientists' and 'science arbiters', who often suffer from the increasing demands of policy-makers for direct contributions to the solution of pressing social problems, to act as 'stealth issues advocates'. While the two former contribute effectively to decision-making situations characterised by low uncertainty and shared values, they are exposed to risks of politicisation in the opposite case of high uncertainty and no values consensus: instead of maintaining their original role, they focus on "reducing the scope of choice available to decision-makers, which is the defining characteristic of an 'issue advocate'" (ibid., 93-94). Such risks exists also in cases "where values may be widely shared but uncertainty is large or growing through additional research" (ibid., 75).

In order to avoid the stealthy drifts into issue advocacy outlined above, Pielke claimed that scientists should be able to adopt a position that is not bound to the logic of the linear model, seeking to expand the range of policy alternatives instead of reducing them: the 'honest broker of policy alternatives'. Unlike the 'science arbiter', he/she openly seeks "to integrate scientific knowledge with stakeholder concerns in the form of alternative possible courses of action" and, unlike the 'issue advocate', he/she "seeks to place scientific understandings in the context of a smorgasbord of policy options", hence enlarging (and not reducing) the scope and freedom of choice of the decision-maker (ibid., 17-18).

2.4. Going beyond the 'linear model'? The 'stakeholder' way based on Schattschneiderian democracy

The linear model derives from an "ontological and epistemological view of the role of science in society that assumes that science can and should compel political outcomes": getting the science 'right' is a necessary if not sufficient condition for decision-making (Pielke 2007, 124). It has been argued that this "linear and progressive" process from science

to environmental policy coincides with a mental model that is "consistent with the norms of a culture that places great faith in science and the rationality that science can deliver" (Sarewitz 2000, 83). As shown above, even if based on a strict (and ideal) separation between the two domains of science and policy, the linear model eventually leads to political controversy when inevitable disagreements on values arise or frequent uncertainties on science persist. It can be argued that the reason for this is found in the contradictory ontological and epistemological logic underlying the linear model. The latter seems in fact to reflect an obsolete "positivist approach", which requires the social scientist to accept "the orthodox scientific view" and to proceed "to analyse the issue form that stand-point" (Martin and Richards 1995, 509). In an increasingly globalised world with multiple governance actors across different levels, it is hardly conceivable to analyse the social, political and economic effects of global environmental issues from such a perspective. It might then seem more sensible to take at least into account some of the old caveats drawn upon the sociology of scientific knowledge (SSK), such as the fact that science is a context-based and locally situated process that, even if nurtured by persuasion and argumentation, does not easily travel from one place to another, nor is effectively transferred from one individual to another (Shapin 1995, 304-06).

How can then scholars analyse complex, often global and regional, socio-environmental issues when (as it is often the case outside of laboratory situations) the positivist approach proves inadequate? And, perhaps more importantly, how can actors engaged in the solution of such environmental challenges close the gap between science and policy without falling into the traps of the linear model?

As hinted by Pielke, in a given context with various actors with different expectations and desirability of different outcomes, issues are often aggravated by conflicting values and high scientific uncertainty: the need to reach a consensus, or at least a compromise, is what brings in the dimension of politics, ideally that of democratic politics (2007, 28-29). Such political dimension does not necessarily have much to do with the constant and unpredictable boundary negotiation process occurring between science and policy (cf. Jasanoff 1987, 223-26), swinging between the two harmful and mutually reinforcing extremes of politicisation of science and scientisation of politics (i.e. technocracy, cf. Pielke 2007, 34-35). Sarewitz, after demonstrating how detrimental an expansion of institutional and scientific actors can be if the

goal is uniquely 'reducing uncertainty', suggested that scientific resources should be rather targeted at "addressing societal problems as identified through open political processes" (2004, 393-399): in this way he seemed to tacitly hint that, if the focus of the discussion is diverted from facts to values, expanding the number of actors is actually something beneficial. In the early 1990s, Funtowicz and Ravetz offered a way forward by introducing the concept of 'post-normal science', drawing on Thomas Kuhn's work on modern science:

> "For him [Kuhn], 'normal science' referred to the unexciting, indeed anti-intellectual routine puzzle solving by which science advances steadily between its conceptual revolutions. In this 'normal' state of science, uncertainties are managed automatically, values are unspoken, and foundational problems unheard of. The post-modern phenomenon can be seen in one sense as a response to the collapse of such 'normality' as the norm for science and culture. As an alternative to post-modernity, we show that a new, enriched awareness of the functions and methods of science is being developed. In this sense, the appropriate science for this epoch is 'post-normal'." (1993, 740)

Funtowicz and Ravetz conceived 'post-normal science' as a methodological means to manage uncertainty and make values explicit by adopting a model for scientific argument based on interactive dialogue (instead of formalised deduction) and on an 'extended peer community' for decision-making. According to them, mutual respect among various perspectives and form of knowing could lead to the development of "a genuine and effective democratic element in the life of science" (1993, 740-41). They suggested that their 'post-normal' approach was ideal to solve "an issue involving risk and the environment", where "facts are uncertain, values in dispute, stakes high and decisions urgent", and to address situations "either of the epistemological or the ethical kind, or when decision stakes reflect conflicting purposes among stakeholders" (ibid., 744-50). The approach is based on the recognition of "an ever-growing set of legitimate participants in the process of quality assurance of the scientific inputs", hence on the "not merely ethical or political act" of need to expand 'peer communities': according to the authors, including local and personal knowledge could assist in determining relevant data and defining policy problems, grasping 'extended facts', anecdotes, as well as informal and unofficial information (ibid., 752-53).

On the one hand, 'post-normal science' was an attempt to expand the participation in environmental decision-making, acknowledging the need for science to be confronted not

only with uncertainty but also with different perspectives and ways of knowing, making it "more akin to the workings of a democratic society, characterized by extensive participation and toleration of diversity" (ibid., 754). On the other hand, it somehow sought to confine this 'democratic shift', as if in a bid to retain its scientific status. As Funtowicz and Ravetz wrote:

> "We are not arguing for the democratization of science on the basis of a generalized wish for the greatest possible extension of democracy in society. The epistemological analysis of post-normal science, rooted in the practical tasks of quality assurance, shows that such an extension of peer communities, with the corresponding extension of facts, is necessary for the effectiveness of science in meeting the new challenges of global environmental problems." (1993, 754-55).

Undeniably, Funtowicz's and Ravetz's theorisation was innovative and far-sighted for their time, as it represented a bold attempt to shift away from the post-WII linear model. However, it appears difficult to assess the features and consequences of their appeal for a democratic and inclusive turn in science. Such an appeal might sound ambiguous because it was not accompanied by precise definitions of what science is and who its legitimate practitioners are. As 'post-normal science' clearly recognises that science and policy are intertwined, it is hard to appreciate how and why a democratisation of science would not coincide with a democratisation of the whole society. The ontological challenge for 'post-normal science' is how to be 'scientific' and 'democratic' at the same time: to be so, it would need to try to draw or define boundaries between science and policy, something which, as shown by Jasanoff (1987), is always the negotiated product of a political process. On the empirical side, the design of 'post-normal science' looks shaky too: even though expanding peer communities can increase the legitimacy and the democratic dimension of decision-making processes, it was also showcased that this approach can lead to situations characterised by multiple conflicting views and understandings, as showcased by Sarewitz (2004, 394):

> "As the research process opened up two more diverse scientific and political players, a greater diversity of values of interests where implicated, leading to the introduction of new sources of uncertainty."

It has been emphasised above that invoking science in decision-making poses risks of politicisation of science. According to Pielke, this process is natural and essential if such politicisation is not "pathological": if there is a good understanding of political context,

science can "contribute to the development of new and innovative policy options that might allow for compromise among heretofore conflicted parties" (2007, 137-38). The argument is simply that in situation of gridlocks driven by conflict over values and inherent uncertainty, policy-makers need "new options", instead of "more science" (ibid., 140). While political advocacy is "all about reducing the scope of science" to the "best' course of action", the honest broker of policy alternatives "would not simply seek to better 'communicate' the results of science to the policy-maker…but to develop the capability to place science into policy context" and to address the question: "what policy alternatives are consistent and inconsistent with scientific results?" (ibid., 140-51).

Yet, it would be certainly simplistic to think about Pielke's image of the 'honest broker' as a one-size-fits-all solution to complex science-policy issues, especially in the domain of environmental governance. The boundary-work discourse discussed above helps to recall that in real life situations scientists are not always free to exercise that ideal role, as they often find themselves busy negotiating their role with the policy world, having sometimes to even "erect walls" to protect their prerogatives and claim to cognitive authority: as Gieryn (1995, 434-36) put it, "their mapping task is to get science close to politics, but not too close" as "only good fences keep politics and science good neighbors": the challenge is therefore to "bring science near enough so that political choices are legitimated" by its perceived authority, but not so close "that choices and futures become exclusively 'technical' and beyond the grasp and thus control of non-scientists" (ibid., 436). If the 'honest broker' is able to successfully overcome (or, at least, to avoid being severely hindered or constrained by) such recurring boundary issues, then he/she might be in the right position to make a use of science as envisaged by Pielke (2007, 94): use its untapped potential to defuse political debate and gridlock by contributing to identifying choices not seen and paths not taken (creating new 'forks in the road'). For Pielke, the 'honest broker' is an elite who commits to act democratically, by helping policy-makers and the public to understand the significance of scientific knowledge with respect to certain policy situations and to expand the choices available: this process is based on the assumption that members of the independent scientific community are capable of distinguishing between actions that constrain the scope of choice from those that expand it (ibid., 152). The figure of the 'honest broker' challenges the 'linear model' not only by accepting the founding principle of the 'stakeholder model' for which "the

users of science should have some role in its production", but also by espousing the view of democracy proposed by Elmer Eric Schattschneider, notably as a competitive system in which the public exchanges views on alternatives brought in and presented in the political process by experts exclusively (ibid., 12-14; cf. Schattschneider 1975). The crucial role of experts described here hence suggests that the type of 'stakeholder' model followed by the 'honest broker' is not necessarily driven by a bottom-up logic, though it allows room for democratic deliberation and debate.

The theoretical model embodied by the 'honest broker of policy alternatives' is certainly not without limitations. First, as explicitly recognised by Pielke himself, it is an 'ideal-type': having at one's disposal a truly comprehensive set of options would be "overwhelming if not paralysing" (2007, 142), even if still better than one only (i.e. issue advocate). Second, the theory assumes that policy-makers would necessary listen to the advice given by scientists (the 'honest broker' in this case), hinting at a causal mechanism that might appear to some as too simplistic if not naïve. The 'honest broker' concept is however suitable for the purposes of the present research, in particular for bodies such as international panels and other institutional arrangements, as these bodies do not "only carry with them a great deal of political legitimacy, but a diversity of perspective…usually necessary to characterize a broad set of options" (ibid,. 142-43): to serve in such a role, according to Pielke, would be much more difficult for an individual (ibid., 151). The present study will seek to shed light on the extent to which this ideal-type can be applied to the SPI of the UNCCD.

3. SCIENCE AND THE UNCCD: CHALLENGES OF A 'SUSTAINABLE DEVELOPMENT' MULTILATERAL ENVIRONMENT AGREEMENT

3.1. The 'Cinderella' of Rio: negotiation and early steps of a longed-for but weak Convention

In order to properly analyse and put into context the role of science in the UNCCD, notably understanding its mechanism for the provision of scientific advice and the nature of its science-policy process, it is worth delving into the history and structure of the Convention to shed better light on its underlying power dynamics. As mentioned before, the origin and history of the UNCCD differs from that of its two 'sisters', the UNFCCC and the CBD, despite all having common roots in the 1992 'Rio cradle'. For the UNCCD, the role of 'Cinderella' does not only to relates to lower budgetary and institutional capabilities, but also to the fragile balance upon which the Convention was negotiated and finally adopted. The UNCCD was achieved with difficulty, only at the end of a long international political process and a power struggle between the North and the South, in a way that one may claim that such a shaky equilibrium rests on the perennial misunderstanding on whether the UNCCD is an environment or a development convention. Without a doubt, it is something more than a mere multilateral environment agreement.

Although the direct causes of desertification are often directly found in climate change, overcultivation, overgrazing, poor irrigation systems and deforestation, these factors are usually exacerbated by a number of underlying socio-economic and political issues, such as population growth, poverty, inappropriate national development policies, land tenure insecurity, imbalances in international economic policies, decline in official development assistance (ODA) from donor countries, lack of technologies for sustainable development and management of drylands (Chasek 1997, 151-53). The first UN attempt to counter the plague of desertification and drought in sub-Saharan Africa, the 1977 Plan of Action to Combat Desertification (PACD), was a failure due to absent political commitment by both affected countries and donors, disproportion between ambitions and resources, as well as omission of the socioeconomic factors associated with desertification and land degradation (Chasek 1997, 154; Buonajuti 1991, 30-33).

In substance, the central North-South discussion was on the emphasis to give to the socioeconomic causes and effects of desertification within the context (and text) of the UNCCD: while a number of developing countries wanted to include causes emanating from issues such as poverty, external debt, trade, commodity pricing, most of the developed countries disagreed, replying that such questions should be addressed in other fora. There was though a general consent on the need to incorporate the views of local people into the convention and a generally shared understanding on the idea that the convention should adopt a 'bottom-up approach' (Chasek 1997, 154-55). This is also a consequence of the significant impact that civil society and non-governmental organisations (CSOs and NGOs) had in the UNCCD process since its inception. There are 21 references to NGOs in the text of the Convention and a predominance of NGOs from the global South, often able to speak with a single voice, a peculiar feature of the UNCCD compared to other MEAs: this is also due to NGOs' crucial role in providing concrete information on local settings and in bridging gaps between local communities, governments, and international policy makers (Knabe 2006, 89-92). Similarly, the special attention to the socio-economic dimension is also reflected in the UNCCD's efforts to strengthen women's role at all levels of the Convention's implementation, something that is lacking [or not significantly underscored] in the framework and texts of other MEAs such as the CBD and the UNFCCC (Poulsen and Lo 2006, 113).

The Convention can be seen as an achievement of the 'collective South', represented by the Group of 77 (G-77) and China, as the negotiation saw an "uncommonly intense South-South bargaining" (Najam 2006, 59). The G-77 (consisting of approximately 130 developing countries) and China were able to speak in a single voice in most issues, but disagreements often arose between the three regional groups composing the coalition: while the African Group often developed positions aimed to guarantee a priority to Africa, affected countries within the Asian and Latin American Group wanted the Convention to address also their needs and not just those of Africa (Chasek 1997, 156). The first significant step in the process was an initiative launched by 40 African environment ministers meeting in Abidjan in November 1991, culminated with two documents calling for an international convention to combat desertification, the "African Common Position on Environment and Development" and the "Abidjan Declaration": however, not only had the African move initially lukewarm

reception within the G-77, but was fiercely opposed by the North (especially by the United States), which was afraid that a convention on desertification would have resulted in new undesired funding commitments under the Global Environmental Facility (Najam 2006, 62). The position of the European Union was more ambiguous, as it allegedly made the promise of a desertification convention in exchange for a convention on forests (Najam 2006, 63; Porter, Brown and Chasek 2000, 133; Corell 1999b, 75). In fact, it is widely held that the North's participation in the negotiations was mainly driven by the need to reward the South for cooperation on issues such as biodiversity and climate change (Bauer 2009, 304). According to Najam (2006, 63), it was the "blatancy of the Northern attempt" to create divisions in the G-77 by proposing the desertification-forests trade-off to paradoxically restore unity in the South ahead of the UNCED. Despite challenges and risks of divisions during the negotiations at the Intergovernmental Negotiating Committee (INCD) called by the United Nations General Assembly to negotiate the Convention, the G-77 was able to maintain group solidarity and to agree that the Convention would have been accompanied by a regional instrument for Africa, as well as other regional instruments: in this way, a compromise was achieved in the group by ensuring at the same time a global character for the Convention and a sense of priority for Africa (Najam 2006, 65; ENB 1993).

Unity in the G-77 was necessary, but not sufficient to win the battle for the Convention. In fact, during the negotiations at the INCD, the North-South divide was prominent in many phases. The first issue of contention was the "Objective" (Article 2) of the Convention, with developed countries opposed to African requests of including socio-economic issues in the text. The compromise text finally included a reference to sustainable development, but no strong mentions to socio-economic aspects: the focus was on improved agricultural productivity, land rehabilitation, conservation and sustainable management for "improved living conditions, in particular at community level" (Chasek 1997, 158; UNCCD 1994, 8). According to Chasek (1997, 158), such a language satisfied the goals of the OECD group of countries as "it ensured that the focus of the convention was on combating desertification and drought, not eradicating poverty and ensuring economic growth". The "General Obligations" section (Article 4) was another battleground: a first draft proposed by the African group and backed by the G-77 including references to trade, marketing arrangements, debt, and poverty eradication, was rejected by the United States and Europe,

which continued advocating for a Convention with a narrower focus (just on desertification). Once again, after initial African resistance, a compromise was arduously reached on the basis of a diluted proposal tabled by Australia: even if the text retained the words "poverty eradication", "debt", "international trade" and "marketing arrangements", the obligation for Parties was reduced to simply "give due attention" to these issues (Chasek 1997, 158-59; UNCCD 1994, 10). Heated discussions took place also while negotiating Article 6 ("Obligations of developed country Parties") of the Convention (Chasek 1997, 160-63; UNCCD 1994, 11-12).

In addition, as recalled by Long (2000, 292) and Najam (2006, 65), divergence between North and South emerged in the discussion as far as the 'global' nature of desertification was concerned, the North being strongly against such an understanding. Northern delegates' fear was twofold: not only would a 'global' wording have been likely to mean additional funding via the Global Environment Facility, but it would have also related to global warming, suggesting Northern responsibility for desertification. But the issue of funding turned out to be a potential source of further tension in the G-77 group, too: while some Parties such as Malaysia were alarmed by attempts to "expand the traditional donor community to include non-developed countries" and tried to defend the 'common but differentiated responsibility' principle, others (including several Francophone African countries affected by desertification and land degradation) were clearly less concerned about the actual origin of the funds (Chasek 1997, 160-61; ENB 1994a; Najam 2006, 66). Though, the resistance of the North to meaningful financial commitments was the real reason for the deadlock in the discussions: a compromise was finally achieved with the conception of a 'Global Mechanism' in charge of promoting actions to channel and mobilise funds to combat desertification. The Earth Negotiation Bulletin (1994b) described in this way the end of the negotiations process:

> "At 3:00 am on 18 June 1994 it appeared as though the negotiations on the Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa, were on the verge of collapse. It was the third day that the contact group on financial resources and mechanisms met all night. The negotiators were exhausted and tension permeated through the corridors of UNESCO. The negotiations were deadlocked and no one was sure what would happen next. When the final Plenary meeting convened at 4:00 am and the compromise text was announced and

> accepted, many were too exhausted to celebrate or even analyze the results of their work. Despite certain concrete gains, the set-backs and shortcomings in the Convention and four regional annexes resulted from the North-South chasm and intra-regional divisions that separated the negotiators on issues of substance, expectations and objectives."

Najam's (2006, 67) reading of this outcome was rather negative: some "may not have wanted to celebrate what was a compromise-laden convention that left just about all Parties seriously unsatisfied with at least some its elements". Chasek (1997, 163-165) partly shared such an understanding, indicating that even though "the last-minute agreement on Articles 6, 20, and 21 paved the way for the adoption of the UNCCD, it was clear that not all Parties", in particular developing countries, "were satisfied with the results", and that the concession of barely mentioning a range of socio-economic issues in the text was compensated by cautious language "that does not legally bind anyone to anything". However she (1997, 147) saw the glass half full pointing out that the negotiation of the UNCCD was the successful result of an initiative proposed uniquely by developing countries with a twofold aim: taking socio-economic development needs of developing countries into account, while at the same time "addressing a serious environmental problem". Undeniably, even if the G-77's unity was in many occasions under conditions of threat during the bargaining process, the South was still able to close an important deal at the global level. This was somehow recognised by Najam who emblematically put it (ibid., 71-72):

> "For the developing countries, the desertification negotiations were a roller-coaster ride that they had not expected, for which they were not prepared, but which they did survive."

But reaching an agreement of the text of Convention certainly did not mean the end of North-South frictions: the operationalisation phase of the Convention turned out to move at a very slow compared to its negotiation process, while the issue of financing and the concrete role to attribute to the 'Global Mechanism' (the body tasked to promote actions for the mobilisation and channelling of financial resources for the implementation of the Convention) inevitably remerged in the following years. While the G-77 was convinced that without a stable and significant source of funding the future of the Convention would have been doomed, the North maintained its staunch opposition to a centrally funded system and de facto kept struggling to restrict the scale and scope of the UNCCD (ibid., 67-70).

To analyse the nature of the negotiation process of the UNCCD, Chasek (1997), drew on the theoretical framework offered by Miller (1995): ecological interdependence, contrary to economic interdependence, cannot be exploited to benefit the most powerful actors, but places constraints on both the powerful and the weak, hence allowing developing countries to exercise leverage in environmental negotiations. Yet, unlike the setting of other MEAs, "the INCD was characterized by economic interdependence rather than ecological interdependence" with developed and OECD countries holding "the purse strings to the financial and technical assistance that the developing countries needed" (Chasek 1997, 156-57).

As claimed by Johnson, Mayrand and Paquin (2006b, 5), the conceptual underpinning of the UNCCD is a "dual focus on human and natural causes of desertification" to address "both the socioeconomic and environmental interactions at play in the desertification process". Arguably, the UNCCD embodies the three pillars of sustainable development (social, economic and environmental) more than any other MEA, and it had to deal with the inevitable trade-offs since its inception. Noting that the negotiation of the UNCCD was a valuable example of the challenges encountered by the international community in legislating sustainable development, where the difficulties in implementing such a concept in general were further exacerbated by conflicting views and priorities between countries and across groups, Chasek came to the conclusion that "the cross-sectoral nature of desertification and sustainable development may not be adequately addressed in a legally binding instrument" (1997, 163-65).

3.2. Striving for attention: the UNCCD's quest for science and policy relevance

The often-perceived difference in status between the UNCCD and its two 'sisters', the UNFCCC and the CBD, was a subject for debate during the First Conference of the Parties (COP 1) of the UNCCD, held in Rome in 1997. The discussion reflected again the North-South tensions characterising the negotiations process and confirmed the impression that "equality" between the Rio Conventions would remain an unlikely prospect:

> Since the CCD negotiations began, developing countries have stressed that the Convention must be equal to its sister conventions on climate change (FCCC) and biological diversity (CBD). At every obstacle, precedents from FCCC negotiations, in particular, have been invoked. Despite these professions of equality, divergent views were expressed about the relationship between the three Conventions. Some considered the CCD the superior of the three. The CCD is very innovative, more participatory and deals with the two fundamental concerns of humankind: survival and freedom. It is a grassroots Convention...The Convention is as much about democratization and good governance as it is about development and combatting poverty. Other delegates, however, commented that although the Convention is headed in the right direction, it is not yet on par with the FCCC, with which it now has similar institutional arrangements. First, the Global Mechanism must have moral and financial authority to mobilize the required resources to implement the CCD. Second, Africa must relinquish the desire to have a global yet African Convention. Pressing for particularity undermines the CCD's ability to enjoy the same status as the FCCC and CBD." (ENB 1997, 11)

Analogously to the very concept and definition of 'sustainable development', strengths and weaknesses of the UNCCD are often found in the breadth and vagueness of its scope. Following Johnson, Maynard and Paquin (2006a, 199), the definition of desertification adopted by the Convention is the "child of sustainable development and shares with it the advantages of inclusiveness and the difficulties of finding effective operational definitions in a politicised context". On the 'strong' side, one may argue that without such 'loose' conditions a compromise North-South would have never been achieved during the INCD negotiations. In addition, it was observed that the comprehensive sustainable development approach of the UNCCD facilitated the secretariat in seeking legitimate ways to broaden the Convention's scope and objectives (Bauer 2009, 304). Conversely, on the 'weak' angle, general formulations and poorly defined concepts can easily lead to policy irrelevance: for instance, this is the case of wordings such as "participation", "consultation" "representation", "equality", "stakeholders", "local populations", which can be prone to different interpretations depending on the context (Poulsen and Lo 2006, 115-16). Furthermore, it was noted that the blurred environment-development aspiration of the Convention hindered adequate engagement of agricultural development departments at national levels and that the "intersectoral and participatory nature of the UNCCD" sometimes conflicted "with the objective to define cost-efficient strategies and approaches to address a focussed set of issues" (Johnson, Mayrand and Paquin 2006a, 197).

