

Social-Ecological Resilience to Climate Change

Social-Ecological Resilience to Climate Change:

*Discourses, Frames
and Ideologies*

By

Anna Franca Plastina

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As human beings, we are vulnerable to confusing the unprecedented with the improbable. In our everyday experience, if something has never happened before, we are generally safe in assuming it is not going to happen in the future, but the exceptions can kill you, and climate change is one of those exceptions [...] I want to be a “nudge” [...]. Someone who is pushing for action. [...] I think there is a realistic basis for optimism.

Al Gore, 2009¹

The joint crises of climate change and biodiversity erosion can both be addressed by planting gardens everywhere—full of biodiversity; full of the celebration of life, well-being, and abundance. Gardens of hope everywhere. Farms that give real food. We will continue to create the other world that we are sowing [...] We will not give up.

Vandana Shiva, 2015²

¹ *SPIEGEL Interview with Al Gore: 'I Am Optimistic'* SPIEGEL ONLINE. November 2, 2009. <http://www.spiegel.de/international/world/spiegel-interview-with-al-gore-i-amoptimistic-a-658673.html>.

² *We Are All Seeds - A New Year Message from Dr. Vandana Shiva for 2015*. <https://www.youtube.com/watch?v=fX5jsq74fAo>.

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CHAPTER ONE

CLIMATE CHANGE AND DISCOURSE

To protect our planet for future generations, steps must be taken to both combat and to adapt to the changing climate and with accelerated action. It is our collective responsibility as global citizens to see that our planet remains inhabitable and safe for the generations to come.

Ban Ki-moon, former Secretary-General of the United Nations
(*Interview with the Austrian Red Cross*, 2019)

1.1 Scope and Aims

The last decade has witnessed a burgeoning body of linguistic research on climate change, suggesting an increasing public concern about the looming threats the phenomenon poses to our social-ecological systems. By its very nature, climate change is elusive due to its own norms of unpredictability and uncertainty. Consequently, climate change is represented through different discursive varieties, which take on a wide array of meanings at local, national and global levels (Taylor 2013).

The scope of this book is to deal with *social-ecological resilience discourse* as a newly emerging variety promoted by grassroots environmental activists seeking alternative ways to cope with climate change. The motivation behind this inquiry is first driven by the recent plea for further research on climate change discourse (e.g. Nerlich et al. 2010; Fleming et al. 2014; Fløttum 2014).

So far, the growing body of research in the field of discourse studies is showing great interest in dominant and media discourses and in those mainly centred on the issues of climate change denial, security and climate-induced migration. These studies seem to revolve around the ongoing heated debate on climate change (cf. Fløttum 2017) due to the general disagreement about what climate change involves (Hulme 2009).

Discourse studies have not yet paid particular attention to the new discursive variety of resilience, which offers a more innovative perspective of climate change. Scant interest in analysing this kind of discourse may

depend on the fact that the notion of resilience is still largely associated with its conventional meaning of “bouncing back” from climate adversity, thus evoking discourses similar to those grounded in the traditional concepts of stability and sustainability. The new meaning of “moving forward” taken on by resilience to cope with the constant uncertainties of climate change in the Anthropocene¹ does not seem to have yet gained currency in the wider public sphere.

A further motivation to investigate social-ecological resilience discourse in general, and more specifically the communicative discourse of resilience mediated by environmental or climate activists², is driven by two main reasons. First, this peculiar variety of discourse so far remains largely unexplored, making it a fertile research ground which may add valuable insights into the mediation of climate change communication from the perspective of discourse studies. Secondly, while other more familiar varieties seem to represent climate change through a contrasting selection of problematic aspects, and thus fuel a general climate conflict discourse, social-ecological resilience discourse is more concerned with the opportunities springing from climate disruptions, and therefore has a more *positive* outlook. Social-ecological resilience discourse seems to distance itself from other varieties connoted with more negative meanings and may appear to challenge these as it moves beyond the traditional human-centric vision. However, its main concern is to represent and spread resilience thinking as a new way of conceiving more balanced human-nature relationships in the Anthropocene.

Another strong motive for this research is the interest in the evolving socio-cultural dimension of climate change discourse. From a socio-discursive viewpoint, this volume offers a new interdisciplinary perspective of climate change discourse framed by the principles of resilience-building. These can here for now be translated through Ban Ki-moon’s words *to adapt to the changing climate and with accelerated action* in the epigraph. Discourse plays a primary role in understanding what this new process involves. In turn, this suggests the importance of analysing how resilience to climate change is distinctively talked and written if new public meanings of climate change are to be grasped.