The unusual focus on the socio-economic dimension for a MEA accompanied by a weak scientific and information basis in comparison to the UNFCCC and CBD processes contributed to exacerbating confusion, often leading policy to incoherence at national levels and continued politicisation of the discussion on desertification at the global level. This caused difficulties in mainstreaming the UNCCD in the development arena, where the "marketing" of the Convention turned out to be challenging before a donor community increasingly eager to invest in projects capable of delivering visible and quantifiable results (ibid., 198-200). For these reasons, in the mid-2000s, Johnson, Mayrand and Paquin described the UNCCD as a "marginal instrument in development governance due to a mix of institutional resistance, political disconnect, and cultural differences between the worlds of environmental and developmental governance" (ibid., 200).

Nevertheless, the above-mentioned difficulties in the 'mainstreaming the Convention' were, at least to a certain extent, compensated by the activism of the UNCCD secretariat. This is not uncommon in global environmental governance, where secretariats often take the lead to solve situations characterised by too many organisations with too few resources: the proliferation of MEAs in the post-1992 period and the resulting crowded governance system pushed member states (in particular many developing countries with limited capacity to deal with the growing and often overlapping set of obligations laid out in the various MEAs) to delegate responsibilities and to increasingly rely on secretariats to carry out core regime tasks, making them crucial actors in managing the mismatch between the large number of obligations states have taken on and their limited capacity to effectively implement them (Jinnah 2012, 123). Taking advantage of their expertise and authority in their respective regime of operation, perception of impartiality and "veil of legitimacy", MEAs' secretariats then move far beyond the mere administrative role they are normally assigned (Jinnah 2012, 108-11; Depledge 2005, 65-70). Most of the time though, secretariats try their best to obscure or downplay their actual influence: allowing others to take credit for their ideas, for example by channelling proposals or initiatives through chairpersons or member states, is a good strategy to preserve an image of impartiality and achieve relevant regime objectives (Jinnah 2012, 110-11). As far as the UNCCD secretariat is concerned, activism went sometimes very far, causing tension and discontent at best and loss of legitimacy at worst. First of all, the UNCCD secretariat played an active advocacy role through language and terminology, in bid

to influence non-expert stakeholders: this was detected in the secretariat's awareness raising and public outreach activities and in its preference for the catchword 'desertification' instead of 'land' or 'dryland degradation', the former label having more "political appeal" than the latter according to the first UNCCD Executive Secretary, Hama Arba Diallo (Bauer 2006, 79; Bauer 2009, 298; Corell 1999b, 65). The strive for attention and visibility was mainly due to the opportunities that the global arena could offer, as framing desertification as a global problem would have allowed projects pertaining to the UNCCD implementation to be eligible for funding through the GEF. The expansion of the GEF's mandate to include land degradation and the gradual facilitation of access to GEF funding for affected country Parties were considered important achievements of the secretariat as well as prominent examples of its strong influence in the UNCCD political and intergovernmental process (Bauer 2009, 299-300). As Bauer underscored (2006, 79):

> "Using its discursive capacity, the secretariat has also played a lead role in shift in the global understanding of the certification from being a regional problem into a global commons problem. This discursive transformation is a striking example for 'the power of discourse' and bears tangible material implications."

However, the UNCCD secretariat's endeavour to raise the political profile of the Convention also led to adventurous and risky initiatives, such as the organisation of a High-Level Segment on the margins of the sixth Conference of the Parties in Havana in 2003. While the event was meant to boost awareness of and attention to the UNCCD implementation process, it eventually resulted in a serious diplomatic turmoil: the nine participants in the High-Level Segment included heads of state such as Fidel Castro, Hugo Chavez and Robert Mugabe, with no representation of developed countries. Inevitably, the UNCCD secretariat suffered from significant damage in terms of credibility and legitimacy, as the initiative came in for criticism even from developing countries, afraid of possible negative reactions from the donor community (Bauer 2006, 82; Bauer 2009, 301-02). The reputation of the UNCCD secretariat was also tarnished by allegations of lack of transparency in its operations, such as in the case of the elections of CRIC officials in Havana and controversial financial support granted by the secretariat to selected NGOs (Bauer 2006, 82). Questions of lack of transparency were also raised on the governance legitimacy of the secretariat: Jinnah (2012, 124) reported that, "aside from politically appointed directors,

Secretariat staff are after all hired through internal, non-transparent and undemocratic processes". Along similar lines, it was noticed that was "considerable continuity" concerning the people who facilitated the pre-convention negotiations and afterwards became pivotal in sustaining the convention process: as Bauer underscored, before becoming the first UNCCD Executive Secretary, Hama Arba Diallo served as secretary in the INCD that eventually brought to the Convention (2006, 75).

Another significant indication of the UNCCD and its secretariat's perennial 'strive for attention' is revealed by the so-called phenomenon of "climate change bandwagoning". This concept was defined as a situation occurring when political actors or relevant agents purposefully and strategically expand an international treaty's or regime's mission to include new climate-oriented goals, typically by linking their issues to climate change politics, for instance by discursively foregrounding potential climate mitigation or adaptation benefits of these linkages (Jinnah 2011, 3; Jinnah and Conliffe 2012, 200). Such linkages are basically of an institutional nature and intended as "conscious efforts to make use of [regime] interplay to promote both cooperative and competitive ends" (Young 2002, 112). With this respect, Jinnah and Conliffe (2012, 200-203) outlined the repeated attempts by the UNCCD secretariat to persuade UNFCCC Parties that activities conducted in the framework of combating desertification can also have climate change benefits, for instance by stressing that restoring degraded land can enhance soil sequestration, therefore contributing to climate change mitigation. Bandwagoning also occurred on climate change adaptation issues, in particular following the Copenhagen Accord (Jinnah and Conliffe 2012, 202; Conliffe 2011, 12-13). Interestignly, Jinnah and Confliffe (2012, 215) also outlined that the "UNCCD secretariat has at times pushed for linkages between desertification and mitigation that are poorly supported by science". As long as climate change mitigation activities are concerned, the secretariat's desire to tap financial resources from the domain of climate change often led to linkages flawed by scientific uncertainty and controversy, sowing doubts on whether it was actually seeking linkages that would enable to better address interlinked environmental challenges or if it was rather looking for financial resources for mere institutional survival, "irrespective of problem-solving impacts" (ibid., 202-203). By contrast, it was observed that linking attempts to adaptation were far more convincing: compared to mitigation, adaptation contributes more directly to the UNCCD governance objectives of improving livelihoods, and it is prioritised

by the UNFCCC in many countries affected by land degradation. In this case, the benefits for the two Conventions being mutual, the UNFCCC accepted adaptation assistance from the UNCCD, particularly for implementation in developing countries and drylands, due to the UNCCD's on-the-ground focus and expertise in traditional knowledge and participatory processes at the local level (Conliffe 2011, 54-57). Furthermore, Conliffe (ibid., 56) noted that UNCCD developed and developing Parties' convergence on the importance of adaptation in the UNCCD could have the additional benefit of fostering North-South consensus on a key development issue, thus contributing to addressing "another major barrier to UNCCD effectiveness, namely the Convention's development-environment schism". Even though the linkage desertification-adaptation appears much more solid than the one desertification-mitigation, it was still observed that UNCCD's climate bandwagoning attempts based on a weak scientific basis resulted at best in a waste of resources and at worse in a potential tarring of the institution's reputation (Jinnah and Conliffe 2012, 203).

The UNCCD secretariat's choice to act autonomously and pursue adventurous "climate change bandwagoning" activities could be viewed as a consequence of both the absence of clear instructions from member states and the ineffectiveness of science-policy mechanisms within the Convention (Conliffe 2011, 45-57). In sum, the haphazard pursuit of too many linkages (ranging from forests and biochar to adaptation) contributed to give a rather hopeless image of the UNCCD secretariat: as Conliffe (ibid., 58) reported, it continuously appeared to be "chasing the rich kid on the block," "chasing lifeboats," and "latching onto anything" it could.

3.3. Attempts to reform, from the JIU report to "the Strategy": what role for science?

According to Bauer (2009, 302), the dissatisfaction with the UNCCD secretariat was also one of the reasons that led to the COP to request its review: the task was carried out by the Joint Inspection Group (JIU) of the United Nations, which in 2005 issued a report entitled "Review of the Management, Administration and Activities of the UN Convention to Combat Desertification (UNCCD)". This is how Ortiz and Tang (2005, 1-2), authors of the JIU report, efficiently summarised the main problems and misunderstandings pervading the Convention under the section "Policy issues":

> "In the course of the review, it appeared to the Inspectors that from the outset there has been a lack of common understanding and recognition of the Convention in its true and proper perspective. It seems unclear whether the Convention is environmental or developmental, or both; whether it concerns problems of only a local nature or worldwide. The very name of the Convention may perhaps be misleading since the fundamental problem is one of land degradation, of which desertification is a key element. The failure and/or unwillingness to recognize the Convention in its proper perspective has inevitably led to undesirable consequences, notably:
>
> - The marked differences in access to financial support by UNCCD and its sister Rio Conventions;
> - The lack of a clear and stable financial commitment to UNCCD by the developed country Parties;
> - The failure to mainstream UNCCD programmes and activities into the respective development support initiatives among development partners; and,
> - The lack of UNCCD prioritization in affected country Parties, which have had little success in integrating UNCCD objectives into overall national development plans."

Another disadvantage for the Convention was identified in the fact that in developing countries "desertification is generally the responsibility of the relatively weaker environment ministries" (ibid., 2).

Besides exposing the fact that the dual environment-development focus and the confusing language in the text of the UNCCD were among the primary obstacles to its implementation, the report also recommended the development of a long-term strategic implementation framework to overcome difficulties in the understanding of the Convention's objectives and of the secretariat's functions and activities (Chasek, Gutierrez and Hajjar 2012, 156-57; Ortiz and Tang 2005, 9). Furthermore, the report highlighted some of the problems affecting the CST in its task of providing the COP "with information and advice on scientific matters relating to combating desertification and mitigating the effects of drought": the logistical problems related to the fact that the CST and the COP meet in conjunction; the difficulties faced by the COP in assimilating the results of the deliberations of the CST in its policy decisions; the lack of procedures to ensure that the CST is composed of government representatives with "the right mix of expertise", as experienced showed that "the CST does not always get the scientists it needs" (Ortiz and Tang 2005, 2).

Finally, it should be emphasised that the JIU inspectors were overall not too harsh with respect to the UNCCD secretariat's 'activism'. On the contrary, taking into account the secretariat's constraints in terms of finances and mandate, they recognised the efforts made by the UNCCD secretariat in fostering relations and coordinating its activities with the secretariats of other international bodies and conventions such as the UNFCCC and the CBD, for instance through the Rio Convention's Joint Liaison Group (JLG) (ibid., 18).

Several of the recommendations included in the JIU report were taken up the UNCCD country Parties and largely reflected in the "The Strategy", which is regarded as a key milestone in the history of the Convention as well as a major attempt to address its main shortcomings and structural problems. Adopted in 2007 in Madrid, on the occasion of the Eight Conference of the Parties (COP 8), it was conceived with the "vision" or "aim" to:

> "Forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas in order to support poverty reduction and environmental sustainability." (UNCCD 2007)

Such a call for a "global partnership" may sound as an implicit acknowledgement that the UNCCD, if let alone with its limited resources, would hardly be in a position to reach its goals. It may also be seen as a means to relieve the UNCCD secretariat of demanding and burdensome advocacy work and, at the same time, to prevent it from taking adventurous bandwagoning or profile-raising initiatives, as described previously. The need for increased worldwide support to the Convention is reiterated in paragraph IV of the Strategy, entitled "The Mission" (UNCCD 2007):

> "*To provide a global framework* to support the development and implementation of national and regional policies, programmes and measures to prevent, control and reverse desertification/land degradation and mitigate the effects of drought through scientific and technological excellence, raising public awareness, standard setting, advocacy and resource mobilization, thereby contributing to poverty reduction" (italics added).

"The Strategy", officially defined as a "ten-year strategic plan and framework to enhance the implementation of Convention (2008-2018)", is an all-encompassing document including "Strategic objectives and expected impacts", "Operational objectives and expected

outcomes" as well as an "Implementation framework" defining roles and responsibilities for the various Convention's bodies (CST, CRIC, Global Mechanism, Secretariat) and stakeholders (notably the GEF). Significantly, many of these sections contain provisions for improving the role of science and the provision of scientific advice in the UNCCD. Notably, "Operational objective 3: Science, technology and knowledge" sets the ambitious goal for the UNCCD "To become a global authority on scientific and technical knowledge pertaining to desertification/land degradation and mitigation of the effects of drought". Among the related outcome indicators for Operational objective 3, it is worth noticing how Outcome 3.4 seems to closely follow the climate change bandwagoning trend outlined above ("Knowledge of the interactions between climate change adaptation, drought mitigation and restoration of degraded land in affected areas is improved to develop tools to assist decision-making"), while Outcome 3.5 stresses some peculiar cornerstones outlined in the text of the Convention such as "knowledge-sharing" systems and "traditional knowledge" (ibid.). Lastly, in the section pertaining to implementation, specific roles and responsibilities are assigned to the Committee on Science and Technology (CST), with a view to support it in fulfilling its mandate, originally found in Article 24 of the Convention and further defined in the 'Terms of reference' of the CST, issued by the COP with Decision 15/COP.1 (UNCCD 1997). With this respect, the Strategy recommends that the CST be "strengthened to assess, advise and support implementation, on a comprehensive, objective, open and transparent basis, of the scientific, technical and socio-economic information relevant to understanding the causes and impacts of desertification/land degradation". Specific recommendations and priorities include, among others: representation in the CST and the roster of experts to be based on "professional expertise and is to include a wide range of disciplines and experience regarding biophysical and socio-economic aspects"; CST meetings to "produce sound scientific outputs and policy-oriented recommendations based on the analysis and compilation of peer-reviewed and published literature that inform policy formulation and dialogue at the COP"; the CST to "mobilize science and technology experts, networks and institutions with excellence in desertification/land degradation issues under its auspices to bolster the scientific and technical basis of the UNCCD"; the CST to develop, "in cooperation with relevant institutions, tools and methods, biophysical and socio-economic baselines on desertification/land degradation at the national level", as well as "methodologies and guidelines for monitoring and assessment of desertification/land degradation trends" (UNCCD 2007).

In light of the above, it can be argued that one of the reasons why the COP adopted "The Strategy" may be found in the need to reinforce the CST and improve the mechanism for the provision of scientific advice within the UNCCD. But, more concretely, what were (and, it may be argued, what are) the science-related matters and challenges to be addressed?

3.4. Science-policy issues in the UNCCD: a doomed CST?

Conliffe (2011, 48) claimed that a crucial matter is "the UNCCD poorly designed science-policy interface" which "prevents adequate processing and channelling of scientific information to policy-makers, thus hampering the UNCCD's production of outputs", leading to unanswered questions on the extent of desertification and its causes. According to her, this also results in lower priorities afforded to desertification issues by member states, since "a lack of outputs contributes to low levels of behavioural change, this limiting UNCCD impacts".

Grainger (2008) also studied the problems related the science-policy communication mechanism of the UNCCD, focussing notably on the issues affecting the CST. Grounding his analysis on the 'boundary organization' model, which claims that dialogue between the scientific community and policy-makers can be facilitated by joint scientific-political institutions called 'boundary organizations' (Cash et al., 2003), Grainger concluded that political influences on science in the UNCCD as well as in the voluntary 1977 PACD were "more stringent" than such a model envisaged and that policy-makers in the desertification regime appeared "to have limited the scope of scientific knowledge they receive in order to maintain the political viability of the two agreements" (2008, 411).

Analysing the nature and composition of the CST, Grainger recalled some crucial points: during the negotiation of the UNCCD, developing countries insisted for a membership of both scientists and government representatives, as some of them perceived science "as a tool for promoting the interests of developed countries", while complementing the CST with a Roster of Experts (RoE) was part of the North-South compromise on the Convention text (ibid., 420). Grainger reported that Parties, which started to become dissatisfied with the CST

since it "could not produce a set of benchmarks and indicators which could be used to monitor changes in the rate of desertification", but provided only 'output indicators' to assess Parties' performance in meeting their commitments under the Convention, voiced several concerns about the competence of CST members in 2001: the political rather than scientific nature of its discussions, the lack of continuity in its membership, its inability to provide technical advice, the poor integration of its recommendations into other UNCCD processes, as well as its inadequate links with similar bodies in other conventions (ibid., 421-22). With a view to tackle some of these issues, the COP established a Group of Experts (GoE) composed of 25 members evenly drawn from the different worlds' regions, mandated to support the CST until 2007: the GoE turned out to be a failure, mainly due to the poor resources at its disposal and the limited engagement of its members, with the consequence that its mandate was not renewed at COP 8 (Madrid, September 2007). Parties then also decided to follow the JIU's advice of holding more CST meetings between COP sessions and adopting a "scientific conference style" for future meetings (Grainger 2008, 422-23; Bauer and Stringer 2009, 259).

In his study, Grainger claimed that "poor implementation of the CCD coincides with poor science-policy communication, though the latter is only one of the factors influencing effectiveness", adding that poor implementation and weak science-policy communication are influenced by the Convention's "formal institutions" (Grainger 2008, 423). As a potential way for the COP "to overcome restrictions on access to scientific knowledge" and improve science-policy communication, Grainger suggested the possibility of linking "the CST to a permanent large, diverse and interdisciplinary scientific network", an "Intergovernmental Panel on Desertification" along the same lines of the IPCC (ibid., 424). However, he also limited the enthusiasm warning that (ibid., 425):

> "Linking the CST to a larger and more diverse scientific network should improve science-policy communication. But this would not by itself improve CCD implementation, since the limited international support for the CCD relies on an ambiguous boundary object. This maintains social order between developed and developing country Parties by means of an ambiguous combination of narratives compatible with both sets of discourses. This affects the choice of all institutions in the regime and these in turn constrain the scope of knowledge transmitted to policy makers. Too radical a change in the composition of the 'institutionalized space' of science-policy communication could be incompatible with existing discourses and institutions, since better scientific inputs could puncture the ambiguity on which the political viability of the CCD depends."

Grainger's conclusions obviously hinted at the fundamental North-South compromise and recurrent environment-development 'misunderstanding' upon which the Convention relies, but which simultaneously constitute an obstacle to its implementation. This did not prevent him from proposing two possible solutions to the impasse: either to "combat dryland degradation in the climate change regime" or to "encourage interdisciplinary scientists to reconceptualize links between environmental degradation, drought and poverty" in a way that "a new boundary object can be created whose acceptability to developed and developing country Parties does not rely on ambiguity" (ibid.). While the first option distinctively recalls the 'bandwagoning' efforts lengthily undertaken by the UNCCD secretariat, the second does little to clarify how the scientific community could challenge the existing formal institutional space and how Parties could find an unambiguous consensus on a new boundary object.

Bauer and Stringer (2009) analysed the issues at the science-policy interface of the UNCCD, too. They discussed the relationship between scientific expertise on desertification and the political structure of the UNCCD, highlighting the ineffectiveness of institutional interplay in the governance of desertification. According to them, this poor institutional interplay hindered the communication of scientific research across and within groups in the desertification regime, hence failing to create the adequate conditions for a dialogue between scientists and policy-makers (ibid., 249). In particular, they argued that the reforms proposed in "The Strategy" did not address "the crucial root causes of the UNCCD's institutional shortcomings", grounded in the Convention's dual emphasis on poverty and land degradation and in the fact that during the UNCCD negotiations the influence of science was "relatively minor in shaping institutional outcomes" (ibid., 250-52). This is in line with the analysis of the Convention's negotiation process provided by Corell (1999b), who reported that the role and activities the International Panel of Experts on Desertification (IPED) were intentionally limited in order to avoid the risk that scientific debate could interfere with the negotiations and that there was a deliberate intention not to produce new scientific knowledge in order not to undermine the 'neutrality' of the IPED (see also Long Martello 2004, 172). Bauer and Stringer claimed that such structural conditions had an influence on the "institutional architecture of the UNCCD, where scientific and technological input has remained negligible": in particular, they pointed at the ineffectiveness of the CST, whose "large and

diverse membership" renders it "unwieldy" and whose discussions "are typically dominated by government representatives, many of whom lack the training or expertise to engage in substantive debates on the scientific underpinnings of desertification" (2009, 253-54). Bauer and Stringer also referred to "procedural quarrels" and "politically skewed debates", with meetings yielding "low-profile, non-authoritative outputs with little relevance for either the COP or the scientific community" (ibid., 254). This description certainly contributes to worsen the reputation of the CST, leading to a temptation to compare it to something much worse than the 'mini-COP' format referred to previously with respect to the SBSTTA of the CBD (cf. ENB 1997).

The ineffectiveness of the GoE, coupled with the politicisation of knowledge production due to the exclusive reliance on experts included in the Roster of Independent Experts (RoE), contributed to reinforcing the image of the CST as a body characterised by "inflexibility and ineffectiveness, poor-quality scientific deliberations and subsequent irrelevance to ongoing policy debates on desertification (Bauer and Stringer 2009, 255). Similarly to the CST, the RoE was not immune to criticism: notably, it was underscored that its membership hardly represented a "comprehensive perspective on the multitude of issues associated with the fight against desertification" and that socio-economic aspects related to desertification were therein largely neglected, since the vast majority of experts included in the roster hailed from natural science backgrounds (ibid., 260).