From a cultural-discursive standpoint, these new meanings need to be situated within the current global socio-economic context, which is conventionally configured as the Global North with its developed countries

¹ The Anthropocene is here considered as the current geological epoch in which anthropogenic climate change represents the most significant human impact on the Earth’s ecosystems.

² The terms *environmental activists* and *climate activists* are herein used interchangeably.

in opposition to the Global South with its developing ones. Unlike most other discourse studies on climate change, this volume thus also takes a cross-cultural lens to social-ecological resilience discourse by comparing its formations across this divide. The reason behind this choice lies in the effort of meeting the ecolinguistic need for further research on climate change discourse beyond the usual Anglo-American context of use (Penz 2018).

Based on two representative case studies, the research presented in this volume fields the following overarching questions:

- RQ1** How are social and ecological actors represented in resilience discourse?
- RQ2** How do these representational meanings reflect resilience-building principles?
- RQ3** Which types of diagnostic, prognostic and motivational frames are manifested through the linguistic devices of resilience discourse?
- RQ4** Which ideologies of resilience emerge through the cognitive-linguistic strategy of positioning?
- RQ5** Which variations in representational, framing and ideological meanings of resilience can be identified across the Global-North/South discourses?

In the next section, it is worth describing the rationale behind the research in further detail before providing an outline of the volume in Section 1.3. The following overview is intended to clarify what resilience is about, to introduce the main working definitions used in the present research, and to illustrate the main issues which arise when the concept of resilience is related to discourse.

1.2 Resilience and discourse

Interest in the notion of resilience has grown rapidly since the beginning of the 21st century. The term was first popularised by Holling (1973) in the field of ecology, thus laying the foundation for studies on the complex integrated systems of humans and nature, or “social-ecological systems” (Berkes and Folke 1998, 4). Resilience has traditionally been charged with the ecological meaning of restoring the *equilibrium* of social-ecological systems, which encompassed the idea of stability (Gunderson 2000). A wide use of the expression *bouncing back* after a disruption is found in much of the earlier literature, suggesting the etymology of the word “resilience” from the Latin verb *resilare*, or “to leap back”. The concepts of stability and bouncing back were fundamentally based on the human-centric conviction

of being able to exercise control over nature, particularly during the 20th century.

In the wake of the swift anthropogenic climate change, there has been, however, a pressing need to better understand “the interplay between persistence and change, adaptability and transformability” (Folke et al. 2010, 6). In the 21st century, resilience has consequently come to be understood through its interrelatedness with the key concepts of *adaptability* and *transformability* (Walker et al. 2004). This then presupposes the idea of “moving forward” rather than that of “bouncing back” as reflected in the following working definition of *social-ecological resilience*:

the capacity to adapt or transform in the face of change in social-ecological systems, particularly unexpected change, in ways that continue to support human well-being (Folke et al. 2016, 2).

Here, the key actions (*to adapt, transform*) imply states of *change* brought about by climate disruption, as well as its dominant feature of unpredictability (*unexpected change*). As a key component of resilience, *adaptability* is coherently defined by the Intergovernmental Panel on Climate Change³ as:

the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities” (IPCC 2007, 6).

While adaptability is understood as *adjustment* following climate disturbances or even as actions planned beforehand (*expected climatic stimuli*), it essentially subsumes the construct of transformability as the other fundamental component of resilience. This is clearly indicated in the above definition through the use of the two verbs *moderates* and *exploits*, which refer to states of change. In addition, while the noun *opportunities* indirectly signals the forced need to change due to ongoing climate disturbances, the evaluative adjective *beneficial* connotes these unparalleled occasions with positive meaning. Adaptability thus denotes the overall positive nature of transformability and, thereby, of resilience as a whole. *Transformability* is, in fact, considered as:

the capacity to create a fundamentally new system when ecological, economic, or social structures make the existing system untenable (Walker et al. 2004, 5).

³ The Intergovernmental Panel on Climate Change (IPCC) is the UN body for assessing the science related to climate change (<https://www.ipcc.ch/about/>).

Change is here marked by the dynamic verb *to create* which shifts the focus from re-establishing social-ecological equilibrium (*bouncing back*) to taking skilful action in order to cope with the uncertainties of climate change (*moving forward*).