Furthermore, at the time when Bauer and Stringer wrote, the CST had not performed any role in terms of knowledge brokering, unlike the SBSTA of the UNFCCC, capable of acting as a "clearing house to channel information provided by the wider climate change scientific community, including information from the IPCC": according to Bauer and Stringer, this modus operandi allowed the SBSTA to build a "reputation as an institutional architecture through which credible, decentralized knowledge can facilitate progress in the global governance of climate change", while the UNFCCC's reluctance in strengthening cooperation between the Rio Conventions "may therefore partly reflect concerns about the UNCCD's weak science base" (ibid., 256). The authors went further to claim that failure to cooperate between Conventions "could result in incoherent and even contradictory policies, institutional duplication, and the creation of further barriers to sustainable development",

suggesting “how important it is” to develop “an adequate science-policy interface” for the UNCCD “that is in touch with the wider scientific discourse on global environmental change” (ibid., 257). Another hindrance caused by the inadequate interface between science and policy in the UNCCD was found in the low emphasis on participation, a central principle in the Convention’s text: the broader and international desertification science community was inadequately involved in the UNCCD process, which was unable to “provide an infrastructure for systematic input from a variety of different scientific disciplines, states, and regional-level scientific bodies” leaving “Parties with an arbitrarily confined knowledge base on which to base their policy decisions” (ibid.). Bauer and Stringer also made a significant reflection with regard to the policy-relevance of scientific information provided into the UNCCD policy process and to the consequences of dealing with uncertain scientific information, claiming that “policy recommendations derived from scientific data that can be labeled uncertain” are more easily harnessed “by Parties aiming to protract or even obstruct the convention process” (ibid., 258). Even if not explicitly stated by the authors, it is clear that, in the case of the UNCCD, the argument of uncertainty could be principally wielded by developed countries as a pretext for inaction and as a way to avoid further commitments within the desertification regime. Bauer and Stringer concluded their study summarising the science-policy interplay within the UNCCD as a two-way failure: on the one hand, the COP had “historically failed to tap the scientific information available to inform efforts to combat desertification”; on the other hand, “the scientific community lacked an adequate channel through which it could draw Parties’ attention to the scientific aspects of the UNCCD agenda” (ibid., 262).

Long Martello (2004, 102) addressed the scientific issues affecting the UNCCD from a constructivist perspective, maintaining that co-production offered a useful conceptual lens to diagnose “the mismatch between knowledge and social order” within the Convention’s regime and suggesting that a solution to these problems would be found in making “expertise, policy-making, policy implementation, and institution-building in the CCD more complementary and synergistic”. She also began her analysis by highlighting the specific flaws of the CST, notably by reporting complaints by UNCCD participants and country Parties about such a panel being “ineffectual” and unable to delve into in-depth technical discussions (ibid, 88). This was attributed to several different factors, some of them highlighted in Grainger’s (2008) and Bauer’s and Stringer’s (2009) analyses too, and

including in particular: the CST's excessively large membership and heterogeneity (in terms of type and level of expertise), impeding "serious scientific debate" and effective work planning; discontinuities in CST representativeness over time; limited time frame to complete tasks; irrelevance of CST work with respect to international, regional and national context efforts on crucial subjects such as benchmarks and indicators to monitor the implementation of the Convention; a general disconnect between the CST's agenda and treaty implementation; insufficient linkages between the CST and its counterparts in other MEAs (above all, the scientific subsidiary bodies of the CBD and the UNFCCC). In sum, the ineffectiveness of the CST was considered one of the major causes of the Convention's general detachment from the scientific community working on desertification, land degradation and drought issues.

In her co-productionist analysis, Long Martello hinted at "a more integrated view of knowledge production and policy making" and assumed that generating knowledge about desertification does not only require "scientific ideas and practices, but also the working out of a number of social questions concerning norms, ethics and determinations of responsibility and authority": hence, she argued that questions on whose knowledge counts in responding to desertification are "negotiated through policy-making and institution-building activities within the CCD regime" (ibid., 91). In fact, the UNCCD does not solely focus on science but rather "emphasizes the broader category of 'knowledge', signalling reliance on a wider range of cognitive resources for understanding and ameliorating desertification" (ibid., 93). Long Martello (ibid., 94) further stressed this peculiarity of the UNCCD by recalling that:

> "Unlike participants in the 1977 conference, INCD delegates did not identify a single category, such as land use, as responsible for desertification. They pointed instead to complex interactions among ecological, social and political factors. Rather than 'top-down' policies based on more 'rational' land use and western technologies, developed and developing countries alike supported a 'bottom-up' approach involving the use of traditional and local knowledge and practices, local communities, greater participation by women and non-governmental organizations, the integration of desertification and development initiatives, and a comprehensive approach to physical, biological and socio-economic aspects."

The special attention paid by the Convention to traditional and local forms of knowledge, besides science, becomes central here. As pointed out by Herrera (1981, 24-25),

many developing countries are actually "dual societies" composed of both a modern and a traditional sector, where modern scientific technologies and traditional empirical knowledge co-exist and are often mutually influential. However, the connection of the traditional sector with the sources of modem technology is often weak, with technological solutions produced or adopted by the modern sector of the economy generally being "not suited to the particular conditions of the traditional sector", let alone the economic capacity of the latter to accede them (ibid., 26). In the rural areas of many developing countries the utilisation of local empirical knowledge is much more important than in modern sectors of those countries (in particular as far as ecological practices are concerned) and the use of such knowledge does not simply equate to "adopting or upgrading the traditional specific technologies being used", but it rather means "*extracting the original ideas they might contain*, studying them, and applying the resources of modern science" (ibid., 28). A further critical point raised by Herrera, deriving not only from an "ideological position" but also from "pragmatic and operational considerations", is the need to ensure the participation of peasants in the development of technologies to be applied in rural areas: since local populations are "the depository of the traditional empirical knowledge – including, besides the environment and concrete technological solutions, the socio-economic and cultural characteristics of the community" – the process of knowledge transfer can only occur "through an active interchange between scientists and the local people" (ibid.). In addition to this, one should not forget that "the adoption of technological innovations cannot be taken in isolation from other factors such as land tenure, social organization and cultural values" (Stavenhagen 1977, 43).

In many developing countries, the traditional-modern divide described above is compounded by the fact that research in the higher education sector is often only loosely connected to local socio-economic development problems and rather oriented toward the interests of the wider international scientific community, with professors who are often trained, at least in part, in developed countries. The result is that some centres of excellence in developing countries may end up being "isolated enclaves which do little to encourage technological research to suit local needs" (Crane 1977, 378-379). In close connection with this matter, it was noted that few published research papers in peer-reviewed journals "are of immediate or even future applicability" to communities involved in combating desertification: Seely and Wöhl (2004, 26) attributed this to the fact that "the scientific process is based on an

explicit conceptual framework embedded in scientific theory" whereas "the development process is based on a broad, flexible conceptual framework focused on the needs of drylands communities". It should therefore be no surprise that "the body of empirical knowledge of the traditional sector has practically no connection with the R&D systems of the modem parts of society", becoming only occasionally the object of scientific inquiry (Herrera 1981, 26). It should also not be surprising if researchers from local contexts and developing countries decide to abide by standards set in developed countries. As argued by Seely and Wöhl (2004, 27):

> "As a consequence, local researchers and institutions emulate northern attitudes and focus on projects that lead to publications within current scientific concepts. Often the reward for successful researchers from developing countries is a permanent position in a northern university. These attitudes are reinforced by the decrease in funding for research in agriculture and drylands rural areas while the focus shifts to other economic issues. Most local researchers are dependent on external or donor funding as funding from their own institutions is usually limited. Research in the context of desertification control should be judged not only for its direct applicability by communities but also for its applicability by development agencies, extension agencies and others involved in communicating with and supporting communities to combat desertification."

Communication was hence identified as a major obstacle. On the one hand, 'translators' of scientific results are rarely available at the community level, where local populations are not sufficiently empowered to take advantage of such results. On the other hand, researchers do not always have the interest or competence to take their research further and disseminate it among those affected by and involved in combating desertification (ibid.). Seely and Wöhl (ibid., 30) added a further North-South element to this, pointing out the fact thst the strongest research capacity lies mostly in the universities of developed countries, often not affected by desertification. Since such research is "driven, funded and evaluated by an academic accreditation system based on peer review, predominantly in the form of literature in recognised journals", scientific information originating from this strong academic system research remain largely inaccessible or unavailable to researchers in most developing countries, not to mention development actors and people directly affected by the effects of desertification and land degradation. And even if such scientific publications were physically available or directly accessible, the research results would remain obscure if not adequately 'translated' "into practical, user friendly language". In order to enhance the integration of research into combating desertification, it was finally suggested that the CST focus its efforts

in improving capacity to communicate research results (ibid., 31).

All of the above, in particular the inability of the CST to live up to the principles and objectives of the Convention, was convincingly summarised by Long Martello as follows (2004, 95):

> "Unlike with past desertification initiatives, many characteristics of the CST and its agenda are not commensurate with the locus of governance, cognitive resources and policy remedies reflected in the Convention itself and the CCD regime on the whole. This incompatibility offers a partial explanation for why some CCD participants view the CST's work as lacking in technical content and efficacy…Even with the international Conference of Parties at its core, the CCD regime encompasses a decentralized approach to desertification that spans local to global contexts. Yet, many of the CST's activities reflect a centralized approach to knowledge and knowledge production."

Even if she recognised that, "for the most part, mechanisms for expert advice are fairly centralized and tend to focus on the international level without sufficient connections to sub-global levels", Long Martello underscored that the CST has tended to produce only "fairly general conclusions" on technical topics (such as desertification assessment and monitoring, integration of traditional knowledge and early warning monitoring and assessment, criteria to measure the reciprocity between traditional and modern knowledge, criteria to assess the socioeconomic and ecological benefits of traditional knowledge in light of environmental conditions) and that the applicability of this work "remains to be seen" as far as particular communities and local settings are concerned: furthermore, this is compounded by the limited engagement of the CST with sub-global level processes such the regional preparatory process for the CRIC and with national-level bodies in charge of implementing the NAPs (ibid., 96). Issues are therefore mainly related to untapped "cognitive resources": even if the implementation of the Convention would benefit from anti-desertification programmes that take into account "localized ways of understanding dryland degradation", the CCD advisory processes had a tendency "to take a standardized approach to knowledge, including traditional knowledge", and while standardisation is certainly important to allow coordination and comparisons across different national local contexts, it should also be emphasised that "each Party or region has unique social and environmental conditions and challenges" (ibid., 97). According to Long Martello, the CST had a similar and equally perplexing propensity to standardisation also with respect to traditional knowledge, whose value and potential for improving rural livelihoods in drylands is explicitly recognised in the text of the Convention

and whose applicability is inextricably related to specific environmental, social and cultural contexts (ibid. 97-98). Such a sweeping approach to traditional knowledge may sound as a missed opportunity when one considers that the text of the Convention includes rather innovative elements for a MEA, whose "major innovation is", according to Bauer and Stringer (2009, 251) precisely "an emphasis on public participation and the inclusion of indigenous knowledge". This is further complicated by a lack of effective mechanisms for the UNCCD and the CST to directly connect general recommendations on traditional knowledge with local understandings of desertification, as well as a dearth of well-functioning communication processes for assessing knowledge-related challenges and needs in specific contexts, since the most viable vehicle for this communication (i.e. national reports) is basically devoid of technical content (Long Martello 2004, 99). Long Martello made the claim that the CST could obviate some of these issues by shifting its focus from a centralised mechanism of knowledge provision to bottom-up strategies such as harnessing local-level processes, actors and organisations with an expertise on traditional knowledge and poverty reduction: however, she also acknowledged that modifications in the UNCCD knowledge support processes would require substantial financial resources, "a perpetual problem for the CCD" (ibid., 101-02).

As outlined in this section, the image of the CST, the UNCCD scientific subsidiary body tasked with supporting the decision-making process of the COP, is certainly marred by many years of inefficiency and ineffectiveness. One may think of various ways to illustrate this sluggishness, for example by recalling that the CST was able to agree on 'impact indicators' only in 2009 (Kohler et al. 2012, 68). However, it was also shown that the low reputation of the CST is not only to be attributed to the faults and flaws of the body itself, but also to the underlying political and institutional structures of the Convention. The question whether this body is doomed or could somehow be revitalised is difficult to answer in the short term. Without a doubt, future assessments of the CST will inevitably be intertwined with the impacts of the Science-Policy Interface (SPI) established by the COP in 2014.

4. METHODOLOGICAL APPROACH

4.1. Research design

The research was conducted by following a qualitative methodological approach. With this regard, three methods were used in the analysis: elite interviews, participant observation and process tracing. Furthermore, due to the different objects and foci under investigation, two methodological streams guided the research: while the main part of the analysis (pertaining solely to the UNCCD SPI) followed a case study approach, the subsequent section (associating the UNCCD SPI with other science-policy platform coping with global environmental issues) was informed by a comparative strategy. The study followed an inductive logic, mainly geared towards generating hypotheses on the role of the UNCCD SPI in the global governance of desertification as well as on the role of this and other science-policy platforms in the broader UN global environmental governance system: the choice of grounding the study on a well-defined theoretical benchmark (the suitability of the SPI to act as an honest broker or its adherence to the linear model) was beneficial to orient the research towards such hypothesis-building ambitions. As the SPI is a new example of science-policy platform in the landscape of global environmental governance, it was hoped that the combination of case study and comparative methodologies would ensure the sufficient triangulation conditions needed to carry out a valid and reliable study, therefore producing reasonably robust and credible research outcomes.

The rest of this chapter includes considerations regarding the case study and comparative approaches chosen as well as the methods utilised, complemented with reflections on these methods and the link between them and the theoretical framework of the research.

4.2. The UNCCD SPI as a case study

Investigating the relation between case-oriented comparative approaches and variable-oriented work, Ragin (1992b; cf. 1987) affirmed that the latter have a tendency to "disembody and obscure" cases, producing analyses in which the "language of variables and the relations

among them dominate the research process" and in which the "resulting understanding of these relations is shaped by examining patterns of covariation in the data set" (Ragin 1992b, 5). In order to grasp the different features or causes in individual cases, Ragin claimed that such a variable-oriented approach should be replaced by the case-oriented approach "that places cases, not variables, center stage", in which cases are defined as "boundaries around places and time periods" (ibid.).

Case studies are known for enjoying a low reputation among natural scientists. This is not only due to their unsuitability to 'the language of variables', as shown above, but also to their inductivist nature and the consequent temptation to generalise based on idiosyncratic experiences. However, as the purpose of the present study was not to identify general law-like patterns but rather to unveil the characteristics, dynamics and processes of a specific institutional entity in the broad arena of global environmental governance, the case study approach was considered suitable to analyse the UNCCD SPI. In addition to the benefits brought in by this methodological strategy in terms of in-depth descriptive analysis, there were two further reasons to support this choice. The first was due to the deep familiarity of the author with the single case in question, in light of his prior professional involvement in the activities of the UNCCD secretariat. The second was related to the peculiar nature of the UNCCD SPI and MEAs' science-policy interfaces in general: the absence of a strongly established theoretical tradition in this field as well as the relatively low number of studies conducted on UN science-policy platforms made the choice of this methodological approach even more crucial.

Discussing the use of case studies in social science research, Lijphart (1971, 691) recognised that the scientific status of this method is "somewhat ambiguous", because – he claimed – "science is generalizing activity" and "a single case can constitute neither the basis for a valid generalization nor the ground for disproving an established generalization". However, he also acknowledged that the case study method has two main advantages: it allows for a thorough examination when the research resources at the investigator's disposal are limited and it can make important contributions "to the establishment of general propositions and thus to theory-building in political science". Furthermore, he provided a useful analytical framework for classifying case studies into six different ideal-types:

atheoretical case studies, interpretative case studies, hypothesis-generating case studies, theory-confirming cases studies, theory-infirming case studies and deviant case studies (ibid.). According to Lijphart, any particular study of a single case may fit more than one of the mentioned ideal-types. In particular, for the purpose of the present study, elements from both the interpretative and the hypothesis-generating approaches seem to be appropriate: interpretative case studies make explicit use of established theoretical propositions and existing generalisations to purely shed light on the specific case, while hypothesis-generating case studies "attempt to formulate definite hypotheses" (to be subsequently tested on a larger number of cases) with the ultimate objective of developing "theoretical generalization in areas where no theory exists yet" (ibid., 692). It is important to stress that the aim here is to generate hypothesis and not theories: as recalled by Moses and Knutsen (2007, 140), it is "impossible to induce reliable knowledge from a single case". However, as in the case examined here, hypothesis-generating case studies can exploit "the author's familiarity with a given case to help generate new hypotheses or theories, which can subsequently be tested with a more rigorous design" (ibid.).

With the exception of the atheoretical case study, all the ideal-types proposed by Lijphart draw on preliminary theoretical insights in order to unlock their investigative potential. In this study, the case of the UNCCD SPI was anchored to the theoretical frameworks of the 'linear model' and the 'honest broker of policy alternatives'. The choice of theory is crucial in the research design of a case study, not only because of its repercussion on methods, but also in light of its impact on empirical data and findings. As observed by Vaughan (1992, 195) the paradox of theory is that while "it tells us where to look, it can keep us from seeing". In fact, Glaser and Strauss (1967, 33) challenged the practice of starting qualitative analysis with preconceived theories, referring to researchers' tendencies to 'force-fit' the data to the theory. At the same time, Vaughan (1992, 195-96) admitted that this approach is almost inevitable, as "a researcher never begins with a clean slate":

> "Even when we believe ourselves to be unfettered theoretically, we always begin a research project with an arsenal of preconceived theoretical notions accumulated from our own research, our reading of the work of others, personal experience, literature, and conversations that shape our perceptions and ideas in spite of ourselves...Furthermore, once in touch with our data, we tend early to develop a "theoretical fix": an explanatory scheme that guides the remainder of the work."

Vaughan hence concluded that "using theories, models and concepts as sensitizing devices" (rather than translating them into formalised propositions to be tested) should not be considered a dangerous practice. She argued, instead, that a risk of bias is rather faced when "the predetermined task is to look for, examine, and possibly apply a particular theoretical notion, or assemblage of theoretical notions" (ibid., 196). In the present study on the UNCCD SPI, the theoretical framework guiding the analysis remained far off from this risk, since the primary aim of the research was not applying or adapting such a framework, but purely harnessing it as a tool to shed light on the case in question.

Another issue related to the choice of theory is that theories, as well as their claims and definitions, can sometimes be perceived as too general, vague and imprecise. Pointing to Weber's specification of bureaucratic organisation, Ragin (1992a, 220) claimed that a theory's categories are rarely well specified and their specifications seldom uncontested. This may obviously be the case for the main theoretical concepts adopted for the present study of the UNCCD SPI, notably the 'linear model' and the 'honest broker'. However, as Ragin (ibid., 224-225) argued, the point is not about achieving "greater theoretical clarity and specificity", but rather "recognize that there are practical limits on the degree to which verbal theory can be a precise guide to empirical research" and that "it is not possible to construct verbal formulations that can embrace or contend with the complexity and diversity of the empirical world": in this vein, theories should be merely regarded as useful (but possibly weak) starting points to inform inductive case study approaches. As he summarised, the goal of researchers is using "theory to make sense of evidence" and "evidence to sharpen and refine theory". According to Ragin, cases and 'casing', which give the opportunity to limit the empirical world in different ways, are essential to make the link between ideas and evidence (ibid., 225).

4.3. Comparing the UNCCD SPI with other science-policy platforms

In order to provide answers to the research questions, the study also comprised an analysis of the structure and functioning of the UNCCD Science-Policy Interface, including

comparisons with similar institutional bodies belonging to the UN system, such as the IPCC, IPBES and ITPS.

A convenient way to address the comparative method is to distinguish between two main kinds of comparisons. On the one hand, a researcher may choose to focus on a 'most similar' systems design, in which the cases to be compared are selected according in light of their close similarity. On the other hand, the choice may fall on a 'most different' scenario, where the cases to be analysed are picked for apparently being highly diverse. As noticed by Collier (1993, 117), these two approaches closely follow and nearly correspond to Mill's (2002) 'method of difference' and 'method of agreement', respectively. Lijphart (1971, 628) defined the comparative method as one of the four basic methods (alongside the experimental, statistical and case study methods) "of establishing general empirical propositions". He claimed that the comparative method is a method to discover relations among variables and nothing but an "approximation of the statistical method": for Lijphart, a key difference is that the number of cases dealt with by the comparative method is "too small to permit systematic control by means of partial correlations" (ibid., 683-84). Furthermore, the comparative method differs from the statistical and experimental methods in two other significant ways: (i) it provides the researcher with the opportunity to trace out causal mechanisms in their natural contexts; (ii) it deals with cases that are selected in a non-random way, and very often on basis of the dependent variable (Moses and Knutsen 2007, 96). While acknowledging its strong analytical potential, Lijphart identified two main interconnected issues affecting the comparative method, namely challenge of dealing simultaneously with a small number of cases and a high number of variables (1971, 685). As far the small-N issue is concerned, he simply suggested to "increase the number of cases as much as possible", asserting that even though it is often "impossible to augment the number of cases sufficiently to shift to the statistical method", enlargements of the sample can be beneficial towards establishing a degree of control (ibid., 686). Conversely, on the problem of having to cope with too many variables, he proposed three possible solutions (ibid., 687-91): (i) reducing the "property space" of the analysis by combining variables "that express an essentially similar underlying characteristic into a single variable"'; (ii) focussing the analysis on "comparable" cases, intended as cases displaying important characteristics (variables) which could be kept as "constants" (hence, "controlled"), permitting to focus on a smaller number of "operative"

variables; (iii) limiting the focus of the analysis to "key" variables, "omitting those of only marginal importance", by resorting to "theoretical parsimony".

The two main and intertwined issues identified by Lipjhart (small-N and too many variables) are directly associated with the risks of 'overdetermination' and 'sampling (or 'selection') bias', which often haunt comparative approaches. With regard to the former, it was claimed that even cases that are carefully matched according to a "most similar" systems design often "fail to eliminate many rival explanations" (Collier 1993, 111; Przewroski and Teune 1970; Przewroski 1987). Concerning the problem of selection bias, due to the fact that comparativists do not choose cases randomly but "with an eye toward control" (Moses and Knutsen 2007, 113), researchers face major risks (especially in most 'different' systems designs) when choosing cases on the basis of single scores (or outcome) of the dependent variable (Geddes 1990, 148-49; Collier 1993, 112; Moses and Knutsen 2007, 113-116). By bringing in a series of concrete examples, Geddes (1990, 132-39) recalled that the "only things that can actually be explained using a sample selected on the dependent variable are differences among the selected cases" and hence recommended that researchers choosing this approach only make assumptions instead of inferences. She further clarified that even though comparative approaches based on the outcome of the dependent variable "cannot test the theories they propose and, hence, cannot contribute to the accumulation of theoretical knowledge", they are still very useful: in fact, they are "ideal for digging into the details of how phenomena come about", for "developing insights, for identifying plausible causal variables, for contributing to building and revising theories" (ibid., 149). While informed by Geddes's caveats, the present research did run the mentioned risks: first of all, as pointed out before, the study was not aimed at testing theories, but at generating hypotheses. In addition, the choice of the cases was not guided by their scores of the dependent variable, but rather by a keen interest in discovering their specific characteristics, differences and similarities. Moreover, the study sought to avert possible issues of overdetermination and sampling bias by drawing on its well-defined theoretical grounding and by benefiting from the fact that the SPI is a newly established body and that there is only a small number of science-policy platforms operating in the domain of global environmental governance.