At the level of discourse, “scenarios” are created as “structured account[s] of a possible future”, whose main purpose is to “provide insight into drivers of change” and thereby “illuminate options for action” (Peterson et al. 2003, 360). These accounts commonly start with the ecosystems as the scenarios and then include humans and their agency, and thus help elucidate the nature of the interdependency between the two. Consistently, a more detailed definition of resilience provided by the Resilience Alliance⁴ sheds further light on this relationship:

People are part of the natural world. We depend on ecosystems for our survival and we continuously impact the ecosystems in which we live from the local to global scale. [...] resilience in social-ecological systems has the added capacity of humans to anticipate change and influence future pathways.⁵

Hence, resilience attributes humans the triple role of being integrated in the natural environment (*part of the natural world*) and dependent on it (*we depend on ecosystems*), exerting a dominant and persistent influence on it (*we continuously impact the ecosystems*), and as having the ability to ameliorate their relationship with nature (*to anticipate change and influence future pathways*).

On these grounds, building resilience calls upon more *positive* forms of climate change communication, where language has a new role to play. Language in the field of climate change communication matters to a very great extent since its choice can alter the way people actually perceive the phenomenon. For example, the term “climate change” has replaced the popular term “global warming”, which was used throughout the 20th century. The switch to the new expression mirrors the recent scientific consensus that climate change is not just about rising temperatures, but embraces diverse changing climatic conditions.

The importance of the choice of language may further be seen through the different discursive varieties illustrated in this volume. From a sociolinguistic perspective, these emerge first of all as a result of the complexity of climate change itself. However, each variety presents its own

⁴ The Resilience Alliance is an international, multidisciplinary research organization that explores the dynamics of social-ecological systems (www.resalliance.org/about).

⁵ www.resalliance.org/resilience.

peculiar linguistic characteristics owing to the lexical choices made by different groups to support their own perspectives. Most current varieties can be seen through the language lens as competing in an ongoing debate on climate change with the end result of creating an overall conflictual discourse of climate change.

This point can be further considered from the viewpoint of Ecolinguistics since this branch of linguistics is specifically interested in looking at the ways in which language frames environmental issues. Regarding this matter, Stibbe (2015) distinguishes between *destructive*, *ambivalent* and *beneficial* discourses according to different underlying ideologies which are related to the ecosophy, or the philosophical principles of ecological harmony. Destructive discourses ideologically oppose the ecosophy as “they play a role in ecological destruction” (p. 24). Discourses of climate denial and scepticism, for instance, belong to this category as they work against the ecosophy. Ambivalent discourses often “arise from the same society” and “may be influenced by political or commercial interests” (p. 29). They therefore partially align with the ecosophy, but are also endowed with aspects which contradict it according to the interests at stake. Mainstream discourses of climate change are mostly ambivalent as they show constructive attempts of dealing with the issue but they also address its problematic aspects from biased standpoints.

On the other hand, beneficial discourses are aligned with the ecosophy and thus represent inspirational sources that may lead to action and care for our environment. Discourses of resilience mediated by environmental activists appear to be part of this category as they promote social-ecological resilience.

On the basis of this classification, it is possible to bring the deeper purpose of this volume into sharper focus through the words of the founder of the International Ecolinguistics Association, Arran Stibbe (2015, 30):

An essential, yet undeveloped role for ecolinguistics consists of going beyond critiquing destructive discourses or pointing out the gaps in ambivalent discourses, to searching for new discourses that convey ideologies which can actively encourage people to protect the systems that support life. [...] The purpose of analysing beneficial discourses is to promote them as useful alternative ways of telling stories about the world and help them to become more widespread, even if they are currently relatively unknown.

Resilience is, indeed, a new kind of beneficial discourse which moves beyond more destructive and ambivalent discourses of climate change, and therefore deserves noteworthy attention, especially as it promotes the spread of resilience thinking and the subsequent social practice of building

resilience, which are still relatively unknown to the wider public.

However, resilience is not exactly a straightforward beneficial discourse. It has cropped up as a loose discourse which makes its own competing efforts to determine what is meant by the concept and what the implications of resilience are. The problem at stake depends on the “little agreement on how adaptation or resilience is built, analysed, and applied in practice” (Borquez et al. 2017, 164). In other words, resilience is an amorphous concept which is understood differently by different stakeholders. While resilience has become a current buzzword, its loose discourse has not yet made any significant attempts to unravel its conceptual clarity. So far, in fact, the roles that knowledge processes may play in shaping resilience discourse have not been properly defined (Sinclair et al. 2017). Resilience thinking is therefore replete with heterogeneous meanings since there is still no unanimous consensus about its conceptual nature. This is confirmed by the Stockholm Resilience Centre⁶, which has identified three different strands of resilience thinking.