Furthermore, since this study set out to compare cases that are somehow similar (notably science-policy platforms emanating from the UN system, presenting similar institution characteristics and all addressing global environmental issues), the systems design was clearly geared towards a 'most similar' approach. As a consequence, it might have seemed reasonable to follow Mill's method of difference.[5] However, even though the latter can be regarded as a useful benchmark, it would have been misleading to apply it narrowly to this study: according to Mill himself, the method of difference is not applicable to the social sciences because of the impossibility of finding sufficiently similar cases, and therefore totally unsuitable for the investigation of political phenomena (Lipjhart 1971, 688; Mill 2002). He basically considered this method as unviable in complex causal situations when more or one causes are concomitantly operating (Nichols 1986, 172). In fact, as observed by Lieberson (1992, 111), in a small N study that uses the method of difference, one cannot "examine interaction effects or multiple causes. Their absence is assumed". Bearing in mind the serious limitations of closely following the method of difference and the related pitfalls of 'most similar' systems designs, this study strived to adopt a methodological design inspired by what Collier (1993, 112) referred to as "within-case comparisons": in fact, he averred that "in many studies, the conclusions reached in the overall comparison of cases are also assessed – implicitly and explicitly – through within-case analysis". In light of this, the case study component of this research (based on the UNCCD SPI) was also intended to serve as an asset to inform and increase the analytical capacity of the comparative part.

4.4. Fieldwork methods: elite interviews and participant observation

The primary method of inquiry used in this study was semi-structured interviews. In light of the small size of the UNCCD SPI and the low number of its members (20, plus three observers), this methodological approach was chosen because of its potential to yield a good understanding of this science-policy platform, with a view to providing preliminary answers to the research questions. Due to the different roles and positions of the interviewees, semi-structured interviews were considered the ideal format to guarantee a certain degree of

[5] "In an instance in which the phenomenon under investigation occurs, and an instance in which it does not occur, have every circumstance in common save one, that one occurring only in the former; the circumstance in which alone the two instances differ is the effect, or the cause, or an indispensable part of the cause, of the phenomenon" (Mill 2002, 256).

flexibility in the selection of questions, at the same time without diverting from pre-established topics and thematic areas. All interviewees were provided with a clear description of the scope and purpose of the study. Furthermore, they were guaranteed anonymity and given the assurance that sensitive information would have been dealt with confidentiality.

The author was aware that shortcomings in terms of validity and reliability might occur while conducting while conducting interviews (for instance, in the event of limited independence or bias of interviewees), with the result of harming the credibility of findings: to counter these risks, he followed some of the guidelines and recommendations featured in elite interviews literature (Aberbach and Rockman 2002; Berry 2002; Dexter 2006; Richards 1996). Many researchers who rely on interviews or informants as their chief source of information "actually have a good deal of independent knowledge about the situation": in fact interviews can be particularly valuable when the interviewer "knows a good deal about the topic", in order for her/him to make "appropriate discounts for interviewee statements" (Dexter 2006, 24-25). This is one of the reasons why this methodological approach was considered suitable for the present study, as the author had actually prior involvement in the UNCCD as well as pre-existing knowledge of the actors and institutional bodies under investigation. As a consequence, the choice of interviewees was not random, but guided by the author's sufficient knowledge of the roles played by the actors involved in the UNCCD SPI process. This perspective is consistent with Aberbach's and Rockman's account of the purpose of elite interviews (2002, 673):

> "In a case study, respondents are selected on the basis of what they might know to help the investigator fill in pieces of a puzzle or confirm the proper alignment of pieces already in place."

Even if interviews are certainly a fruitful research method, they should be employed carefully and not relied upon excessively. For this reason, and thanks to the author's direct experience and prior engagement with the subject under investigation, the study took also advantage of elements of participant observation to complement interview findings. Yet, the participant observation method is not without downsides either. In fact, human perceptions, especially in interactions with other people, are shaped and modified by socio-psychological assumptions and value judgments (Schwartz and Schwartz 1955, 343). Consequently, for a researcher adopting this method, it is not uncommon to face obstacles related to the effects of

unconscious factors intervening in the observation, such as anxiety and bias (ibid., 353). The latter, in particular, is often referred to as socio-cultural bias, "the bias of sharing the perspective and values of one's historical time and cultural milieu and of occupying various statuses and playing the attendant roles" (ibid., 352). According to Myrdal (1944, 1043), since "valuations" and biases "permeate research", the only way to limit their influence in observation is striving to make them explicit. In the case of this study, the chief effort was to acknowledge the 'insider' distortion effects related to the author's then staff role in the UNCCD secretariat. In addition, it is important to point out that the type of participant observation in question was 'covert', 'unintended' and 'retrospective', as at the time of the observation the author was not planning to conduct an academic study on the UNCCD SPI.

4.5. Process tracing: reconstructing the history of the SPI

Process tracing was used to reconstruct the underlying causal mechanisms in the process that led to the establishment of the SPI. This method was chosen to both ensure triangulation and corroborate the findings obtained from interviews and participant observation. Official documents and other material available on the UNCCD website, as well as documents obtained from the UNCCD secretariat were used as key sources to gather relevant information.

Collier (2011, 823-24), who defined process tracing as "the systematic examination of diagnostic evidence selected and analyzed in light of research questions and hypotheses posed by the investigator", claimed that this method can serve as a tool of causal inference to focus "on the unfolding of events or situations over time" and that it can "contribute decisively both to describing political and social phenomena and to evaluating causal claims". Process tracing, which is normally used in a within-case analyses, is based on the concept of 'causal-process observations' (CPOs), defined as insights or pieces of data that provide "information about context, process, or mechanism, and that contributes distinctively to causal inference" (Brady, Collier and Seawright 2010, 2). In order to "validate" CPOs (confirming their evidentiary value), one should attempt to look at other diagnostic pieces of evidence to rule out the possibility that other CPOs "might provide countervailing inferences". However, the role of knowledge of context and process is crucial too, as it is important to evaluate "the

quality of any piece of evidentiary support" in light of "existing background knowledge and theory" (Dunning 2015, 226). According to Checkel (2015, 90) theorising mechanisms in process tracing would also facilitate IOs scholars in addressing the issue of "equifinality, where multiple causal pathways may lead to the same outcome". Process tracing can proceed both inductively and deductively: according to Bennett and Checkel (2015, 18) the deductive path can be followed "if theories that appear to offer potential explanations of a case already exist, or after such theories have been developed inductively."

When conducting process tracing, researchers may encounter pieces of evidence that differ in terms of weight, salience and probability. Based on the original formulation proposed by Van Evera (31-32, 1997) and the framework developed by Bennett (2010, 210), these could be distinguished in 'straw-in-the-wind test', 'hoop test', 'smoking-gun test' and 'doubly decisive test'. These four tests are classified according to criteria of necessity and sufficiency (or, as in Van Evera's formulation, certitude and uniqueness): 'straw-in-the-wind tests' "provide useful information that may favor or call into question a given hypothesis" but they do not offer neither necessary nor sufficient criteria for establishing or rejecting a hypothesis; 'hoop tests', which can eliminate alternative hypotheses but not provide direct supportive evidence for a hypothesis that is not eliminated, offer a necessary but not a sufficient criterion for an explanation; 'smoking-gun tests' offer a sufficient but not a necessary criterion (they can strongly support a hypothesis, but failure to pass them does little to weaken it); 'doubly decisive tests' provide both a necessary and sufficient criterion for accepting a hypothesis, therefore confirming it and eliminating others (Bennett 2010, 210-11). Even though the latter is rare in the social sciences (Van Evera 1997, 32; Collier 2011, 825), a combination of a hoop test and a smoking gun test can "accomplish the same analytic goal" (Bennett 2010, 211). As pointed out by Collier (2011, 825-26), the distinction between tests should not be taken rigidly, since the "the decision to treat a given piece of evidence as the basis for one of the four tests can depend" on various contextual and interpretive factors, such as "the researcher's prior knowledge, the assumptions that underlie the study, and the specific formulation of the hypothesis".

4.6. Reflections on methodology

In many studies, a significant endeavour is related to the choice of research methods and to the consequent challenge of adequately linking these methods to theory. This is particularly important for studies, including the present one, that are not grounded on well-known or well-established theoretical frameworks. A brief reflection on the methods chosen and on the link between methods and theory is not only beneficial to warrant the methodological choices in terms of ontology and epistemology, but it may also serve as a basis to estimate the analytical potential of the theoretical framework adopted, with a view to its application in future studies of science-policy interfaces.

In this research, interviews and participant observation were used to gain descriptive insight into the UNCCD SPI, while process tracing was adopted to bolster such descriptive findings by closely analysing the history of the SPI to detect causal mechanisms. But how are these methods compatible with the theoretical foundations of the study, based on the concepts of 'linear model' and 'honest broker'?

While discussing the characteristics of the case study and the comparative methods above, the language of 'causality' and 'variables' was used in some occasions. This language is frequently found in process tracing literature as well. It may actually sound strange to refer to causality and variables in a qualitative social science study inspired by constructivist theories, since such terms are more often found in the natural science-oriented studies, which, furthermore, mostly rely on quantitative methodology. White (1992, 88) acknowledged that using the term 'variable' is not particularly comfortable in the social sciences ("it seems an awkward borrowing in hopes that some analytic power will rub off from natural science") and that referring to 'causes' could also be nothing but "another awkward borrowing". However, it should be emphasised that, despite having different ends, natural scientists and constructivists frequently rely on the same methods and that, even though they view the world from a socially constructed perspective, constructivists also acknowledge the existence of repetitions and regularities (Moses and Knutsen 2007, 201). King, Keohane and Verba (1994, 3-33), who claimed that quantitative and qualitative approaches share the same logic of inference, maintained that social scientists could use empirical data to make both

"descriptive" inference and "casual" inference, provided that they approach the latter with "scepticism and concern for alternative explanations that may have been overlooked". These arguments should therefore be sufficient to justify here the use of methods such as process tracing, which derives its analytical power from its capacity to unveil casual mechanisms and detect intervening variables.

Concerning the link between methods and theory in terms of ontology and epistemology, it can be useful to refer to the conceptual architecture of philosophy of science proposed by Jackson (2011), hinged on two main axes: the relationship between knowledge and observation (dichotomy phenomenalism vs. transfactualism) and the relation between the researcher and the known (dichotomy mind-world dualism vs. mind-world monism) (Fig. 1).

Table 2.1

		Relationship between knowledge and observation	
		phenomenalism	*transfactualism*
Relationship between the knower and the known	mind–world dualism	neopositivism	critical realism
	mind–world monism	analyticism	reflexivity

Figure 1. From Jackson (2011, 37).

Based on Jackson's framework, the present study would find its ideal positioning in the domain of 'analyticism', characterised by a combination of mind-world monist and phenomenalist perspectives. In analyticism, knowledge is limited to experience (hence, to the observable) and is derived from intersubjective practical activities, while theory has the pragmatic role of providing "a set of more or less helpful idealizations or oversimplifications that can be used to order the complex chaos of empirical reality into more comprehensible and manageable forms" (ibid., 113). Closely following Max Weber's definition, such oversimplifications can be also referred to as 'ideal types', which are "then utilized to form case-specific 'analytical narratives' that explain particular outcomes" (ibid., 142). 'Ideal types' are therefore just "means for constructing case-specific explanations", something not designed to "capture the whole of actuality", but instead to bring analytical order in experiences (ibid., 152-54). Since they do not need to be 'tested', ideal-types cannot be

considered ‘valid’ or ‘falsifiable’, but rather useful or not (ibid., 145-46). This ‘analyticist’ configuration faithfully corresponds to the ‘ideal-types’ adopted in the theoretical framework supporting this particular study, the ‘linear model’ and the ‘honest broker’.

Claiming no general empirical validity but rather seeking “to delineate the situationally specific configuration of factors that led to the unique outcome actually observed” (ibid., 200-201), analyticism is also an epistemological stance that can be easily adapted to case studies, in which ideal-types can be utilised to address causality from the logic of counterfactuals (ibid., 149).

5. INSIDE THE UNCCD SCIENCE-POLICY INTERFACE

5.1. Is the UNCCD SPI an honest broker or does it adhere to the linear model?

This chapter will delve into the main features, history and process of the UNCCD Science-Policy Interface (SPI) with a view to understanding how this science-policy platform came about and to which extent it could embody the ideal-typical characteristics of an honest broker model. Empirical evidence from interviews and participant observation will be presented first, to be subsequently bolstered by a process tracing analysis of the SPI case based on official documents and other unedited material obtained from the UNCCD secretariat.

5.2. Interviews

Considering fieldwork an important element to explore the characteristics of the UNCCD SPI, five in-depth interviews were conducted with staff of the UNCCD secretariat and members of the SPI (including one of the observers). The fieldwork comprised a visit to the premises of the UNCCD secretariat in Bonn, Germany, in November 2016, which gave the author the opportunity to also collect background documents on the SPI process.

Following a semi-structured format, interviewees were asked a set of predetermined questions that allowed the interviewer to 'probe' or deepen certain topics, when deemed interesting for the research purposes. Two different sets of questions were prepared: one for UNCCD staff and SPI members, one for the observer.

The questionnaire for UNCCD staff and SPI members was the following:

> *1) What are the strengths and weaknesses of the SPI?*
> *2) Which were the most successful achievements of the SPI so far?*
> *3) To your knowledge, how did the mandate of the SPI come about? What were the positive aspects and what was lacking in the process that led to the SPI? Would you say the role of the COP was dominant or was there space for other external voices?*

4) In your opinion, and from your experience, in which way does the SPI differ from other science-policy processes (such as IPBES, IPCC, or ITPS)?

5) Did the SPI enhance or reduce the scope of choices and policy alternatives available to the COP?

6) What could be done to enhance the relevance of the SPI as a global process, notably in terms of authority (for ex. Like the IPBES for biodiversity and the IPCC for climate change)? Is there anything missing with this regard?

7) In the area of soil and land, to which degree was the SPI able to have a fruitful collaboration with ITPS? Do you think a unique SPI platform on soil and land issues (global process including the participation and expertise of CCD and FAO) would be a possible or realistic scenario? If so, who could take the lead? What are the main obstacles for this to happen?

8) What are the main lessons learnt from the SPI experience?

9) In terms of political legitimacy and geographical representation, was the SPI adequately equipped to ensure that the needs of developing countries (especially affected developing country parties) are taken in due consideration?

The questions posed to the observer were:

1) What are the strengths and weaknesses of the SPI?

2) In your opinion, which were the most successful achievements of the SPI so far?

3) To your knowledge, how did the mandate of the SPI come about? What were the positive aspects and what was lacking in the process that led to the SPI?

4) From your experience, was the SPI an open and transparent process taking into account a wide variety of perspectives? If not, what was lacking? Would you say the role of the COP was dominant or was there space for other external voices?

5) What are the main lessons learnt from the SPI experience?

6) In terms of political legitimacy and geographical representation, was the SPI adequately equipped to ensure that the needs of developing countries (especially affected developing country parties)

are taken in due consideration?

Most of the questions were aimed at providing preliminary answers to the main research question, namely understanding whether the SPI follows the 'linear model' or rather the 'honest broker of policy alternatives' model. In particular, they served as an important analytical tool to address aspects pertaining to the legitimacy, transparency and inclusiveness of the SPI process and the way in which the SPI reflects the structural features and problems of the UNCCD.

5.2.1. Strengths and weaknesses of the SPI

The first question, on the strengths and weaknesses of the SPI, gave all interviewees an opportunity to span a relatively broad range of topics. However, the answers displayed some common elements, revealing a similarity of perceptions on some issues.

As far the strengths are concerned, it was underscored that the SPI is overall a group of "committed" and "dedicated" people, capable of ensuring continuity in its work. A staff member of the UNCCD secretariat indicated that this is a step forward compared to the period prior to the establishment of the SPI: the SPI conducts "actual work" and the secretariat now "does not work in isolation" as in the past, when it only received guidance from the five regional representatives of the CST bureau. Some of the interviewees agreed that the small size of the SPI (20 members and 3 observers) makes it agile and manageable, something reflected in virtual communications such as e-mail too.

In terms of science-policy dynamics, another staff member of the UNCCD secretariat said that the SPI is a more effective mechanism to interface science and decision-making if compared to the CST, which is, "as it happens with all the subsidiary bodies in other Conventions (e.g. the SBSTA and SBSTTA), quite political". Some interviewees described the "10-5-5" structure and composition of the SPI (10 independent scientists; 5 members independently selected at the regional level – therefore with some degree of political connection; and 5 CST bureau members – hence not independent scientifically) as well-balanced and suitable for improving the dialogue between the scientific community and the policy world. One of the SPI members who were interviewed averred that even if such a

structure cannot be perfect (as political pressures for CST bureau members remain), the overall impression was positive: CST bureau members and, indirectly, regional representatives have been very effective in communicating what the SPI was doing, so "that less of the political issues hold up the science when the big decisions are made". To further support this claim, the member pointed to the experience of COP 12 in Ankara, where "the number of decisions that had a scientific component was way higher than any other COP" and where the SPI contributed a "large portion of the scientific decisions made in that COP". The member added that without the 10-5-5 split, in a situation with only independent scientists, "the things that rubbed against policy sensitivities would not have gone through", as it would have been difficult for a policy delegate to "accept only the scientific views when the policy pressures were so high". Another SPI member described the newly established science-policy platform as a "very small and flexible" interface that can "very quickly come up with consensus-based issues and also respond to emerging issues". It was indicated that the SPI was able to achieve this nimbleness, including a capacity to continue working during the intersessional period of the CST and the COP, thanks to Decision 21/COP.12 (UNCCD 2016c, which allowed, among other things, the SPI to produce policy briefs and policy-oriented options with its own logo) and Decision 19/COP.12 (UNCCD 2016b, which extended the duration and scope of the SPI mandate). A member of the SPI said that the new setting of "working with small expert groups and not huge panels, without having to wait for plenary decisions", contributed to make the SPI look more like a "Porsche that can move quickly rather than an heavy oil tanker that needs a lot of time to respond".

Ironically, some of the weaknesses indicated during the interviews were directly related to the strengths. For instance, a number of answers indicated that a vulnerability might be found precisely in the small size of the group: it was underlined that the success of any group of this kind is totally dependent on "how committed and how productive the members are" and that even in the SPI some members are significantly more active than others.[6] Both SPI members interviewed admitted that such imbalances in group dynamics can be

[6] Interviewees discussed possible solutions to this issue. A UNCCD staff member said that it would be interesting to find ways to optimise the membership to ensure that members who are more committed remain on board (it was also added that this would be a delicate process, since some of the members are regional representatives recommended by governments). An SPI member hinted at the possibility to leverage two major incentives for members' voluntary participation in the SPI work: 1) the prospect of becoming internationally well-known, as the policy briefs developed by the SPI reach country delegations 2) the possibility to develop peer-reviewed papers out of this work (something attractive for external experts too).

particularly problematic for bodies such as the SPI, where work is basically conducted on a voluntary basis. In particular, it was highlighted that during its first biennium of operation (2014-15), the SPI was set up in a way that it did not only take care of science-policy issues, but it also carried out actual scientific work on its own, leading to an extremely heavy work load. Furthermore - one SPI member noted – "the work we were doing was not becoming visible as an SPI product": unlike the case of the IPCC and IPBES reports, the documents prepared by the SPI for the CST initially had a simple United Nations layout which did not show "that it was the SPI to do the work". Hence, the member explained that the SPI prepared a document to propose a rearrangement of the modalities of work of the platform: this was instrumental in leading to some of the provisions included in the above-mentioned COP 12 Decisions, which enabled the SPI not only to work with more flexibility, but also to look into various ways of communicating with the independent scientific community and to develop policy briefs bearing the SPI logo.

According to a UNCCD staff member though, the SPI does not always have a capacity to "fast track" (to meet demands in a short time) and has not yet been able to sufficiently tap into the scientific network of its members. This could be attributed to various factors, such as the aforementioned group dynamics, the fact that the platform is relatively recent, or the high costs of convening a full physical SPI meeting. In connection with the latter, the two SPI members and the observer expressed concern with regard to budgetary issues and instability of funding. Even if the SPI is much more cost-effective compared to other platforms, having to think "in hundred thousands rather than in millions" (like others do) is a major weakness and "the financial issue needs to be clarified" – said one of the two SPI members. The other member defined the UNCCD "a coffee break in terms of budget compared to the other two [Rio] Conventions", adding that "there is no way that donors are going to support or encourage the creation of an IPCC-type body": having to "go small" becomes then the only option, and having only a few people with "the responsibility of canvassing the scientific community to be sure that whatever we communicate is up-to-date and representative of those views" is challenging. According to this SPI member, even though the UNCCD was designed as great participatory model, it is haunted by the fundamental Achilles's heel of having its scientific subsidiary body (the CST) totally bound to political dynamics: the SPI is thus the result of compromise that comes both as "money issue and a political issue".

The observer raised further weak points in the SPI: the large majority of SPI scientists and members have a technical (e.g. soil science) rather than a social science background. As the UNCCD "is about people in drylands and areas subjected to desertification", the SPI would be "stronger" if there was a higher diversification of academic backgrounds and a better representation of members from the social, legal and economic sciences. Furthermore, sometimes discussions in the SPI "are too theoretical, and not enough practical". The observer confirmed that another obstacle is that, contrary to what was envisaged initially, financial constraints within the UNCCD made the idea of organising two SPI physical meetings a year impracticable.

	STRENGTHS	**WEAKNESSES**
UNCCD science-policy aspects	▪ '10-5-5' composition makes SPI well-balanced (not too scientific, not too political) ▪ Seems to well link policy level (COP) and scientific community ▪ Enhanced mandate and more leeway after COP 12 Decisions ▪ Can facilitate consensus building on science-based issues	▪ Political pressure for CST members remains ▪ Suffers from UNCCD's delicate design and political compromise ▪ Limited focus on the socio-economic aspects of the Convention
Membership/group dynamics	▪ SPI members generally dedicated ▪ Effective collaboration with secretariat ▪ Small membership makes it nimble and able to respond to emerging issues	▪ Some members more active and committed than others ▪ Work is done on a voluntary basis ▪ Meeting many demands is sometimes unfeasible for a small group ▪ Overrepresentation of natural sciences to the detriment of social sciences
Practical/logistical aspects	▪ Virtual communications (e-mail) are effective ▪ More flexible work arrangements after COP 12 Decisions	▪ Heavy work load and limited visibility for SPI members in its first biennium (2014-15) ▪ SPI's very recent establishment and limited resources made it hard for members to quickly mobilise scientific community ▪ Limited and unstable budget (e.g. physical meetings are expensive)

Figure 2. Summary of strengths and weaknesses of the SPI based on interviewees' answers.

Many of the inputs on membership and practicalities were useful to appreciate the inner functioning of the SPI, while, in terms of science-policy dynamics, it was highlighted that the '10-5-5' set-up may be a fair and ideal compromise to link science and policy. However, some of the remarks made by the two SPI members implied that political pressures may be constraining for the SPI and that consensus for decision on science issues is limited to the SPI circle: drawing on Pielke's theoretical framework, such characteristics appear compatible with the 'linear model' and are not typical of the 'honest broker'. Furthermore, the answer provided by the observer suggested that the SPI and its membership could be affected by problems of legitimacy and disciplinary representation.

5.2.2. Legitimacy, transparency and inclusiveness: the mandate of the SPI and the role of the COP

One of the questions posed to all interviewees pertained to the mandate of the SPI and the role of the COP. In addition, a specific question for the observer was about the openness, transparency and inclusiveness of the SPI process.