The first strand appears to mainly focus on the “complex interdependencies between people and ecosystems”.⁷ Beneficial discourses of resilience in this case are mainly driven by the need to raise public awareness of the importance of rebalancing the relationship between people and the natural environment. They thus appear to be coherent with the view taken by the Resilience Alliance, which emphasizes that *people are part of the natural world. We depend on ecosystems for our survival*, as aforementioned.

On the other hand, the second strand seems to find its roots more in the sociohistorical context. Currently, we are living in a Climate Change Age, i.e., “the Anthropocene, or Age of Man, where humanity is influencing every aspect of the Earth on a scale akin to the great forces of nature”.⁸ Beneficial discourses here link resilience directly to the key concept of vulnerability on the grounds that *we continuously impact the ecosystems in which we live*, as afore claimed by the Resilience Alliance. According to the IPCC (2007, 6):

Vulnerability is the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes.

⁶ The Stockholm Resilience Centre is an international centre that advances transdisciplinary research for governance of social-ecological systems with a special emphasis on resilience (<https://whatisresilience.org/en/about-us/>).

⁷ <https://www.stockholmresilience.org/research/research-news/2015-02-19-what-is-resilience.html>.

⁸ *ibid.*

In other words, environmental vulnerability represents the point of departure for creating this kind of resilience discourse. It is not therefore centre-staged as in destructive discourses, but rather functions as the background condition for shaping discourses of resilience as action.

The third and more proactive strand assumes that “resilience thinking embraces learning, diversity and how to adapt to a wide range of complex challenges. It introduces the term social-ecological thinking which essentially strives to find innovative ways to reconnect with the biosphere and stay within planetary boundaries”.⁹ This approach thus appears to drive beneficial discourses by acknowledging what the Resilience Alliance defines as *the added capacity of humans to anticipate change and influence future pathways*. Such discourses may be considered beneficial as they represent a fundamental source of learning and knowledge about adaptation, as well as being a primary means for seeking innovative ways with a positive outlook.

Overall, these strands reflect three main semantic domains of resilience. The first is shaped by a distinct lack of understanding of the socio-cultural dynamics of resilience and its application; the second is driven by the human/nature dualism which does not consider the needs of non-human Others and appears to be one of the many “inherited dualisms that run deep in Western cultures” (Haraway 2004, 2). Resilience is thus here used as yet another tool for perpetuating hegemonic discourses. The third semantic area can be related to the surge of grassroots activism which articulates and mobilizes alternative forms of resilience as part of a different ideological approach.

Discourses of resilience directly taken up by grassroots groups and their prominent representatives seek to harness public opinion, whereby resilience is enacted as a powerful notion. To better resonate with public opinion and bypass the traditional hierarchies of mainstream media, environmental activists are now engaging in the practice of online environmental activism for increased social mobilization.

As Castells (2001, 280) notes:

The Internet has become a major organizing and mobilizing tool for environmentalists around the world, raising people’s consciousness about alternative ways of living, and building the political force to make it happen.

It is beyond the scope of this volume to consider how climate activists use new technologies to their advantage, and to dwell on the recent phenomenon of online environmental activism from a pure sociological

⁹ *ibid.*

viewpoint. Here, interest in online discourses of resilience is driven by the conviction that these discourses are more powerful and effective tools for reaching a global audience through the different web-based technologies climate activists are now able to exploit. For this reason, the materials that are used in the case studies presented in this volume are taken from different web-based sources.

In addition, the choice of focusing on climate activists is determined by the belief that these actors construct text and talk about resilience in such ways that the *beneficial opportunities* they represent may potentially defy the *bouncing back / moving forward* dichotomy. It is argued that they might expand resilience meanings through the construct of “resourcefulness” to better convey alternative and transformative visions of future scenarios (MacKinnon and Derickson 2012). In this case, resilience discourse is regarded as a means for strengthening (local) communities rather than for striving to maintain political or economic hegemony. It thus seems that resilience is here de-politicised and that power relations may be easily reshaped and redistributed (Cannon and Müller-Mahn 2010).

Since socio-ecological resilience in this sense advocates the importance of social support and diversity within communities, the construct of *place* in which resilience capacities are developed appears to be of crucial importance for interpreting cultural meanings of resilience discourse. This explains the cross-cultural choice of the case studies presented in this book.

On the whole, the many nuances and interpretations of resilience show that “a primary problem with resilience is that it ignores its own discursivity, which constrains how we might come to know and do resilience differently” (McGreavy 2015, 2). It is thus evident that the multiple actors involved in communicating resilience do not share a common discourse (Gillard 2016), and that the multiple discourses which arise are largely determined by the conceptual fuzziness of resilience itself.

This overview has attempted to elucidate what resilience involves, also by means of several working definitions, besides outlining how climate change and discourse are interrelated in different ways. This has led to acknowledge that the resilience paradigm exists across top-down and grassroots levels. More importantly, the overview has suggested that resilience discourse disseminated on the Internet by climate activists, as part of the relatively new practice of online environmental activism, may be more powerful both in terms of environmental awareness and discourse formation.

As for environmental awareness, online activism fosters an exponential growth in the popular awareness of climate-related issues, allowing more and more people to become conscious, for instance, of the anthropogenic

causes of climate change. Along the same lines, the Internet can be seen as a promising medium of communication for a faster and wider propagation of resilience discourses which increase environmental awareness.

This practice may also be seen in the light of the current need for more effective climate change communication, which has been flagged as critical in the Paris Agreement on climate change (2015): “parties shall cooperate in taking measures, as appropriate, to enhance climate change education, training, public awareness, public participation and public access to information [...]” (art. 12).¹⁰

Hence, the practice of mediating resilience discourses online may represent a constructive and more effective way of facing the issues of enhancing *climate change education*, raising *public awareness* and providing *public access to information*, which have been flagged by the Paris Agreement. The effectiveness of resilience discourse may further be justified by the fact that environmental movements are generally found to be “the most comprehensive and influential movement[s] of our time” (Castells 1997, 67). Environmental movements are understood to be:

loose, non-institutionalized networks of informal interactions that may include, as well as individuals and groups who have no organizational affiliation, organizations of varying degrees of formality [...], and are engaged in collective action motivated by shared concern about environmental issues (Rootes 2002, 176).

As for discourse formation, it is worth underlining that the negotiation of resilience discourse online allows climate activists to exercise more extensive bottom-up power/social control in the Foucauldian sense of discourse. Discourse as knowledge formation is always inextricably linked to power and control. In a social-constructivist perspective, environmental activists construct climate threats and opportunities as new kinds of knowledge, which emphasize the importance of adaptation, transformation and social change, and thereby exercise the power of expertise.

Furthermore, the formation of these beneficial grassroots discourses offers fertile ground for discourse analysis which deserves in-depth investigation. In this regard, two key aspects need to be considered beforehand. From a theoretical viewpoint, different varieties of climate change discourse give voice to the current vigorous debate, and thereby contribute to creating new discourse formations, including that of resilience. It is thus argued that the analysis of resilience discourse cannot be

¹⁰ <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>.

exhaustive enough without first describing the important background role of these different varieties as Chapter 2 sets out to do. This will further allow to properly position socio-ecological discourses before dealing with them more thoroughly in Chapter 3. From a methodological perspective, it is worth remembering that resilience discourses mediated by environmental activists need to be situated within the wider context of social movements from which they draw their origins. Bearing this in mind, it is crucial to find the most fitting methodological approach for the analysis of this specific kind of discourse, as will be amply discussed in Chapter 4.

Before introducing the theoretical background and the methodological underpinnings of this study respectively in the following two chapters, the next section will provide an outline of the overall structure of the volume.

1.3 Structure of the volume

This volume is divided into three main parts. The first part includes Chapters 1 and 2 as the introductory section of the book.

As seen above, Chapter 1 has illustrated the pivotal aims and the research gap which this work intends to fill. It has introduced the conceptual underpinnings of the resilience paradigm and set some of the key terms used against the appropriate scholarly background from an interdisciplinary perspective. The link between resilience and discourse has been outlined to highlight the major problematic issues which arise in climate change communication. This introductory chapter has also presented the rationale for the study of grassroots resilience discourse online and offered preliminary explanations regarding the need for the tailored methodological approach proposed and applied in the present inquiry.