The staff members of the UNCCD secretariat recalled that the SPI is the result of lengthy process started after many years of discussions within the COP on how to improve the delivery of scientific advice to the Convention. The choice of establishing the SPI was not a top-down decision made by the COP, but rather the result of a process based on a number of recommendations made by an ad hoc working group, the Advisory Group for the Provision of Scientific Advice (AGSA). The AGSA, which included both scientists and country parties' representatives, initially suggested a complex modular approach, which was only partially taken up by the COP: "they decided to take up simply one of the modules, the smallest but crucial component, the science-policy interface". With regard to the mandate, one of the UNCCD staff members said that many country parties, "in particular developed donor countries, are always very concerned about new mechanisms such as the SPI" and they usually prefer to ask new platforms to take advantage of existing mechanisms (this is why one of the elements in the mandate of the SPI is to collaborate, to coordinate, to synergise with existing mechanism such as the IPCC, IPBES and ITPS). The interviewee also clarified that the circumstances in which the SPI mandate was assigned rapidly changed over time, as the

SPI was initially designed not only to respond to the requests of the COP, but also to propose to it "emerging scientific issues that could have an extraordinary impact on the future of decision-making".

One of the two SPI members, who was also a member of the AGSA, provided an analogous reading and description of the process that led to the SPI and its mandate, stressing that, unlike platforms such as the IPCC and the IPBES that are independent from the UNFCCC and the CBD respectively, the SPI is part and parcel of the UNCCD and was developed specifically for the UNCCD: "in order to have a legitimate background for our products, we will always have to bear in mind that we are working for the UNCCD". This does not mean that the SPI only develops technical reports and policy briefs for UNCCD policy-makers, adapting language and format to suit this audience. In fact, it also communicates to external stakeholders, in particular the scientific community, by the means of peer reviewed-papers. The other SPI member had no direct involvement in the AGSA but, being familiar with its process, said that the issues identified by the AGSA were real: if it was really the case that there was pressure from the COP, "they resisted enough to get something viable that it was not only serving the interest of one constituency". However, the SPI member warned that there is a fundamental issue related to differences in viewpoints among countries about the mandate and the scope of the Convention itself: whether the UNCCD applies to drylands only or to the whole world. According to the interviewee "countries have done a good job in dancing around it" for a long time, but something happened when the COP passed Decision 19/COP.12 (with particular respect to the provisions set out in paragraph 3)[7]:

> "[This decision] is right on the boundary of controlling the scientific information coming out of the SPI, as there is now a COP bureau review step for the technical reports that come out of the SPI. That's fine if what you are trying to create is an official document. But if what you are trying to create is a product that can be used by anyone (not only an internal product like official documents are), then you have a problem".

[7] UNCCD 2016b. The paragraph reads: "Further decides that any scientific output prepared under the supervision of the SPI should undergo an international, independent review process; and that any output published under the name of the UNCCD should be reviewed by the Bureau of the Conference of the Parties prior to publication". As reported previously, the other SPI member looked at the very same provisions from a rather different perspective, emphasizing how these allowed the SPI to work more flexibly.

The SPI member added that the language adopted was "just on the edge" and if it had been pushed further and made even more rigid by the country that proposed it (Brazil), then the SPI would be "finished", as "scientists would not be able to work in such a constrained environment". "What is sad", the interviewee added, "is that this did not happen because there was science that came out of the SPI that got the attention of Brazil", but because of this overarching issue "drylands versus the whole world": the concern was that something very broad (not limited to drylands only) coming out of the SPI "might result in attention being paid to non-drylands". On the other side of the coin, countries such as Russia, Ukraine and most of Central Asian countries, which are seriously affected by land degradation and are not particularly interested in a climatic definition of dryland, "were pushing in the opposite direction", for the UNCCD to "have much more of a world focus". According to the SPI member, these sensitive political tensions could have serious consequences and "make a break in the future of the SPI".

Commenting on the mandate, the observer stated that, from an outside perspective, it appears that "the IPCC and IPBES have a much more autonomous way of setting their own agenda", being less linked with the UNFCCC and CBD. According to the interviewee, this situation has two sides:

> "On the one hand, it is good that the UNCCD and the COP can ask the SPI for advice on certain issues; on the other hand, this also limits the agenda setting or the policy recommendations that the SPI can give, because it is within the boundaries of the UNCCD and the UNCCD COP".

The observer hence admitted that the SPI would benefit if it had less constraints from the COP, "because within the UNCCD and the SPI there are blind spots", which could be more easily addressed if the SPI had a freer mandate. While admitting of not having been involved in the mechanisms preceding the SPI, the interviewee said that the crucial SPI mandate of translating of technical science into concrete policy recommendations for the parties has not actually been achieved, due to the limited number of members with a socio-economic and/or legal background. A better balance in the membership, also entailing an increase in the number of observers, could thus be considered with a view to enhancing legitimacy and inclusiveness in the SPI. The observer thought that the election of the CSO

representatives was a "clear" process, even though this does not necessarily mean "transparent".

The questions were aimed at shedding light on the relationship between the COP and the SPI, also with a view to understand to which extent the latter is constrained by the former. All answers made it clear that, even though the decision to establish the SPI was the result of a protracted process that did not only include the COP and the CST, the SPI remains institutionally dependent on the UNCCD and these two bodies. While the observations made by one of the UNCCD secretariat representatives demonstrate that the mandate of the SPI was deliberately restrained by developed country parties, the observer's comments imply that the CST bureau (which, in accordance with the Terms of Reference of the SPI, was tasked to select the 10 independent scientists "through an open call taking into account regional and disciplinary balance")[8] could have ensured a fairer representation of the socio-economic sciences in the batch of independent scientists, in line with the spirit of the Convention. Furthermore, one of the interviewees disclosed that there is another crucial underlying 'misunderstanding' within the UNCCD besides its known environment-development duality, namely the question whether the UNCCD should apply to drylands only or to the rest of the world as well: the current political debate on the scope of the Convention could actually lead to a stricter control of the COP on the work of the SPI, which would then face a considerable reduction of its independence, and even a threat to its future. These elements do not contribute to create the conditions for the SPI to act as an 'honest broker' and may indicate the persistence of the 'linear model'.

5.2.3. Enhancing or reducing the scope of choices and alternatives for policy-makers?

The SPI members and the secretariat staff members were asked whether they thought the SPI enhanced or reduced the scope of choices and policy alternatives available to the COP. This question was asked because the 'honest broker' is characterised by a capacity to expand the range of policy alternatives, while the 'issue advocate', following the linear model, focuses on reducing the scope of choice available to policy-makers.

[8] The Terms of Reference of the SPI (UNCCD 2016e) were developed by the CST Bureau, in accordance with Decision 23/COP.11 (UNCCD 2013a).

A UNCCD staff member responded that the objective of the SPI would be "to present to the COP a limited number of clear options to facilitate the decision-making process" and that this partially happened at COP 12, where some of the SPI inputs were taken up. An example of this could be found in the participation of the SPI in the UNCCD 3rd Scientific Conference in March 2015, where SPI members tried to translate the broad scientific outcomes of the event into concrete policy recommendations, moving in the "direction of presenting information in a limited format". The other UNCCD representative suggested that the SPI role is crucial to both prioritise and streamline information, tasks and requests coming from the parties, which otherwise would be too complex to address. In this way, the SPI could play a twofold role: on the one hand "listen to what the parties request at the COP", prioritise and rationalise the wide array of different topics to be tackled; on the other hand, "warn about emerging issues" in which "science could come with shifting paradigms, that could have a big impact on how to halt land degradation and desertification".

The answers received from the SPI members were equally enlightening, but somehow more elaborated. According to one of them, the SPI "actually provides more options, because what we can provide is only options" and advice, but not tell the COP to move in a particular direction ("by no means are we putting a barrier on the COP"). According to the interviewee, the policy options proposed by the SPI should be based on solid scientific findings and "scientifically sound with all the certainty and uncertainty issues that go with that". The other SPI member recalled that, initially, the COP asked the SPI to provide advice and scientific support on series of topics and issues: "in a sense, the policy options were less, simply because we did what they asked us to do". However, while addressing the work programme, "the results could be constraining or opening" and there was a point the SPI had the impression of being asked by the COP: 'Tell us what to do'. As a consequence, the SPI began to develop more concise and policy-oriented documents to suit the needs of the COP, which "doesn't want a thousand choices", but rather to know: 'What do you think we should do about this right now: we can say yes or no'. This led the SPI not only to adapt its language to that of its policy recipients, but also to propose (and, in some cases, even draft) policy recommendations. As an instance of COP-SPI interaction, the member said that when the COP requested the SPI to develop a scientific conceptual framework for Land Degradation Neutrality, it asked the SPI to do this "type of options work".

As it can be seen above, the interviewees interpreted the question in quite different ways, providing conflicting answers in some cases. This showed that there may be different opinions on the SPI role among SPI members, observers and UNCCD secretariat. However, such a variety of views allows to suggest that the SPI may not perfectly fit into the ideal-type of 'honest broker', nor the 'liner model'. The answer provided by the first UNCCD staff member recalled the logic of the liner model, as it seemed to suggest that the hands of the SPI are somehow tied and the set of policy options it can propose to the COP is fairly limited. Yet, the other UNCCD representative indicated that the SPI actually enjoys a certain degree of freedom, as it can choose what issues and topics should be prioritised and may even decide to bring pressing issues of scientific relevance to the attention of the COP (through the CST). Bearing in mind the fact that the SPI is institutionally bound to the UNCCD, the first SPI member gave the impression of placing the SPI in a 'science arbiter' position, something hardly attainable in a politically laden environment such as the UNCCD[9]. The words of the other SPI member hinted that the SPI is not free from the dynamics of the linear model, but at the same time reiterated the idea that the platform enjoys some leeway in its orientation and organisation of work, as one of the two members of the UNCCD secretariat outlined before.

5.2.4. Most successful achievements and lessons learnt

In order to take stock of the SPI undertakings during in the first two and a half years of operation of the platform, the people interviewed were asked to discuss a key achievement of the SPI and to outline the lessons learnt from the SPI experience. Interestingly, some of the answers offered insightful inputs with a view to addressing the study's research questions.

As the most successful achievement, four out of five interviewees explicitly mentioned the development of a "Scientific Conceptual Framework on Land Degradation Neutrality" (cf. UNCCD SPI 2017). One of the two UNCCD secretariat representatives said that the SPI was very efficient, as in just 7-8 months it was able to produce an original piece of work (while "there was nothing out there on the topic") only by mobilising a small number

[9] As outlined previously, the 'science arbiter' is one of the four ideal-types identified by Pielke (2007). Despite having an active and direct interaction with policy-makers, the 'science-arbiter' focuses on positive questions that can be resolved through scientific inquiry only, avoiding normative questions and political discussions.

of external experts. The document, which was reviewed by a number of external experts, received a very positive feedback, with some of these experts saying: “This is one of the best pieces of work that we have ever seen in the UNCCD process”. The Framework was not intended to be just a “theoretical piece of work to be put on the shelves”, but was used to develop operational guidelines for the implementation “Land Degradation Neutrality Target Setting Programme” launched by the Global Mechanism in 2016, by which more than a hundred countries committed to set land degradation neutrality targets. According to the UNCCD staff member, this shows that that “the work done by the SPI can actually have a concrete impact on implementation and this is probably the first time something like this happens”. The other member of the UNCCD secretariat had exactly the same view, saying that the Framework was “a very good piece of work” that had a “clear impact on implementation and decision-making” and which could “hopefully also open a healthy and structured debate in the scientific community”. One of the SPI members said that it was really noteworthy that the SPI was able to take the Land Degradation Neutrality (LDN) concept, “almost a market concept, give to it a scientific foundation and then make sure that this foundation plugs into making it operationally viable in countries”. According to the member, the cooperation between SPI, UNCCD secretariat, Global Mechanism and country parties was good when it came to begin proposing the Framework for implementation purposes. Nothing in the Framework appeared “impossible”, as the main reactions from the parties could be summarised in: “Ok, it would cost a lot of money, but we could do it”. Significantly, the SPI member also revealed that the development of the Framework was conducted in close collaboration with the CSO observers:

> “When we were working on the review of the Conceptual Framework on LDN, the CSO representatives came back with a lot of feedback and made a big difference on how we linked the framework to the VGGT.[10] That would have never happened in any other way: nobody would have ever considered those guidelines when looking at the conceptual framework for LDN.”

The SPI member admitted that the fact that land tenure was identified as a possible vulnerability (and, thus, included in refinement of the Framework) was “a huge win on all sides, that would have never occurred through a constituency approach”. As a consequence, at

[10] The Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security of the Food and Agriculture Organization (cf. FAO 2012), endorsed in May 2012 by the Committee on World Food Security (CFS).

the CRIC 15 in Nairobi, the response from the CSO community was enthusiastic with comments like "we have never been so well consulted in a process before as this one", which has to do with a major scientific issue that could affect people on the ground. The SPI member concluded ironically: "I honestly think that FAO owes us! We made the VGGT extremely important, and it wasn't because they asked us". The observer, who also identified the Conceptual Framework on LDN as the major achievement of the SPI in terms of concrete outputs, said that one of the great successes of the SPI is that it "is really producing documents that are relevant" and that "there is really something happening there". The other SPI member claimed that the biggest result was that, after just two years of the platform's establishment, the other Rio Conventions and other panels suddenly began to look at the UNCCD with more respect, as institution "that is capable of producing science, and not as helpless as it could look like".

Regarding the question on the 'lessons learnt' from the SPI experience, answers were more diverse and partly covered in other sections of the interviews. A staff member of the UNCCD secretariat stated that the first biennium of SPI operation was rather "experimental", without good modalities of work in place, but that both the SPI and the secretariat learnt a lot from that experience, becoming more "output-oriented": outputs would need to "be well designed to respond to the political needs or the implementation needs", while the "success story of the LDN report" and the way it was already taken up in the implementation represent good lessons learnt on how the SPI should move in the future. The other UNCCD staff member noted that in the composition of the SPI there are a lot of people who were involved in its establishment: while this is good in order to have some memory of and familiarity with the process, a crucial lesson learnt is that it would be important to bring in "new people" and "more expertise", in order to enlarge the scientific community on land management related to the UNCCD and to obtain the "kind of scientific championship that could link the SPI with other global initiatives and projects". Meaningfully, one of the SPI members suggested that one could draw a lesson looking at the innovative design and potential of the SPI:

> "Societies and scientific communities are changing rapidly, global change issues are very dramatic, whether at social or ecological or climate change level: we will need rapid response systems, in order to deliver in a timely manner scientific findings, which are needed to take decisions. For this reason, I

think that the SPI model may be a very interesting institutional set-up to look into and see how it can further evolve in order to provide this timeliness and flexibility".

This section indicated that the SPI may have much more of a say in the process of guiding the implementation of the UNCCD and, therefore, a considerable potential of impacting policy-making. This was clearly showcased in the development and application of the Scientific Conceptual Framework on LDN, in which the SPI seemed to also enjoy a certain independence and freedom. Furthermore, the successful collaboration with CSO representatives and the inclusion of the VGGT in the Framework imply that the SPI could have the potential to move closer to the 'stakeholder' way espoused by the 'honest broker'. However, some of the feedback did not move in the same direction. Even though the scientific profile and prestige of the UNCCD rose thanks to the SPI, one answer suggested that the platform is still not particularly well known and would therefore need the support of external processes and stakeholders. In addition, following the 'output-oriented' approach advocated by one of the interviewees may lead to a 'linear model' scenario, in which the SPI is too busy meeting the requests of the COP to adequately respond to the needs of other stakeholders, including civil society and the broader drylands community.

5.2.5. The SPI and the needs of developing country parties

Since the UNCCD is a hybrid between an environment and a development convention, it was crucial to investigate the set-up of the SPI with respect to issues such as political legitimacy and geographical representation, as well as its suitability to address the needs of affected developing country parties.

According to one of the UNCCD secretariat members, when science-policy platforms such as the SPI are established, there is often a tendency to "have more responses within the scientific community" from candidates with a natural science background, with the result that the socio-economic dimension is frequently underrepresented. The UNCDD staff member added that, while this was the case of the SPI too, the success story was the inclusion of a CSO representative with an observer status: "They bring in a completely different perspective, an attention to social issues that is unique within the group". In general, the role of observers was very important: "Nominally they were observers, but they had a very active

role and contributed to a number of products there were developed, especially the CSO representative". In terms of regional representation, the interviewee said that a balance was ensured in SPI, even though balanced representation does not equal uniform participation (it is a matter of personalities and group dynamics). The other member of the UNCCD secretariat had a more critical stance on the issue, saying that one of the real challenges is to enhance the engagement of scientists from developing countries: a possible approach to do so could be relying more on regional rather than on national institutions, something which could "bring in more geographical balance in the composition of the SPI" and enrich it with members who "are well-aware of what is going on at the regional levels". The interviewee confirmed that having a "nominally geographically balanced representation does not mean that the work is shared by all people", as the most active members usually turn out to be those who are very fluent in English: "Sometimes it's worrying because in spite of this nominal regional balance, the group is totally led and steered by two or three people". Not being fluent in English is a handicap that can make some members particularly shy: it is not unusual to see "some people who are not at all active in the full/plenary meeting, while in the smaller group they are actually very good contributors". The UNCCD representative concluded that such problems of group dynamics are not unique to the SPI and the UNCCD, but also exist within the IPBES and ITPS for instance.

One of the SPI members affirmed that "the constellation of the SPI shows that the possibility for regions to influence the work of the SPI is actually given: it is institutionally possible". Still, the member also added that is crucial for the SPI to "develop regional hubs and platforms, with which the SPI could directly communicate to get the regional knowledge". The second SPI member reiterated that the '10-5-5' model of the SPI is valuable, since it provides that the 5 regions are "represented automatically twice, in two different ways". In line with the opinion of one of the UNCCD staff members, the interviewee thought that a major challenge for the SPI is that, since the scientific community is obviously more developed in developed countries, it is not easy for scientists in developing nations to be selected in the list of the 10 independent scientists: "some were, of course, but this remains a vulnerability, a tough balance". Overall, the member felt that the regional balance in the SPI (including the 10 independent scientists) is "good" and that the large regions affected by land degradation are "well-covered".

The observer voiced concern about the geographical representation: “There could be some improvement”, as there are currently “many Western/Northern institutes represented in the SPI, but I am not sure about how to address this”. Admitting that language can surely be an obstacle (with native English speakers usually being “very patient” with the others), the observer stressed that the dominance of the natural sciences in the SPI could be seen from a political lens as well.

The answers provided by the interviewees exposed some issues related to political legitimacy and geographical representation in the SPI. In the UNCCD context, it still seems difficult to engage scientists from developing countries and, even though regional balance is nominally ensured, there is a de facto slight imbalance in favour of developed countries. The latter is further reinforced by differences in English language proficiency, something often reflected in group dynamics too. While two interviewees hinted that strengthening regional hubs and networks could be a solution to this imbalance (following an approach that would also be consistent with the regional scope and spirit of the Convention), it is not yet clear if and how the SPI or the UNCCD could have the actual capacity to do so. The underrepresentation of members with a social science background is only partially compensated by the active participation of the observers (especially the CSO representative): according to the observer interviewed, this may be the result of a deliberate political will. Should this be the case, this would indicate a persistence of the ‘linear model’. Similarly, a purely nominal regional representation would do little to provide policy-makers with a legitimate, balanced and comprehensive set of policy options: it may be hard for the SPI to play the ‘honest broker’ if some of its members are much more vocal than others.

5.3. The SPI from the author’s perspective

The author served as a consultant at the UNCCD secretariat between April and December 2014 with the main task of supporting the then secretariat’s Knowledge Management, Science and Technology (KMST) unit in activities related to the SPI. During this lapse of time, the author was able to have a direct experience of the SPI process and to participate in the inaugural meeting of the platform, held in June 2014.

Before the inaugural meeting, the secretariat provided support to the CST bureau in the selection process of the 10 independent scientists of the SPI. For that purpose, a public call was previously launched by the secretariat, in accordance to paragraph 4 of Decision 23/COP.11 ("Ten scientists selected by the Bureau of the Committee on Science and Technology through an open call taking into account regional and disciplinary balance")[11]. The call, which invited applicants interested in becoming members of the SPI to submit their applications along with a CV and a relevant application form, included a long (and, in some cases, redundant) list of "requirements", "assets" and selection "criteria".[12] In an effort to ensure a broad response to the call, the secretariat disseminated information about it through the wide UNCCD network, targeting various stakeholders such as National Focal Points (NFPs), Science and Technology Correspondents (STCs), former members of the Advisory Group of Technical Experts (AGTE) and of the AGSA (Advisory Group for the Provision of Scientific Advice), and people included in the Roster of Independent Experts (RoE). After the deadline, based on an agreement with the CST bureau, the secretariat prepared a list of all applications received as well as a shortlist of applications meeting the requirements and criteria of selection and ranked based on scoring system developed in collaboration with the CST bureau. Such lists were subsequently sent to the five CST bureau members, each of whom had two weeks to provide the secretariat with a tentative list of ten pre-selected scientists. The selection was finalised during a CST bureau meeting held by teleconference and facilitated by the secretariat, during which the CST bureau members nominated the ten independent scientists as members of the SPI, as well as ten alternates. A parallel process was

[11] The call (UNCCD 2014a) was published by the secretariat on the UNCCD website and was open between 14 February 2014 and 6 April 2014.

[12] The criteria and requirements included: "Advanced university degree in one or two disciplines relevant to the UNCCD process; at least five years of scientific working experience and/or practical/project experience with DLDD issues, especially in combination with working experience related to interdisciplinary DLLD matters; substantive evidence of peer-reviewed publications in international journals in the last ten years; experience in providing scientific advice to different kinds of stakeholders and in the communication of multidisciplinary and other knowledge; experience in communicating, promoting and incorporating science into policy development processes and in synthesizing information for non-specialists; fluency in written and spoken English; full access to email and web-based information and communication systems". The following were considered as assets: "Knowledge in other relevant science–policy processes with a view to broaden the thematic debates of the SPI; knowledge of/familiarity with the UNCCD process; membership in editorial boards of leading international scientific journals or leading scientific organizations and/or participation in the decision-making processes of grant-awarding bodies" (UNCCD 2014a).

set up for the nomination of the three observers.[13] While one of them was elected by the CSO representatives based on a previous agreement between the panel of the CSOs and the CST bureau, the other two were selected by the secretariat on the basis of an open call for international organisations and United Nations organisations.[14]

Thanks to his insider perspective, the author was in a position to make some considerations with regard to the selection processes. As far as the selection of the ten independent scientists is concerned, it could be firstly said that, despite the secretariat's efforts to widely publicise the open call, most of the recipients and responders turned out to be the 'usual suspects' (e.g. people who had a familiarity or prior engagement with the UNCCD). Furthermore, as outlined above, existing literature exposed the problems related to an excessive reliance on the RoE, in which socio-economic aspects have always been largely overlooked (Bauer and Stringer 2009). It could also be claimed that some of the requirements and criteria were unfair to scientists from developing countries (e.g. evidence of peer-reviewed publications; fluency in English; full access to the Internet and e-mail). Moreover, during the teleconference meeting organised to finalise the selection process, the CST bureau decided to apply a slight modification to the existing scoring system, with the aim of giving more weight to the peer-reviewed publications criterion (two bonuses were applied: "number of publications as a first author" and "number of citations"). Finally, while group dynamics played a role as well (CST bureau members showed different levels of engagement in the selection process), one may argue that entrusting the members of the CST bureau with selecting their future colleagues is problematic, since the politicised nature of the CST might have had a distorting impact on the selection. Concerning the selection of two of the three observers, it should be remarked that the specificity of the selection criteria listed in the call might have been a disincentive to many organisations: in fact, the secretariat received a very limited number of applications (five in total). In particular, the rather practical criterion of having a formal contact with the UNCCD played a role in handicapping some of the applicant

[13] As per Decision 23/COP.11 (UNCCD 2013a): "one from a civil society organization, one from an international organization and one from a relevant United Nations organization".
[14] The open call "For expression of interest to be an observer to the Science-Policy Interface" (UNCCD 2014b), which was open between 10 February 2014 and 6 April 2014, included the following selection criteria: "a) Ongoing programme or other initiative on Land Degradation and Drought; b) Research based work programme; c) Formal contact with the UNCCD; d) Science-policy and international negotiation experience an asset".

organisations. Additionally, one may raise concerns about the fact that the selection of the two observers was left at the discretion of the secretariat.