Following the important background role played by different varieties of climate change discourse highlighted in this chapter, Chapter 2 focuses on the polyphonic nature of the ongoing debate on climate change discourse. It discusses a number of different varieties distinguishing between the original scientific discourse and its recurring popularised forms, including the social varieties of technocratic, media, climate-justice, anti-consumerist and youth discourses. The most significant linguistic features of each of these varieties are unpacked through a rich range of examples. This allows the reader not only to gain awareness of their distinguishing traits, but to understand how they compete in the raging debate on climate change. The emphasis on this polyphonic dispute helps reveal the constraints imposed on these discourse varieties. More importantly, it underlines how such discursive interactions constitute the basis for the formation of new discourses, such as that of social-ecological resilience. While this overview

is largely self-contained, it is important that the reader does not miss the reasons for moving beyond the debate illustrated in the last section to fully grasp the motivation behind this research and the implications springing from the academic inquiry.

The second part of the book includes Chapters 3 and 4, which respectively form the theoretical and methodological framework of the study.

Chapter 3 focuses on the discourses of social-ecological resilience and their distinguishing characteristics. From an interdisciplinary theoretical perspective, it starts by examining the basic principles for building resilience. These guide the process of identifying the major macro-themes of resilience in order to seek how themes may be mapped onto the semantic macro-structures of resilience discourses. Following the line of thought of the Systemic Functional approach, this procedure considers macro-themes as serving the textual function of predicting the organizational structure of discourse. Subsequently, the chapter delves more deeply into the examination of the major discourse themes and the discourse strategies which can be introduced at the different levels of discourse. Finally, it offers a critical discussion of the most representative discursive constructions of resilience in context, thereby allowing to position the variety of communicative resilience discourse negotiated by climate activists as the main object of analysis of this book. The chapter is therefore intended to provide a sound theoretical frame for the present inquiry.

Chapter 4 first addresses the issues which arise in the choice of the research methodology by examining the strengths and weaknesses of the methods of Critical Discourse Analysis (CDA) and Frame Analysis (FA). Thereby, it argues for an integrated *discursive-frame* approach which draws on a combination of their methodological resources. Secondly, the chapter presents the research design adopted, underlining the reasons for relying on the multiple triangulation method to ensure research validity, robustness and richness, and for integrating qualitative and quantitative methods. Using systematic criteria proposed by the Discourse-Historical Approach (DHA), it subsequently deals with the procedure of data selection and collection, and underlines how this kind of data gathering supports the case study methodology adopted. The two case studies on which the investigation in this book is based are then introduced. In particular, the corpus of sample materials used to provide empirical data for the analysis of resilience discourse is presented. The chapter concludes with a detailed description of the overarching methodological framework and of the mixed-method research design adopted to investigate resilience discourse.

The third part focuses on the two case studies, whose findings are presented and discussed in Chapters 5-7.

Chapter 5 reports on the first case study which deals with resilience discourse in the context of the Global North. It takes the case of *The Climate Reality Project* (TCRP), one of the world's leading environmental non-profit organizations dedicated to mobilizing action around climate change at the grassroots level. The organization, founded by former US Vice President Al Gore, is devoted to solving the climate crisis through grassroots leadership training, global media events and digital communication with the aim of spreading resilience thinking. Using a mixed-method approach, the analysis is performed in three distinct phases on authentic TED talks by Al Gore as the most representative TCRP figure. TED talks as influential online videos from expert speakers are understood to comply with the practice of online environmental activism for increased social mobilization. In the first phase, a discourse analysis is conducted to question the *who(s)*, *what(s)* and *how(s)* which are apparently said at the manifest micro-textual level of the talks dealing with resilience-building. The analysis specifically seeks to unpack the ways in which micro-discursive strategies are deployed to represent human and non-human actants of resilience. It applies the CDA categories of the socio-semantic inventory of social actors and those of the DHA framework which allow to code the representations of discourse participants and situate resilience discourse as a practice of social change within its historical dimension. The second phase of the inquiry shifts to the upper macro-level of discourse where frame analysis is carried out. The purpose here is to disclose the hidden discursive frames which are chosen as cultural resources to convey conceptual meanings that enhance collective action of social-ecological resilience. In the third and final phase, ideological analysis is conducted by adopting a cognitive linguistic (CL) approach to CDA. Drawing on the Discursive Space Theory (DST), the analysis of the CL strategy of *positioning* actors, actions and events allows to unveil the ideologies underpinning the discourses by graphically representing them in the conceptual discursive space along the axes of time, space and modality.