Participating in the inaugural meeting of the SPI in June 2014, the author had the general impression that the newly established platform was a group of committed and competent individuals, some of them clearly more vocal than others. This is consistent with the comments made by the people who were interviewed for this study, who mostly highlighted how proficiency in English and routine familiarity with Northern scientific practices have a significant impact on group dynamics. During the meeting, one of the observers was particularly active, demonstrating a willingness to be actively engaged in the activities of the SPI. It is important to notice that, at the time of this writing, there is no document explicitly regulating the role of observers in the SPI: this allows them to participate in the meetings and activities of the SPI with no particular restrictions, de facto making them to all intents and purposes equal to SPI members.

The stay at the UNCCD secretariat also gave the author the opportunity to observe that some of the peculiarities described in existing literature were persistent. First of all, the UNCCD chronic budget limitations were apparent. In fact, financial constraints prevented the UNCCD secretariat from organising a second SPI physical meeting during 2014. In addition to this, the 'bandwagoning' tendencies (cf. Jinnah and Conliffe 2012; Conliffe 2011) of the UNCCD secretariat were evident in both internal discussions and external communication. As an example, one may look at the opening remarks made by the UNCCD Executive Secretary on the occasion of the inaugural meeting of the SPI (UNCCD 2014c):

> "Ms. Barbut also pointed out that the SPI could play an important role in 2015 with regard to the process leading to a new climate change agreement, as well as to the Sustainable Development Goals (SDGs) and the post-2015 Development Agenda. She stated that adaptation should be an integral part of all countries' response to climate change and emphasized its significance as a driver to enhance synergies between the Rio Conventions. Acknowledging that land-based adaptation can be a powerful tool for positive change, she suggested that the UNCCD could take the lead in this process and call on the SPI to identify an indicator that could be used jointly for reporting across the three Rio Conventions."

The information derived from the author's direct involvement in the SPI process seems therefore to corroborate the impressions from the interviews as well as some of the findings of existing literature. In particular, this hands-on experience showed how the design of the SPI was influenced not only by the COP, but also by the roles of the CST bureau and the secretariat as well as by the structural issues pertaining to the UNCCD. Such a setting makes it challenging for the SPI to act as an 'honest broker' capable of bringing in the broad diversity of perspectives of the drylands communities and other DLDD stakeholders. On the contrary, the tendency to maintain the status quo and to reduce the range of policy options evokes a 'linear model' scenario. In the SPI, this is partly balanced by the relatively unrestricted role enjoyed by the observers.

5.4. The SPI process

Process tracing was conducted in order to find elements to support the evidence gathered from interviews and participant observation. Reconstructing the chains of events in the SPI process was therefore useful to detect mechanisms suggesting the extent to which the SPI followed the 'linear model' trajectory. The analysis was based on the underlying assumption that the COP has been exerting a direct control on the UNCCD process of provision of scientific advice in a way that has been reinforcing the linear model, creating unfavourable conditions for the SPI to be designed and act as an 'honest broker'.

5.4.1. From "The Strategy" to the AGSA

The starting point for the analysis is "The Strategy", which set out Operational objective 3 for the UNCCD, under the primary responsibility of the CST: "to become a global authority on scientific and technical knowledge pertaining to desertification/land degradation and mitigation of the effects of drought" (UNCCD 2007). To fulfil the objective, in Decision 18/COP.9 the COP requested the CST to conduct an assessment of how to organise international, interdisciplinary scientific advice "taking into account the need to ensure transparency and geographical balance", and to "consider options for determining agreed channels for consideration of the advice in the Convention process". In the same decision, the COP also invited country parties, the scientific community and "relevant stakeholders" to

provide input to this assessment process, and asked the CST to submit recommendations to be considered at COP 10 (UNCCD 2009). In light of this decision, the CST recommended that the secretariat, "under the guidance of the CST Bureau, organize a global e-forum to discuss and further identify possible scenarios and assessment criteria", ensuring participation of the regions in the assessment (UNCCD 2011a). On the occasion of COP 10, the CST presented the preliminary results of the e-forum as well as four possible options on how to organise international, interdisciplinary scientific advice: "a) Use of existing scientific networks; b) Establishment of a new scientific network focused on specific topics; c) Use of existing intergovernmental scientific advisory mechanisms; d) Establishment of a new intergovernmental scientific panel on land and soil" (UNCCD 2011b). Since at COP 10 consensus could not be reach on pursuing any of these options, the COP decided to "set up an ad hoc working group, taking into consideration regional balance", tasked to further discuss the options for the provision of scientific advice on DLDD (UNCCD 2012a).

The ad hoc working group set up by Decision 20/COP.10 was named AGSA (acronym for "ad hoc Working Group to further discuss the options for the provision of Scientific Advice focusing on desertification/land degradation and drought issues") and was instrumental in laying the foundation for the SPI. Set up in July 2012, its terms of reference were drawn up by the CST bureau in February 2012 (UNCCD 2013c; UNCCD 2012b). Based on the options proposed at COP 10 and the results of the e-survey (referred to previously as "e-forum"), the AGSA was tasked with an impressive amount of assignments and to report on its work at CST 11 and COP 11 in September 2013. Tasks included defining, designing and developing a proposal for a number of different components that included, among others, "UNCCD core and non-core disciplines/thematic areas", the concept of "non-academic knowledge" ("propose a definition of non-academic knowledge in the context of the UNCCD mandate and how it could contribute to providing scientific advice") and synergies with "existing panel/networks, including those established under other UN Conventions" (UNCCD 2012b). Some of the additional and related tasks were: analysing "the implications of 'international' versus 'intergovernmental' advice (or both) in providing scientific advice to the UNCCD" and the "status of independence of such scientific advice"; identifying "procedures in order to ensure that scientists providing scientific advice to the UNCCD have solid scientific credentials" as well as "procedures to involve non-academic scientists";

developing "a proposal on how to facilitate and ensure the participation from each UNCCD region in providing scientific advice". As if this was not enough, the AGSA was even mandated to outline the cost implications for the provision of scientific advice to the UNCCD, "taking into consideration both the long and the short term", and defining "the responsibilities for ensuring financial sustainability" (ibid). As for the composition, the membership process of the AGSA resembled that of the SPI: the 12 members were selected by the CST bureau with the support of the UNCCD secretariat, "based on applications submitted in response to a public call for experts" and following criteria of disciplinary ("to incorporate biophysical, socio-economic and political expertise, in order to create an interdisciplinary working group") and regional balance (ibid.).

5.4.2. The e-survey

As pointed out above, the AGSA had to conduct its activities taking into account of the results of the e-survey "on how to organize international, interdisciplinary scientific advice", as requested by the CST. This section suggests that some shortcomings in the e-survey (in particular, the design of part of the questionnaire and the questionable interpretation of some of the results) might have had an influence on the work of the AGSA. The e-survey, which was made available in three languages only (English, French and Spanish), was completed by 457 people from 122 different countries (UNCCD 2013b). The data sample was fairly balanced, as a good coverage was reached in terms of both variety of stakeholders and regional representation (ibid.).[15] Since the e-survey covered a wide range of topics, the focus was placed on findings that were relevant to the present study.

For instance, it was relevant to notice that: 80 per cent of respondents regarded the inclusion of stakeholders other than scientists as "absolutely essential" or "rather important";

[15] 30 per cent of the respondents were working in academia or as independent experts; 20 per cent were staff of a civil society organisation (CSO) or non-governmental organisation (NGO) accredited to the UNCCD; 16 per cent were national focal points (NFPs) or government representatives; 13 per cent were science and technology correspondents (STCs); and 8 per cent were staff of a United Nations agency or intergovernmental organisation partner to the UNCCD. 13 per cent chose "other" as their relationship to the UNCCD (the "other" category included among others interested individuals, students, observers). All UNCCD Regional Implementation Annexes were represented in the survey. 27 per cent of respondents were based in Africa; 20 per cent in Latin America and the Caribbean; 18 per cent in Asia; 9 per cent in the Northern Mediterranean; and 4 per cent in Central and Eastern Europe; 15 per cent in non-affected developed countries (parties to the UNCCD but not listed in the UNCCD Annexes); 7 per cent in other affected country parties not listed in the Annexes.

a large majority of respondents indicated that "scientific knowledge" should be defined broadly, to include non-academic knowledge validated through scientific review; traditional knowledge and the socio-economic aspects of DLDD were indicated as some of the most frequently missing topics in intergovernmental scientific processes related to the UNCCD (ibid.).

Other findings of the e-survey were more difficult to interpret, as responses were often conflicting. For instance, while 67 per cent of the respondents suggested that "it was absolutely essential that a scientific advisory mechanism for the UNCCD be independent from political influence", 66 per cent "considered that a new panel should not be independent of the UNCCD". Furthermore, 67 per cent of respondents "considered that a new panel should not be linked to the UNCCD", while nearly 60 per cent "suggested that a new panel should not be under the UNCCD" (ibid.). The reason for this confusion may be due to the fact that participants were asked three different questions on the very same topic. Actually, the breakdown of voting patterns by region and category of stakeholders suggest that some of the questions may have been misunderstood.[16] A role in this might have also been played by the fact that answering "no" was less demanding, since respondents who answered "yes" were subsequently asked to define the concepts of "independent", "linked to the UNCCD" and "under the UNCCD". In spite of such contradictory findings, the report on the e-survey concluded somehow arbitrarily that "there is a need for any new scientific panel to be independent from the political processes of the UNCCD", reporting also that most respondents preferred such a panel to be "independent of the UNCCD" and capable of providing "policy-relevant but not policy-prescriptive advice to the UNCCD". It was also reported that, "despite the clear support for a new advisory mechanism" (i.e. the establishment of a new international panel on land and soil), "the use of existing networks and intergovernmental panels was not clearly rejected" (ibid.).

In the section "key considerations and recommendations", the report reads (ibid.):

[16] For instance, each region as well as the category "CSOs" displayed very similar percentages in answers to the two different questions "Should a new intergovernmental scientific panel on land and soil be: (a) independent of the UNCCD?; (b) linked to the UNCCD?" (UNCCD 2013b).

> "The e-survey clearly suggested that respondents felt strongly that there was a need for those providing scientific advice to the UNCCD to have solid scientific credentials. The AGSA would therefore need to develop clear quality assurance procedures in order to ensure that advisers had excellent scientific credentials, grounded in the latest scientific research and publications."

The report went as far as to propose possible selection criteria for those providing scientific advice to the UNCCD, such as "a strong track record of international peer-reviewed publications", "editorial board membership of a leading international scientific journal", and/or "a track record in obtaining funding for scientific research in the topic area". Furthermore, based on the broad respondents' support for the option that scientific knowledge should include non-academic knowledge validated through scientific review, it was concluded that "it is necessary to develop a process through which non-academic knowledge will be peer reviewed in order to ensure scientific validation" and that criteria for the selection of panel members such as those outlined above "could also be applied in the selection of peer reviewers in order to ensure their scientific excellence" (ibid.). Hence, based on their own interpretation of the concept of "solid scientific credentials", the authors of the report introduced and recommended the requirement of "peer review" for scientific knowledge, something that would have an impact on the work on the AGSA and the design of the SPI.

5.4.3. From the AGSA to the SPI

The AGSA presented its assessment report as well as conclusions and recommendations at COP 11, held in September 2013 in Windhoek (Namibia). Its workload was perceived as heavy and daunting: in fact, it was reported that "the objective analysis of alternative arrangements for the 11 components of an integrated scenario for science-policy communication" was "unprecedented" and that "the huge amount of work involved had to be carried out in a very short period". It also added that AGSA members undertook the work on a voluntary basis, "without payment, and in addition to their regular work", as they were "all totally dedicated to improving UNCCD's access to scientific information, knowledge and advice" (UNCCD 2013c). The core proposal of the AGSA for the integrated scenario was organised around a modular mechanism comprising three core elements:

(a) A Science-Policy Interface (SPI), "where representatives of the policy and science communities, and other stakeholders, would discuss, synthesize and communicate to the UNCCD scientific information and knowledge" as well as "policy-relevant advice on DLDD, and identify the needs of the UNCCD for such inputs".

(b) An Independent Non-Governmental Group of Scientists (IGS), "whose representatives would meet with policymaker representatives in the SPI". The membership of the IGS would be based on "individual credentials" and representativeness of "all disciplines essential for providing comprehensive knowledge on DLDD". This group "would prepare peer-reviewed reports, which would be presented to the SPI to be transmitted by the CST to the COP". "External peer-reviewing of the group's reports would ensure that this advice is independent and authoritative".

(c) Regional Science and Technology Hubs (RSTHs), tasked to "bring together existing scientific networks in each UNCCD region to collate and synthesize regional knowledge on DLDD", and to "communicate this to governments and other bodies in that region and to the SPI and IGS". (UNCCD 2013c)

The AGSA also proposed that the SPI be established by the COP as a "standing body within the legal framework of the UNCCD" and receive its mandate from the UNCCD. It further suggested that the SPI be "co-governed by the CST and the IGS" (operating with the administrative support of the UNCCD), possibly "co-chaired by one representative of the Parties and one representative of the IGS", and that its "mandate, functions, rules, composition, legal status and terms of reference" be "decided by the COP, working through the CST". As for the IGS, the group would have "international non-governmental status" and, "although fully self-governing, it would have links to UNCCD through the SPI and CST".

The AGSA found consensus on the above proposals after having considered "various intergovernmental and non-governmental status arrangements" and concluded that "UNCCD access to scientific knowledge is greatly constrained by the intergovernmental rules under which its expert scientific advisors currently operate" and that "relying on an international non-governmental group would minimize these constraints" (ibid.). The AGSA specified that a group of scientists responsible for communicating knowledge to policy-makers could do so effectively only if "held accountable to the wider scientific community" and that if "the group of scientists is only accountable to the policy process, its advice may not be comprehensive, fully representative of state-of-the-art science or politically neutral" (UNCCD 2013d). Basically, the AGSA imputed the historically limited ability of the UNCCD to access

scientific knowledge to the lack of accountability of UNCCD experts to the scientific community. However, while this served to justify the need for the IGS to be independent ("incorporating an independent IGS with external peer-review procedures" would "ensure that the UNCCD receives credible and unbiased scientific knowledge of the highest quality")[17], the report of the AGSA did not include a thorough and well-grounded explanation for the proposal of ascribing the SPI mandate to the UNCCD. In addition, the proposal made by the AGSA for the SPI status did not seem to reflect the recommendations emanating from the e-survey with regard to the establishment of a new panel.

The AGSA was also asked by the CST bureau to provide a draft document for the Terms of Reference of the SPI. Besides the mentioned provisions on mandate and legal status, the draft Terms of Reference included a proposal on the SPI membership (including: members of the CST bureau; "a selected number of representatives of Parties competent in the field of expertise in DLDD issues, taking into account the regional balance"; members of the IGS; representatives of the RSTHs). Among other things, the draft document provided that the CST bureau "could independently identify and send requests for scientific knowledge to the SPI" and the COP could "mandate the CST or its Bureau to request reports that are needed more urgently and could be produced within their discretionary budgets" (UNCCD 2013c). In sum, in the draft prepared by the AGSA, the SPI had already the features of a body subject to the control of the COP and to the political influence of the parties.

Finally, two more elements can be beneficial in shedding light on the impact of the work of the AGSA on the design of the SPI as well as in shaping the provision of scientific advice within the UNCCD. The first is related to the issue of UNCCD core and non-core disciplines and thematic areas. While the AGSA agreed that "limiting the scope of scientific advice to a small number" of these "could, in principle, lead to a cost-effective integrated scenario", it was "unable to find evidence that a small number of disciplines could provide comprehensive knowledge of DLDD": it therefore suggested that it could be a responsibility of the IGS and RTSHs to "include a larger number of essential disciplines to ensure comprehensive coverage" (ibid.). The second element is the matter of non-academic knowledge. The AGSA defined non-academic knowledge "as knowledge that is either not

[17] UNCCD 2013c.

gained by scientific methods and in compliance with academic institutions or is not available for free exchange among academics" and focussed its assessment "on examining traditional, indigenous and local knowledge".[18] It warned that, since "the knowledge used by United Nations conventions to make decisions has come under increasing public scrutiny - incorporating non-academic knowledge into syntheses of scientific knowledge" would "require care", because "scientific knowledge is normally distinguished from non-scientific knowledge by the rigorous processes of evaluation that it undergoes before being published" and since "research shows that acceptance of scientific knowledge by governments depends as much on their perception of its salience and legitimacy as on its scientific credibility". In light of this, the AGSA recommended that the process of "incorporating the traditional knowledge element of non-academic knowledge into knowledge that is synthesized, evaluated and reported in the integrated scenario" be separated "from documenting traditional knowledge and using it to enhance action on DLDD". Therefore, it proposed that the responsibility for "actively searching for, and documenting, traditional knowledge" remain in the remit of country parties and that the development of methods to integrate traditional knowledge with scientific knowledge be promoted by the IGS, along with the regional scientific support of the RSTHs (UNCCD 2013d). As it can be observed, in both the cases of 'core and non-core disciplines' and 'non-academic knowledge' the AGSA did not envisage a role for the SPI.

5.4.4. Signs of 'linear model'

The information reported above suggests that there are a number of 'straw-in-the-wind-tests' (the first of the four levels of analysis often adopted to seek evidence in process tracing, in accordance with the original formulation proposed by Van Evera 1997) in favour of the underlying assumption made at the beginning of this section, namely that the COP has been exerting a direct control on the UNCCD process of provision of scientific advice in a way that has been reinforcing the linear model: for instance, there was no role envisioned for the SPI in the domains of core disciplines/thematic areas and non-academic/traditional knowledge; in addition, the criterion of peer-review as a proof of "scientific excellence"

[18] According to the AGSA these three differ from academic knowledge "in taking a 'know-how', rather than a 'know-why' approach; being relatively closed, instead of open; and being context-dependent instead of decontextualized and universally transferable" (UNCCD 2013d).

(introduced by the e-survey and taken up by the AGSA) went in the direction of ruling out knowledge that is not validated scientifically, therefore restricting the scope of 'usable' knowledge and de facto fostering the academic standards of developed countries (which are often wary of changes in the status quo of the UNCCD).

One of the SPI members who were interviewed for this study, who was also a member of the AGSA, revealed that the ad hoc group initially looked at existing panels and platforms such as the IPCC to understand how they functioned. After concluding that the IPCC model was unsuitable to iron out conflicting views and misunderstandings between different stakeholders, the AGSA opted for a more "flexible approach" of providing scientific information, one that could consider the fact "that society is evolving" and take into account the "multi-governance issues which are arising" within the land community. Therefore, it was to capture such new and multi-stakeholder societal needs, and "to enable a better and more efficient way of science entering the policy arena", that the AGSA proposed the three-fold modular mechanism made of the SPI, the IGS and the RSTHs. Therefore, at first glance, one may interpret the design chosen by the AGSA as a 'hoop test' towards a multi-stakeholder perspective enabling the UNCCD science-policy mechanism to act as an 'honest broker'. However, as clarified in the interviews and displayed in Decision 23/COP.11, there is an important 'causal-process observation': the COP finally took up only the first element of the modular mechanism, that is the SPI. This, combined with the facts that the AGSA conceived the SPI as mandated by the COP and that the AGSA itself was established and mandated by the COP, represent a 'hoop test' for the underlying assumption. Support for the latter is further reinforced by the information obtained during the interview with one of the SPI members, which constitutes a 'smoking-gun test': as it was delineated previously, Decision 19/COP.12 is a double-edged sword that could actually subject the SPI under the close and constant scrutiny of the COP, while the underlying unresolved misunderstanding 'drylands versus the whole world' could threaten the very future of the SPI.

As emphasised in the interviews, the Scientific Conceptual Framework on Land Degradation Neutrality was not only considered a paramount achievement of the SPI, but also an example of a piece of work integrating state-of-the-art scientific knowledge with broader governance considerations and stakeholders' concerns. This is also well reflected in the text

of the framework, which includes recommendations for "multi-stakeholder engagement" and "stakeholder consultation" as well as explicit mentions to "vulnerable communities", "human rights", "land tenure rights" and the VGGT (UNCCD SPI 2017). Even though this might be considered as a 'straw-in-the-wind test' against the underlying assumption, it is weakened by the overall impression gathered during the interview with the observer, who lamented the underrepresentation of the social sciences in the SPI. Conversely, further elements go in the direction of supporting the underlying assumption. In fact, having to promptly respond to specific requests of the COP, the SPI showed a tendency to provide policy-prescriptive rather than policy-relevant inputs. This aspect, which could also be captured in the interviews, is clearly exhibited in two policy briefs developed by the SPI, "Pivotal Soil Carbon" and "Land in Balance": both of them include two sections called respectively "What can policy makers do right now?" and "What can policy makers do now?" aimed at providing specific recommendations (UNCCD SPI 2015; UNCCD SPI 2016). As shown previously, tendencies to restrict the range of policy options and/or advocate a particular policy scenario are characteristic of the 'linear model'.

Finally, slight evidence supporting the underlying assumption is also found in some parts of the assessment of the SPI commissioned by the UNCCD Evaluation Office and conducted by three external reviewers between January and May 2017. Since, with Decision 23/COP.12, the COP decided that SPI would be reviewed at COP 13 and CST 13, the assessment report was "intended to assist parties to the UNCCD in their considerations and decisions on the future functioning of the SPI". The assessment concluded that, overall, "the SPI has made a promising start and should be continued after this 'trial' period" (UNCCD 2017). In the assessment, based on both quantitative and qualitative methods, the authors reported some aspects that were also identified throughout the present study: for instance, the fact that workload of the platform is not equally distributed among SPI members, the "agility" of the platform due to its small size, the limited predictability and transparency about available financial resources, the insufficient number of physical meetings. Conceding that "the overall impact of SPI work upon the decision making process and the COP decisions" was "difficult to assess", the assessment revealed that there is a considerable amount of CSOs reckoning that matters raised by them are not duly taken into account in the SPI work. Furthermore, the authors suggested that the CST bureau refine the Terms of Reference of the

SPI to better specify the membership criteria as well as the process of membership renewal and that observers be used "more efficiently": especially, they emphasised that "CSOs contribute actively to recognizing demands from land users and managers" and that "the value of their knowledge could be strengthened by adding one or two more 'observer' seats to the SPI" (ibid.).

This analysis implies that the COP has actually been having a direct control on the process of provision of scientific advice to the UNCCD and that this had an impact on the design of the SPI too. Against this background, the UNCCD appears to lean much more towards the 'linear model' than to a 'stakeholder model' arrangement apt to create favourable conditions for the SPI to act as an 'honest broker'. The fact that COP has a firm command of these processes, including the SPI, constitutes in itself a 'smoking-gun test' for the overarching hypothesis that the SPI follows the linear model, providing an answer to the main research question.

6. THE UNCCD SPI AND OTHER SCIENCE-POLICY PLATFORMS: A COMPARATIVE PERSPECTIVE

6.1. Introduction

This chapter aims to draw a comparison between the SPI and similar science-policy platforms existing or emerging in the global environmental governance arena. In particular, it will address the accessory research question "how does the UNCCD SPI differ from other global environmental governance science-policy processes such as the IPCC, IPBES and ITPS?". The analysis, which was mostly informed by existing literature and the interviews conducted as part of this study, focussed on differences and similarities not so much in the organisational structure and arrangements of the platforms, but rather in their role, and perceived status as well as the extent to which they showed adherence to the 'linear model'.

Natural and social scientists serving on science-policy platforms or panels such as the IPCC, the IPBES or the UNCCD SPI constitute groups of selected people or 'experts' operating in the context of international policy and international organisation. Such groups are not much different from what Haas defined as 'epistemic communities': networks "of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue-area" (1992, 3). A definition of science-policy platform was provided by Koetz, Farrell and Bridgewater (2011, 2), as "institutional arrangements that reflect cognitive models and provide normative structures, rights, rules and procedures that define and enable the social practice of linking scientific and policy-making processes". They further specified that such mechanisms assign "roles to scientists, policy-makers, other relevant stakeholders and knowledge holders" and help "guide their interactions according to specific principles and purposes". Similarly, Van den Hove (2007, 814-15) referred to science-policy interfaces as "social processes" that "encompass relations between scientists and other actors in the policy process" and that "allow for exchanges, co-evolution, and joint construction of knowledge with the aim of enriching decision-making". However, contrary to the purpose of the present study, these authors offer normative frameworks for analysing science-policy platforms, providing recommendations and listing particular requirements. In particular, Van den Hove went as far

as to propose detailed requirements on topics that include, among others, the incorporation of non-scientific knowledge (ibid., 818), the role of the social sciences (ibid., 822) or the issue of non-neutrality of scientists (ibid., 822-823).

As claimed by Beck et al. (2014, 80), the growth of a "novel group of global expert organizations" has been driven by a "growing demand for policy-relevant knowledge". The "defining characteristic" of these organisations is that they are tasked with "reviewing and assessing the most recent scientific information produced worldwide that is relevant to an understanding of environmental change in relation to policy-relevant problems". On a more critical note, Turnhout, Dewulf and Hulme (2016, 65-69) maintained that "this impetus for global knowledge assessments is telling of the largely technocratic and science-based character of environmental decision-making" and that such global assessments (which are "symptomatic of a wider globalizing instinct in environmental knowledge and governance"), produce "globalized knowledge" that offers "de-contextualized, top-down views of the planet". The authors focussed on the 'power structures' of global environmental governance and pointed at the supposedly 'technocratic' and 'modernist' approach of platforms such as the IPCC and the IPBES: their "global kinds of knowledge about climate and biodiversity" serve "particular expressions of power that use categorization, commensuration and quantitative knowledge to constitute what in effect become truth regimes just as much as governance regimes" (ibid., 69). In this scenario, "knowledge practices are tied to political rationalities that make the application of power seem both natural and inevitable": it would then become hard to defend the claim that such global assessments are 'policy relevant' and 'policy neutral' at the same time: "in some sense, being policy relevant is to be policy prescriptive" (ibid. 69-70).

6.2. The UNCCD SPI

As the main focus of this thesis, the UNCCD SPI has been analysed in details in the previous chapter. In particular, it was shown that the SPI could hardly act as an 'honest broker' due to the institutional setting of the UNCCD and the circumstances under which it came to exist. An article co-authored by some SPI members reported that when the COP established the SPI, it also "encouraged" the formation of the IGS and the RSTHs, but "it

could not go further than this, because if the IGS is to be independent, only scientists can establish it", and because the RSTHs "must be founded by scientists and governments in each region" (Akhtar-Schuster et al. 2016a, 130). The authors also recognised that there are two obstacles which "could affect early establishment of the IGS": the fact that scientists, despite being "generally happy to serve as experts on UN advisory panels", have shown less willingness than NGOs "to operate autonomously in the international arena"; the initial financial risk involved in the establishment of the IGS "prior to the award of contracts from the UNCCD" (ibid.). Despite some optimism emanating from the article, this scenario shows that there is no guarantee (and that one may even cast doubts on the fact) that the initial plan proposed by the AGSA will be actually accomplished, especially as far as the IGS is concerned.

On a comparative perspective, besides considerations of size and financial resources, one of the supposed differences between the SPI and other established processes such as the IPCC and the IPBES is that the former is less well known and influential. For this reason, one of the questions asked during the interviews was about what could be done to enhance the relevance of the SPI as global process, in order to elevate its authority in the domain of DLDD. While interviewees generally agreed the SPI is not very well known because it is relatively new, one of the SPI members pointed out that at the political level "we are already quite visible within just a short time, also based on the rearrangement of the way we can work". All interviewees agreed that the best way to increase this visibility as well as credibility is to produce "good outputs", on both science and policy directions: this could include "strong publications" and scientific papers aimed to each the scientific community ("that could help establish the SPI in the scientific community as an authority"), but also policy briefs and technical reports that are "more targeted towards decision-makers type of audience" (i.e. with a simplified language). As an example, a staff member of the UNCCD secretariat mentioned the LDN process, in which the SPI produced not only a technical report (the "Scientific Conceptual Framework on LDN"), but also a science-policy brief and a scientific paper published in a journal: the latter would invite "the scientific community to look into LDN and to come up with additional ideas", for instance with papers dealing more "with socio-economic aspects and topics such as land governance", and in general those "aspects that were not fully developed by the SPI itself". This two-way stream approach was

echoed by one of the SPI members, who stated that what "lends to scientific publication coming out of the SPI should be published in peer-reviewed journals" to reach the scientific community. The member added that, at the same time, "that world needs to recognize that the SPI is not producing new science", and precisely because it is "pulling together a lot of science, this kind of review articles or policy-science articles need to be embraced because that gives some legitimacy". The interviewee also clarified that the idea is to encourage the scientific community to build a "healthy debate", instead of the "unhealthy" one that occurred on the definition of desertification, resulting in "publications all over the place, new definitions every week, no integration, and no effort to do that".

Another aspect raised by two interviewees was the need for the SPI to become more visible in large scientific events and international conferences. This would give the SPI the opportunity to present its work and to interact with external experts, in order to "hear their views and consider these in the SPI work on a special issue". For example, while the SPI already took part in events such as the 'Global Soil Week' in Berlin and the EGU General Assembly in Vienna, the plan would be to enhance its participation in initiatives taking place outside of Europe too, as well as and in events not necessarily related to the UNCCD with a view to bringing land degradation and drought issues to the attention of other scientific communities. The issue of outreach was also touched upon by another interviewee, who said that the SPI members "should better harness their institutional and personal networks" by disseminating "what the SPI is and what is doing" and attracting other scientists: this could be also a way to improve the credibility of the UNCCD among the scientific community, since "past approaches did not take so much into consideration the scientific work".

Meaningful insights on the perception of the SPI influence and authority are also displayed in the assessment report of the platform commissioned by UNCCD Evaluation Office. In terms of overall achievements, the report reflected the same impressions gathered from the interviews, indicating the Scientific Conceptual Framework on LDN as "the most significant SPI work". The assessment report further revealed that a large majority of UNCCD stakeholders "considered that the SPI work has improved their awareness of the topics that it has covered and/or related scientific aspects", with some respondents even indicating that "the SPI is well known and its products are appreciated". However, many also

considered that the "overall impact of the SPI products is still low beyond those familiar with the UNCCD process and secretariat's activities", with the "larger scientific community" only "modestly involved through the process of external reviewing of SPI technical reports" (UNCCD 2017). Similarly to what interviewees said in the framework of the present research, the assessment report suggested that "the SPI members should contribute through their own work to a better recognition of the SPI" to make it a "known reference point on DLDD scientific issues" and that they would even benefit and have incentives from linking SPI with their own scientific work (ibid.).

Among various topics, the assessment report also mentioned the issue of scientific cooperation between the SPI and other science-policy platforms, disclosing that links had different degree of success as of early 2017: "for the IPBES, the success rate is perceived as low, for ITPS it is fair and for IPCC good" (ibid.). This relates directly to an open question posed during the interviews for this study, in which interviewees were asked to elaborate on the differences between the SPI and the science-policy bodies with which it is explicitly mandated to liaise (IPCC, IPBES and ITPS). One of the UNCCD secretariat's representatives stressed that the SPI is a "small group and as such there is a limit to the scope of what they can do", so that making a comparison with the IPCC ("a big group of scientists", a "purely scientific technical body" and a "well-established process") would be hardly feasible. The interviewee defined the IPCC as a 'success story' (it "has attraction", it is "influential" and "scientists want to be part of it"), but observed that it is "difficult to mobilize something of that size". The fact that it is taking up some of the UNCCD focus areas (with a special report on desertification, land degradation, sustainable land management) should therefore be seen as a good sign: the UNCCD does not "necessarily need an IPCC-like body, but it's good if the SPI can, through the IPCC, commission some of the work that is needed". The interviewee acknowledged differences with the more recent IPBES and the ITPS too, specifying that the intergovernmental and quite complex nature of the former is likely to make it a difficult actor to interact with. According to the UNCCD staff member, the SPI could be more easily compared with the Scientific and Technical Advisory Panel (STAP) of the Global Environment Facility (GEF), a "small" and "efficient" body, with a limited number of panel members, each of them tasked with mobilising the scientific community on a specific focus area. Unlike bigger science-policy platforms, the SPI would simply "need to mobilize the

scientific community in the DLDD sector" (and possibly beyond), "so that the actual scientific work can be done outside the small group": to avoid duplication of efforts, establishing collaboration with different science-policy platforms would be part of this work.[19] With this regard, one of the SPI members commented that the small size of the SPI gives it a limited capacity to interact with other processes, and that the backlog of work might have been hindering cooperation initiatives during the first biennium of operation. The other SPI member underscored that a key difference between the SPI and bodies such the IPCC and IPBES can be found in the "unbelievable flexibility" that the former can enjoy while carrying out its work. Such flexibility allows the SPI to complete its work programme in a much shorter time (the two years assigned to it by the COP) than its larger counterparts, which are also bound to a "very strict nomination process". The observer viewed the situation from a very different angle and focussed on the fact that the SPI gets its mandate directly from the UNCCD, while the IPCC and IPBES have "a much more autonomous way of setting their own agenda", since they are "less linked with the UNFCCC and CBD". For the interviewee, this condition "has two sides": on the one hand, "it is good that the UNCCD and the COP can ask the SPI for advice on certain issues"; on the other hand, "this also limits the agenda-setting or the policy recommendations that the SPI can give", because it is confined "within the boundaries of the UNCCD and the UNCCD COP". The observer believed that the SPI would benefit if it had less constraints from the COP: "if the SPI had a freer mandate, we could also look into the blind spots of the UNCCD and take more initiatives upon those".

This understanding was complemented by some comments made by the other interviewee working for the UNCCD secretariat, who reiterated that the key question in the UNCCD remains "political" and that, in light of this, problems of scientific uncertainty (characterising, for instance, the climate change debate) are not that fundamental in the Convention. In fact, while "inefficiencies are not only in the CST, but also in other scientific subsidiary bodies" such as the UNFCCC SBSTA and the CBD SBSTTA, the UNCCD actually has "more science inside" compared to the other Rio Conventions.

[19] The interviewee also cited the International Resource Panel (IRP) of the United Nations Environment Programme (UNEP) as an example of platform with which the SPI is interested in collaborating.

6.3. The IPCC

While the UNCCD SPI, IPBES and ITPS were recently established, the Intergovernmental Panel on Climate Change (IPCC) was created as early as 1988. It is therefore not only independent from the UNFCCC, but also antecedent to the Rio Conventions. Compared to the SPI, the IPCC has a complex governance structure including a Plenary, a Bureau and Executive Committee, Working Groups, Technical Support Units as well as an ad hoc secretariat hosted by the World Meteorological Organization (WMO). Hundreds of experts and authors are "involved on a voluntary basis in the preparation of IPCC reports", in groups that aim to reflect "a range of scientific, technical and socio-economic views and expertise"; geographical representation; "a mixture of experts with and without previous experience in IPCC"; gender balance; developed/developing country balance (IPCC 2017b). 'Review Editors' and thousands of scientists acting as 'Expert Reviewers' contribute to support the whole process. In sum, the IPCC website describes the platform as "a huge and yet very small organization" (ibid.).

Undeniably, the conferment of the Nobel Peace Prize on the IPCC in 2007 contributed to the prestige and recognition of the platform. As Beck et al. (2014, 80) put it:

> "The panel is recognized as a pioneer in providing policy-relevant science to global policy. It has conducted the most comprehensive orchestration of scientific knowledge to date and has managed to include experts from around the world in policy advice activities. In doing so it has spoken on behalf of global science with *one voice*, thereby acquiring a reputation as the epistemic authority in matters of climate policy".

In fact, "nearly all commentators and critics agree" that the IPCC "had a significant influence on climate change knowledge, on public discourse about climate change and on climate policy development", and extensive research was conducted on the way the platform has been exerting its influence (Hulme and Mahoney 2010, 712-13). However, praise of the IPCC was also balanced by significant criticism. A recurrent critique pertains to the traditional marginalisation of the social sciences (with the exception of economics) in favour of the natural sciences (Shackley and Skodvin 1995; Malone and Rayner 2001; Yearley 2009; Hulme and Mahoney, 2010; Bjurström and Polk 2011). Furthermore, criticism was levelled at

the IPCC with regard to the issue of participation of developing country experts: since "the proportion of IPCC authors and reviewers from OECD versus non-OECD" did not change significantly over the years, many developing countries became increasingly wary of the panel's assessments (Hulme and Mahoney 2010, 708-09). In parallel to this, the debate on the inclusion of 'grey literature' and non-peer-reviewed literature has always been thorny within the IPCC, as overly resorting to non-published sources might compromise the panel's consolidated "scientific authority" (Skodvin 2000, 414; Hulme and Mahoney 2010, 709). In fact, a peculiarity of the IPCC is the stress it places on the need to provide unbiased knowledge grounded on science. As its website reads, "The work of the organization is therefore policy-relevant and yet policy-neutral, never policy-prescriptive" (IPCC 2017a). Yet, such an explicit aspiration to bring about neutral "scientific consensus" on climate change has often taken the form of a process of 'truth creation', resulting in a marginalisation of dissenting voices (Hulme and Mahoney 2010, 710-11). Allegedly, the exclusion of alternative forms of expertise (including "more localized and informal forms of knowledge") was actually caused by "the IPCC's emphasis on peer reviewed research to underpin its univocal, consensus-based statements" (Beck et al. 2014, 83). With this respect, Turnhout, Dewulf and Hulme (2016, 66-67) talked about a process of "IPCC's appropriation of global knowledge" and of "a globalizing instinct" exemplified in the "reification of global temperature", an "indexed quantity" that became "central to the language of the climate change", excluding "other views of science" and "non-scientific knowledge systems". As suggested by Beck et al. (2014, 82), the framing of climate change by the IPCC "as a universal global risk" may be based on the debatable assumption that more consensus and support for decision-making would necessarily lead to "public trust and political action". Turnhout, Dewulf and Hulme, who openly challenged the notion of 'scientific neutrality' purported by the IPCC, also remarked that the platform's knowledge basis is unsuited to meet "the shifting politics of climate" and "proven stubbornly deficient" to address the needs of adaptation (2016, 68).

Much of the criticism of the IPCC outlined above might have also served as a basis for scholars who 'accused' the platform of following the 'linear model'. Beck (2011, 297-98) argued that the "major flaws in the design of the IPCC" are "rooted in the linear model of expertise", in which "the interaction between science and politics is conceived of as

unidimensional, linear, and one-way" and which "constrains the scientific and political debate about adaptation and leads to proxy debates about scientific evidence", with the result of "depoliticizing the politics of adaptation and politicizing science". Ostensibly, the IPCC's claim to be 'policy-neutral' derives from the 'linear model' principle by which science is autonomous from politics: "Propelled by its belief in the neutrality of science, the IPCC avoids addressing value-based decisions and openly advocating or rejecting a particular policy option" (ibid., 299). This would exempt the IPCC from accounting for sensitive questions such as "the concrete economic, social, and political implications of scientific findings" (ibid., 302). Beck traced in the IPCC many typical 'symptoms' of the 'linear model': the reliance on science as a tool to provide further "certainty about the 'reality' and consequences of climate change", based on the idea that accumulating scientific evidence could overwhelm ideological opposition; the consequent proxy debates characterised by the politicisation of the scientific debate and the depoliticisation of politics; the strategy of 'cherry-picking' scientific uncertainties in order to support or delay policy action; the practice of addressing value-laden and politically relevant matters in an abstract and technocratic way; the tendency to stifle discussion on alternative policy options (ibid., 302-03). Moreover, it appears that the linear model approach of the IPCC and its tendency to narrow the scope and definitions of the climate change discourse contributed to cause an implicit bias against adaptation policies and discussions, too (Beck 2011, 301; Beck et al. 2014, 81).

Following Pielke (2007), the 'linear model' can engender outcomes that are not consistent with its professed ideal of a strict separation between science and policy: in fact, these two often end up mixing with each other into proxy debates. It should be then unsurprising to observe that, for instance, the IPCC is also criticised "for political bias introduced by governments when finalizing its Summaries for Policymakers" (Akhtar-Schuster et al. 2016a, 130; Wible et al. 2014) and that "the autonomy of scientific experts is balanced against the political applicability of the reports", with governments retaining a key role in nominating authors tasked to work on the reports (Sundqvist et al. 2015, 10-11). As underscored by Pielke (2007, 150) it is ironic that the IPCC, despite its self-proclaimed neutrality, displays an "institutional organization, selection of participants, and even scientific foci" that reflect a "non-neutral policy orientation" and make it "in fact very political". This is certainly one of the various reasons why Pielke came to the conclusion that the IPCC "has

failed in its role as an 'honest broker' and has moved towards being an 'issue advocate'…or even on some occasions a 'stealth issue advocate'" (Hulme and Mahoney 2010, 713; cf. Pielke 2007). Perhaps with a view to responding to criticism, the "Chairman's Vision Paper" presented during the Scoping Meeting for the IPCC Fifth Assessment Report (AR5) in 2009 contained an interesting declaration of intent (IPCC 2009):

> "In the future, the IPCC should assess and communicate risks in such a way that civil society, policymakers, and business can discuss practicable and consistent alternatives and include them in the collective decision-making process. Hence, the IPCC needs to strengthen its position of an "honest broker" that presents policy-relevant alternatives without prescribing decisions for politics, civil society, and business."

Commenting on this, Beck (2011, 304) affirmed that "playing the role of an honest broker would be a very useful step forward for the IPCC" and asked herself if the IPCC is "indeed willing to move beyond the linear model of expertise to accept uncertainties and political differences and not expect them to be resolved by science".

6.4. The IPBES

The Intergovernmental Platform for Biodiversity and Ecosystem Services (IPBES) is "an independent intergovernmental body, established by member States in 2012", with the mission of strengthening "knowledge foundations for better policy through science, for the conservation and sustainable use of biodiversity, long-term human well-being and sustainable development" (IPBES 2017). The IPBES, which provides decision-makers with scientific assessments about the state of knowledge on global biodiversity and ecosystems, claims to do "for biodiversity what the IPCC does for climate change" (ibid.). The complex organisational structure of the IPBES includes a Plenary (the governing body, composed of representatives of member states), observers (composed of states that are not member of the platform, the CBD and other conventions related to biodiversity, UN bodies and other relevant organisations including NGOs and CSOs), a Bureau (led by the IPBES and tasked to oversee the administrative functioning of the platform), a Multidisciplinary Expert Panel (comprising experts from the five UN regions and in charge of overseeing the IPBES scientific and technical functions), stakeholders ("all contributors to and end-users of the IPBES outputs"),

expert groups and taskforces ("selected scientists and knowledge holders" that carry out IPBES assessments) and a secretariat based in Bonn, Germany (ibid.).

Notwithstanding its recent establishment, the IPBES has rapidly attracted the attention of the academic community. While some scholarly contributions have studied the platform from a rather normative perspective, focussing on how to improve it with regard to aspects such as "credibility", "legitimacy" and "efficiency" (e.g. Vohland et al. 2011; Turnhout et al. 2012; Koetz, Farrell and Bridgewater 2011), others offered more descriptive and/or critical accounts of the IPBES process. It was claimed that the IPBES sought to "build on previous experience" to design a new type of science–policy interface, displaying a fair balance between developed and developing countries and a broader knowledge-base, ranging from the natural sciences to traditional and indigenous knowledge (Borie and Hulme 2015, 487). According to Akhtar-Schuster et al. (2016a, 130), while the IPBES "shares many features of the IPCC", its design is consistent with the 'multiscalarity' principle of the UNCCD AGSA, which allows "non-governmental stakeholders to participate in nominating the experts who produce its reports" and recognises "the value of non-academic knowledge". In fact, "instead of simply implementing the IPCC design and procedures, the IPBES negotiations explored different options concerning the governance structure of the platform" in a "relatively transparent and open" and "inclusive" manner, involving a "broad range of stakeholders" and favouring a "multidisciplinary expert approach from the beginning" (Beck et al. 2014, 83). The IPBES, which spent "a lot of time and effort aligning itself with a complex governance structure that includes several global agreements", accords "greater value to regional and local scales" compared to the IPCC, as reflected in the scale of assessment, in the inclusion of local and indigenous knowledge as well as in an approach that does not take "scientific, peer-reviewed knowledge as the gold standard" (ibid., 83-84). As concrete examples of this, Beck et al. mentioned the establishment of a task force "for strengthening the quality of indigenous peoples' participation in the platform's deliverables" and the IPBES's recognition that "an exclusive focus on economic valuation is not an adequate response to the complexity of biodiversity loss" (ibid., 84).

Yet, the debates on the conception of the IPBES conceptual framework showed that the interface is perceived in many different ways by its multiple actors, who attach to it

different meanings and concerns: while an example of this are the "competing interpretations of ecosystem services", disagreements actually seem to include much broader issues such as "the nature of science and its cultural authority" or the control of "imaginaries of global planetary futures" (Borie and Hulme 2015, 495). As Turnhout, Dewulf and Hulme (2016, 69) emblematically described,

> "The IPBES conceptual framework has been heralded as a 'Rosetta Stone' representing and translating between different knowledge systems, in order to ensure that knowledge is relevant for multiple audiences. More than a simple translation device, however, this framework is a boundary object resulting from a process in which experts forged a hard-won compromise amidst controversy about science, local and indigenous knowledge, ecosystem services and the commodification of nature".

Therefore, the process leading to the adoption of the framework was characterised by efforts "to be inclusive of a broad range of actors and to consider different perspectives on biodiversity" (Borie and Hulme 2015, 495). With this particular regard, it was noted how the role of individual actors can be instrumental in achieving concrete results in terms of consensus. This was observed by Arpin et al. (2016), who studied the "institutional entrepreneur" role played by the Chairman during the conferences which led to the creation of IPBES: drawing on "techniques of inclusiveness", Bob Watson was able to handle "divides and tensions among the various participants" and "contributed significantly to the successful conclusion of a long-lasting institutionalization process". According to the authors, the Chairman's bargaining role was particularly important during the discussions regarding the inclusion of forms of non-scientific knowledge, which was met with strong resistance by some scientists and participants (mainly from the North) advocating reliance on peer-reviewed sources only.

In addition to the controversy on the forms of knowledge to be adopted in the platform, another (but related) heated matter of debate was about whether biodiversity should be framed "through the utilitarian notion of 'ecosystem services'" or "through the holistic notion of 'Mother Earth'" (Borie and Hulme 2015, 495). As far as this aspect is concerned, Turnhout, Dewulf and Hulme (2016, 67) claimed that, since the IPBES advocates the need for aggregating biodiversity knowledge, "the lack of standardized data, clear definitions and common methods for biodiversity assessment is considered an important obstacle for

biodiversity governance and conservation". In their critique of the standardisation of global environmental knowledge, the authors maintained that the concept of ecosystem "offers a common language through which to express biodiversity and it allows for global aggregation into one number" and that by "foregrounding the economic value of biodiversity, IPBES frames the relation between humans and nature as an economic exchange relation" (ibid., 68). Proposing the term 'measurementality', Turnhout, Neves and de Lijster (2014, 593) argued that the IPBES and the biodiversity governance debate are dominated by the neoliberal paradigm, where interconnected "technocratic, economic, and managerial discourses" serve to promote "an economic perspective on biodiversity as ecosystem services" and to "celebrate the principles of effectiveness, efficiency, and transparency". This would offer a convenient way to "include biodiversity concerns into mainstream economic activities in a way that appeals to the primary target audience of IPBES' knowledge: nation states": similarly to what happens in the IPCC, "consensus-based knowledge expressed in the language of ecosystem services is assumed to facilitate consensus in intergovernmental negotiations" (Turnhout, Dewulf and Hulme 2016, 68). However, Turnhout, Dewulf and Hulme acknowledged that, in comparison with the IPCC, the IPBES is "not as not as strongly institutionalized as a truth regime", as the concept of ecosystems services still "allows for different scientific and non-scientific articulations at multiple scales" (ibid. 69-70). In fact, "some IPBES's built-in institutional mechanisms" and its broader mandate (the IPBES does not only produce global assessments, but also aims to contribute to capacity-building) may actually prevent "complete standardization and global aggregation of biodiversity knowledge at the expense of local and indigenous knowledge" (ibid., 70).

Even though the language used in IPBES documents (displaying terms such as 'inclusiveness', 'transparency', 'legitimacy', and 'credibility') and its call for broad participation of knowledge holders and stakeholders "raised expectations that a new, open discourse on biodiversity and the benefits that humans derive from ecosystems might be achieved", it soon became clear that many governments wanted to emphasise the 'intergovernmental' nature of the platform in order to retain direct control of the IPBES process (Hotes and Opgenoorth 2014, 277). As a result, governments control and oversee the selection processes of individuals serving on the different platform bodies and of experts tasked with the preparation of assessment reports and deliverables: in the latter case, "a

minimum of 80% must come from government nominations, whereas only the remaining 20% can be filled with experts proposed by other 'relevant stakeholders'" (ibid.). In addition to this, there are a number of tensions and imbalances potentially affecting the IPBES. It was observed that the platform is prone to "geopolitical disputes between countries and political tensions within countries" as well as to the influence of scientific and conservation organisations dominated by the North: as reported by Hotes and Opgenoorth, although "basic rules on gender and disciplinary balance" in the selection of experts are not a matter of controversy, a poll on regional and disciplinary backgrounds of the individuals taking part in the 'Stakeholder Days' preceding the IPBES-2 meeting showed a majority of participants originating from Western Europe, a dominance of natural scientists over social scientists and an exiguous representation of indigenous groups (ibid., 277-278).

As emphasised by Beck et al. (2014, 84), allowing stakeholders to move beyond the observer role normally assigned to NGOs and CSOs within UN intergovernmental processes would entail an expansion of their rights and legal status, something staunchly resisted by governments participating in the IPBES, which want to safeguard their influence and control on the platform. According to Beck et al., this restricts "the diversity of voices" and reduces "the range of options open to negotiation", leading to "consensus-based knowledge assessment procedures" that "constrain the room for maneuver and limit innovation" (ibid.). Such a setting seems to evoke elements of the linear model. To a large extent, this is in line with the conclusions drawn by Koetz, Farrell and Bridgewater (2011, 16-18), who claimed that: even though the IPBES considered elements "of a more collaborative model", in many ways the design of the platform "still reflects the modus operandi of the IPCC"; even if the "IPBES could indeed constitute an important step towards adoption of collaborative model-based approach to SPI institutional design", the "general institutional structures proposed for the IPBES" include "remnants of linear model-based thinking"; despite rhetoric based "on a collaborative model approach", the rules adopted to regulate institutions such as the IPBES "are still largely informed by thinking more in keeping with the linear approach"; the IPBES's emphasis on capacity building is primarily aimed at "training people from the global South in the methods of Northern science", something "consistent with a linear approach, adhering to the presumption that authority to speak must be derived either from political designation or scientific objectivity".

6.5. The ITPS

Contrary to the IPCC and IPBES, the Intergovernmental Technical Panel on Soils (ITPS) is not particularly well known and has not received significant attention from the academic community yet. In fact, similarly to the UNCCD SPI, the ITPS is a very recently established platform, since it was created at the first Plenary Assembly of the Global Soil Partnership held at FAO Headquarters in June 2013 (FAO 2017). According to the information provided on the FAO website, it is composed of "27 top soil experts representing all the regions of the world composed" and "will advocate for addressing sustainable soil management in the different sustainable development agendas" (ibid.). The experts are nominated by the FAO and the platform is tasked to provide scientific and technical advice on soil issues to the Global Soil Partnership as well as other global or regional institutions that submit specific requests (Montanarella et al. 2015, 1267). The Global Soil Partnership (GSP), an initiative launched in 2011 by the FAO and the European Commission, "brings together governments, regional organizations and other stakeholders at various levels and intends to implement a voluntary system of global governance" with the ultimate goal of supporting and facilitating "joint efforts towards sustainable management of soil resources for food security" (Boer, Ginzky and Heuser 2017, 56). The GSP, which encompasses all dimensions of soil (including soil biodiversity, soil fertility and soil carbon), is based on five 'pillars of action': sustainable management of soil; investment, policy, and awareness in soil; targeted soil research; more and better soil data; harmonization of methods (Wolff and Kaphengst 2017, 133).

The ITPS, therefore, is an advisory body solely composed of soil scientists and institutionally bound to the intergovernmental processes of the FAO and the GSP. It can be thus argued that, at least at a first glance, it does not display the same science-policy bridging ambitions of the UNCCD SPI. However, there are indications that the platform has been rather active and productive during its short time of operation: as reported by Wolff and Kaphengst (ibid.), the ITPS "has contributed to generating some international movement by revising the World Soil Charter (2013) and collating the first 'Status of the World's Soil Resources' report", and it has recently started to develop the 'Voluntary Guidelines for

Sustainable Soil Management' aimed to "technically operationalize the Soil Charter". A power point presentation prepared by the ITPS Chair and uploaded on the FAO website includes some information about the first years of operation of the platform. In particular, the document presents a number of "conclusions and final recommendations" such as: the need to extent the duration of the mandate from 2 to 3 years; the "crucial importance" of ensuring "independence and scientific excellence" of the platform; the fact that regional balance is "good" but that "adequate gender balance" is "still lacking"; the need for the ITPS to be more closely involved in the implementation process of the five GSP pillars of action; the need to develop "closer collaboration with the climate change scientific community (IPCC)" (FAO ITPS 2015).

Even though, in the absence of in-depth analysis, there were no sufficient available elements to thoroughly discuss the ITPS's adherence (or non-adherence) to the linear model, it was worth focussing on the relation between the ITPS and the UNCCD SPI. As reported in a document presented at UNCCD COP 12, the rationale for collaboration between the SPI and the ITPS is "based on the recognition that the subject matters" of the two bodies (land and soil respectively) "overlap but are not identical" (in fact, while soil "constitutes one of the most essential natural resources of our planet", land is a broader concept that "comprises a multifunctional ecological system") and that "an effective collaboration" would be "mutually-beneficial for both bodies" (UNCCD 2015a). Discussions about this collaboration, which began already at the inaugural meeting of the SPI in June 2014, culminated in a joint meeting facilitated by the Institute for Advanced Sustainability Studies (IASS), held on the occasion of the 'Global Soil Week' in April 2015: as an outcome of the meeting, three main entry points for collaboration were identified (soil and land in the SDGs; soil and land in the Rio Conventions; soil organic carbon) and an agreement "to establish a collaboration mechanism in order to avoid duplication of effort and to maximize synergies" was reached (ibid.).

However, despite a promising start and the proposal by the IASS to facilitate further joint meetings of the two bodies, collaboration between the SPI and the ITPS started to falter: this aspect was addressed during the interviews conducted for the present study, as interviewees were asked about the extent to which the platforms were able to collaborate as well as the likelihood of a future unique science-policy platform dealing with both soil and

land issues, for instance under the auspices of both the UNCCD and the FAO. With regard to the latter, one of the UNCCD staff members admitted bluntly that this would happen only "in an ideal world", adding that there are "sensitivities" that have actually hampered the collaboration between the SPI and the ITPS. The interviewee clarified that, even though contacts continue, the discussion is "not working well" because there is a tendency of "having a competition rather than a collaboration between" the UNCCD and the FAO and that, in some occasions, personalities and individuals had a significant role in hampering the collaboration. According to the other UNCCD secretariat's representative, a key problem in accelerating collaboration is that each institutional mechanism has its procedures and regulations: hence, often "even if there is some kind of general agreement or interest in collaborating, the avenue for collaboration is not well-established". With specific regard to obstacles to SPI-ITPS cooperation, the interviewee said that while the "uniqueness of the SPI is to have inside both aspects, science and policy", the ITPS is "mainly focused on scientific aspects". In addition to this, it was also pointed out that, while "there are many roads for collaboration on all the aspects related to soil", land remains a "wider concept than soil": therefore, in order to support land management decisions, there is a need for a wider perspective than the one the ITPS can offer. One of the two SPI members commented only on the scientific aspects of the cooperation, saying that collaboration is actually going on, in particular on the strategic topic of soil organic carbon, and confirmed the fact that the broader definition of land (incorporating all natural capital, including biodiversity, water and soil) used by the UNCCD and SPI is a major issue in terms of scientific cooperation. The member stated that, for this reason, the SPI members "see the work of the ITPS as an integral part of the SPI, because it touches upon one natural capital that the SPI targets". The other SPI member held that the SPI "has only to benefit from" the work of the ITPS (for instance, from the 'Voluntary Guidelines for Sustainable Soil Management') and that the two bodies are actually quite different in their setting (since the SPI aims primarily to bridge science and policy, while the ITPS is more science-oriented and composed only of soil scientists): in light of this, there is and there should be "no competition" and it is "silly" to always to think that "if two are working on something similar, then it's competition". According to the interviewee, as the two bodies are complementary, they should work "a little bit better together" and "many find it odd" when collaboration does not occur: probably, it is just a matter of "some territorialities and bit of personalities, and nothing else".

In sum, in comparison to the IPCC and the IPBES, the SPI and the ITPS share a number of characteristics, since they both: chiefly deal with soil issues; have a similar and simple structure (with small size and membership); depend on and directly respond to a UN institution. While, as shown in the case of the IPCC and IPBES, science-policy platforms that are not firmly bound to overarching institutional entities are not necessarily immune to the dynamics of the linear model, being part of the FAO and responding to the GSP is likely to limit the scope of action of the ITPS. This aspect, coupled with fact that the socio-economic dimension is quite marginal in the soil-related issues dealt with by the ITPS (in contrast with the land-related themes tackled by the SPI within the UNCCD), may be used to formulate the twofold hypothesis that the ITPS is not in a position to act as an 'honest broker' but rather follows the 'linear model'.

6.6. Discussion and reflections on the comparison

This section has attempted to draw a comparison between the UNCCD SPI, the IPCC, the IPBES and the ITPS, thus providing an answer to the accessory research question. Even though each of the platforms has something in common with at least one of the others, significant differences emerged, leading to the multifaceted setting displayed in Figure 3.

The IPCC is much older than the other three science-policy platforms and still probably the most well known. For these reasons, it has been under scrutiny for a long time, with studies and analyses on it conducted by the academic community and different stakeholders. Interestingly, despite its recent establishment, the IPBES received significant attention too, including several scientific publications on its history, workings and features. The modest interest shown for the UNCCD SPI and the FAO ITPS compared to the IPCC and IPBES could be attributed to various factors: a higher appeal or consideration of the climate change and biodiversity policy areas compared to soil and land; the considerable size and intergovernmental nature of the IPCC and IPBES compared to the other two, which are very small, mainly composed of scientists and directly depending on the UNCCD and FAO respectively. An interesting element in the comparison is found in the different levels of consideration attached to the role of 'other' forms of knowledge (including non-academic,

non-scientific or non-peer-reviewed knowledge, such as local and indigenous knowledge): while the IPCC has been very reluctant with respect to adopting information deriving from non-academic sources, the IPBES has been displaying a much more open or 'stakeholder' approach. The present study showed that attention for these forms of knowledge has been important in the case of the SPI and AGSA too. While this was unavoidable due to the scope and nature of the UNCCD, efforts in this direction have not been particularly prominent and there has been a tendency (partially justified by limitations in the mandate) of delegating such matters to the UNCCD parties. As far as the ITPS is concerned, there is too little available information to assess the degree to which non-academic knowledge is being considered: yet, its narrow focus on soil (in contrast with broader focus on land of the UNCCD) may constitute an incentive to strictly rely on scientific sources.

While the degree of inclusion of other forms of knowledge could be used as an indicator of adherence (or not) to the linear model, the case of the SPI showed that a linear model setting could also be reinforced by conditions of institutional dependence. However, less institutionally bound bodies such as the IPCC and IPBES showed that intergovernmental processes, often firmly controlled by governments, are not immune from the dynamics of the linear model either. As a result, even though the IPBES and, to a lesser degree, the SPI exhibited a trend towards espousing more 'stakeholder' approaches, none of the platforms gives the impression to be in a position to play the 'honest broker of policy alternatives'.

On a final note, some miscellaneous observations can be made. Generally speaking, at least in the science-policy platforms considered, equal geographical representation and gender balance are usually achieved and are not matters of controversy. Furthermore, in line with what was outlined in the chapter on UNCCD-relevant literature, 'bandwagoning' persists as a key drive in the work of the SPI, which needs to liaise with the other platforms (much more than vice versa) in order to harness their work and gain visibility. This seems to apply in the case of the relationship between the SPI and the ITPS: even though the two platforms share a number of characteristics (nearly overlapping thematic areas, similar size and relatively similar composition, analogous institutional status) and problems in scientific collaboration were to a large extent ascribed to personal or group dynamics, obstacles in strengthening

cooperation at the policy level may also lie in power imbalances in institutional relations, with the UNCCD inevitably succumbing to the FAO.

	SPI	IPCC	IPBES	ITPS
Year of establishment	2014	1988	2012	2013
Directly depending on a UN convention/agency?	Yes	No	No	Yes
Intergovernmental structure	No	Yes	Yes	No
Size/number of members	Small (20 scientific members, 3 observers)	Considerable	Considerable	Small (27 scientific members)
Visibility/attention from the academic community	Negligible	Very high	Particularly significant in consideration of recent establishment	Negligible
Inclusion of non-academic and non-peer-reviewed knowledge	Acknowledged, but limited in consideration of the mandate/scope of the UNCCD	Extremely limited	Considerable, though contested and hindered by some	Insufficient information available. Likely to be less prominent than in SPI and IPBES
Adherence to the linear model	Substantial, though mitigated by CSOs observer role and scope of the Convention	High	Moderately high, despite 'stakeholder' approach	Probably high

Figure 3. Comparison between science-policy platforms.

What emerges from the analysis is that the experience of the IPCC clearly served as a model for the more recent platforms, which were able to draw inspiration not only from its structure and functioning, but also from its perceived success and drawbacks. This led to different trajectories and outcomes, as shown in Figure 3, with particular respect to important issues of inclusion of non-academic knowledge and adherence to the linear model. While the former was attained with considerable extent only in the case of the IPBES, the latter seems to prevail in all platforms.

7. CONCLUSION

This study focussed on the Science-Policy Interface (SPI) of the United Nations Convention to Combat Desertification (UNCCD), a body created in 2014 with the aim to facilitate the dialogue between the scientific community and policy-makers with respect to desertification, land degradation and drought issues. The research sought to generate new knowledge in the domain of global environmental governance, embedding the SPI and UNCCD in the wider landscape of multilateral environmental agreements (MEAs). Due to the increasing relevance of science and science-policy platforms within different MEAs processes, focussing on the UNCCD SPI was considered important with a view to understand how global governance structures are established and maintained in the framework of the United Nations.

The UNCCD SPI was critically analysed as a recent example of 'science-policy platform' and compared to other analogous processes in the global environmental governance arena. Two research questions guided the study. The first and primary question focussed on how the SPI process came about. Here, the research was based on two concepts, which were derived from Pielke (2007): the 'linear model' and the 'honest broker of policy alternatives'. These served as analytical tools to investigate the legitimacy, transparency and inclusiveness of the SPI process, and to emphasise how the structural characteristics and problems of the UNCCD were reflected in the SPI itself. The second accessory research question introduced a comparative perspective and centred on differences and similarities between the SPI and other global environmental governance science-policy platforms, notably the Intergovernmental Panel on Climate Change (IPCC), the Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES) and the Intergovernmental Technical Panel on Soils (ITPS). Besides largely drawing upon the framework, concepts and ideal-types proposed by Pielke (2007), the theoretical foundation for the study was also informed by relevant science and technology studies (STS) literature. The case study part of the research, which built upon UNCCD-focussed literature (including, but not limited to, studies pertaining to science and provision of scientific advice within the Convention), entailed both fieldwork (interviews and participant observation) and in-depth analysis (process-tracing). The comparative section, which partly took advantage of insights gathered during the interviews,

tapped into the significant amount of studies conducted on the IPCC and IPBES to draw comparisons with the SPI and the ITPS: each platform's experience was assessed according to various parameters, such as the role of non-academic knowledge and the degree of adherence to the linear model.

In the case study section, interviews and participant observation provided preliminary findings on the SPI process as well as the basis to formulate the hypothesis that the SPI follows the linear model. Even though some elements indicated that the SPI might not be fully incompatible with the 'honest broker' model (i.e. the relative degree of freedom enjoyed by the platform in selecting and prioritising topics considered relevant; the considerable impact of products independently developed by the SPI, such as the Scientific Conceptual Framework on LDN, in terms of policy and implementation of the Convention; the productive collaboration between SPI members and CSO representatives, leading to the inclusion of the VGGT in the LDN Framework; the active and relatively unrestricted participation of the observers, especially the CSO representative, in the work of the platform), manifestations of the linear model largely prevailed. These were identified as: the strong political influence of the COP and parties on the SPI work, including deliberate restraints placed upon the SPI mandate by developed country parties; the underlying fundamental ambiguity whether the UNCCD should apply to drylands only or to the rest of the world too, which could result in a considerable reduction of the SPI independence, or its actual end; the SPI direct institutional link to and dependency on the COP and the CST; the limited possibility for the SPI to autonomously stimulate policy initiative and to inform the policy action of the COP; due to limited time and resources, the tendency towards an 'output-oriented' approach, leading the SPI to merely focus on the requests of the COP, at the expense of the needs of other stakeholders such as civil society and drylands communities; the fact that consensus for decision on scientific issues is generally limited to SPI members and the UNCCD circle; some problems in terms of legitimacy and disciplinary representation in the SPI membership; a poor representation of the socio-economic sciences in the batch of independent scientists; difficulties in engaging non-English speaking researchers as well as scientists from developing countries (even though regional balance is mostly attained, it is purely nominal, leading to an imbalance in favour of developed countries). Most of the impressions gained from the interviews corroborated those from participant observation: directly experiencing

part of the SPI process allowed the author to detect how the design of the SPI was influenced by the COP, the CST bureau and the secretariat as well as by the structural issues, recurring patterns (e.g. 'bandwagoning') and unresolved misunderstandings of the UNCCD, as outlined in existing literature. Thanks to information retrieved in both official documents and unedited material, process tracing contributed to a more detailed historical reconstruction of the SPI process and eventually reinforced empirical evidence: the analysis suggested that the COP's firm and direct control on the UNCCD process of provision of scientific advice had a significant impact on the design of the SPI, creating the conditions for a 'linear model' setting.

In light of these findings, the SPI appears as a science-policy platform with limited autonomy, strictly bound to the COP and the political dynamics of the UNCCD. Particularly, it seems to be a "hostage" of the underlying (and, probably, deliberately unresolved) misunderstandings surrounding the UNCCD. One of them, abundantly documented in academic literature, goes back to the dual environment-development spirit of the Convention. The other, which emerged during the interviews, refers to the 'drylands versus rest of the world' question. Arguably, the combined impact of these two crucial ambiguities could contribute to increase the COP's and parties' control over the SPI, making the prospect of the SPI as an 'honest broker' even more remote. At the same time, despite a prevalence of the 'linear model', the SPI should be critically assessed in light of its peculiarities: its "10-5-5" structure is certainly innovative, and represents an interesting attempt to reach a compromise to link science and policy. In addition, while it is should be recalled that the SPI remains a body composed of scientists only (despite different backgrounds and affiliations, there are no actual policy-makers or COP representatives inside it), the possibility for the observers to influence its work and the significant role played by the CSO representative indicate that the platform abides by the spirit and scope of the Convention. In sum, while it might be claimed that the SPI fundamentally follows the linear model, it should be also underscored that some of the platform's features and dynamics are compatible with the ideal-type embodied by the honest broker.

As stated above, the comparative section of the study was considerably supported by academic literature on science-policy interfaces: some of this literature is coloured by

normative standpoints, but the analysis sought to follow a neutral path, highlighting differences and similarities in various respects. While the IPCC certainly served as a model for the other platforms, only the IPBES shares with it aspects such as the considerable size and intergovernmental structure, as well as a significant attention received from the academic community. On a parallel note, the SPI turned out to have a number of analogies with the ITPS: besides dealing with similar (but not fully overlapping) issues, both platforms are small, tied to overarching UN bodies and consisting of scientists only. In spite of this, the study showed that problems in scientific collaboration between the two platforms should not be ascribed to the slight difference between the two thematic foci dealt with (soil and land), but rather to personal or group dynamics, as well as to problems in cooperation at the institutional and policy level between the UNCCD and the FAO. The degree of inclusion of 'other' forms of knowledge (including non-academic, non-scientific or non-peer-reviewed knowledge) and adherence to the linear model were two important parameters taken into consideration in the comparative part of the study, too. In different ways, the IPBES and the SPI seemed to be the most open with regard to the inclusion of non-academic knowledge in their respective processes. However, even if such a 'stakeholder' drive can be considered as a distinctive feature for platforms or bodies following the 'honest broker' path, the analysis finally showed that all four platforms largely display the logic and dynamics of the linear model.

In sum, one may argue that applying the 'honest broker of policy alternatives' model to study different policy areas of global environmental governance (e.g. climate change, biodiversity, DLDD) is a valuable way to detect underlying misunderstandings, political frictions as well as disagreements about values and interests within international institutional settings such as UN bodies and international regimes such as MEAs. Unveiling these tensions can also enable to understand how they impact on the provision of scientific advice of each policy process and in which way the 'linear model' therein persists.

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