Chapter 6 moves away from the Western-centric context of the Global North through the second case study of the book. It situates resilience discourse in the Global South by taking the case of *Navdanya*, an Indian-based non-governmental organization led by the well-known environmental activist, Vandana Shiva. Navdanya is a multi-pronged, gender-sensitive organization which works on a range of environmental issues, including, among others, climate resilience in relation to biodiversity conservation and food security. Through the replication of the methodological procedure adopted in the first case study, the discursive-frame analysis is carried out on a webinar held by Vandana Shiva and on the Navdanya website as online

forms of text and talk about resilience. The reason for using the same analytical approach is to yield consistent data from the two case studies which will thus enable a more effective comparative analysis of the results. Finally, the outcomes from each of the two case studies are discussed in the respective chapters in order to address the first four research questions introduced in Section 1.1.

In Chapter 7, the discussion on the resilience paradigm is centred on the comparative analysis of the most significant quantitative and qualitative findings from the two case studies, guided by the fifth and final research question. Results from the comparative analysis will highlight the differences detected in the social and ecological actor representations, the issue-specific frames deployed, and in the ways the main ideologies are positioned within the conceptual discursive context of time, space and modality. Taken as contextual cues, these findings will also be indicators of the cross-cultural variations determined by the cultural contexts of the Global North and South in which the resilience discourses are situated. The discursive practices will eventually be compared to seek how they shape and are ideologically shaped by different types of relations of power.

The final remarks place the findings of the book within the debate on the resilience paradigm and its discursive evolution. In this respect, the volume does not attempt, by any means, to provide an exhaustive account of resilience discourse, nor can it do so for that matter, since this kind of discourse still lies in its initial stage of formation. Thus, the book intends to offer a snapshot of the current state of resilience discourse based on context-specific data and, thereby, refrains from formulating any irrefutable generalizations. The conclusions therefore flow from the insights offered by the analysis in order to show how resilience discourse can be indicative of the specific linguistic and cultural changes which are taking place in climate change communication from the grassroots perspective of environmental activists. The final discussion is therefore intended to confirm that the resilience paradigm offers highly fertile ground for further discourse studies due to its ongoing adaptation to the new norm of unpredictability of climate change.

It is my hope that the volume represents a step forward in this new direction and that it may appeal to a wide array of subjects involved in related interdisciplinary areas of research, learning and teaching in which this work is most relevant.

CHAPTER TWO

VARIETIES OF CLIMATE CHANGE DISCOURSE

Of course, discourses are composed of signs; but what they do is more than use these signs to designate things. It is this more that renders them irreducible to the language (*langue*) and to speech. It is this 'more' that we must reveal and describe (Foucault 1972, 49).

2.1 Introduction

In Chapter 1, an overview of the resilience paradigm was offered from an interdisciplinary perspective. It was advocated that a comprehensive analysis of resilience discourse first presupposes looking at the most significant discourse varieties of climate change which, whether directly or indirectly, play an important background role in influencing its discourse formation. Before introducing the theoretical framework of the study in Chapter 3, it therefore seems important to examine some of the main varieties that set the background to social-ecological resilience discourse. This is the chief concern of this chapter.

Accordingly, the following two sections (2.2 and 2.3) will respectively focus on the main features of the scientific and social discourse varieties of climate change with specific reference to the processes leading to a diverse range of popularised discourses (2.3.1-2.3.5). The array of exemplifications provided will allow the reader to fully grasp the nuanced interpretations of climate change according to the positions taken by the various social actors presented. Through the examples extracted from authentic discourses, the reader will also gain awareness of how the varieties presented initiate the process of creating new interrelated discourses (Fleming et al. 2014). This may prove to be a particularly helpful approach, especially as very few discourse-based studies have focused on climate texts so far (Dahl and Fløttum 2014).

This survey will ultimately serve a twofold purpose. The first is to show how the proliferation of diversified meanings of climate change leads to a vigorous debate, which imposes constraints on the different varieties by confining them within a general "climate conflict discourse" (Section 2.4).

The second purpose is to highlight the timely need to move beyond this conflictual debate in order to tackle the issue of climate change in a more effective manner through discourses of social-ecological resilience (Section 2.5).

Overall, the chapter is thus intended to allow a full appreciation of how resilience discourse emerges from the current multi-voiced debate and evolves far beyond it. In offering a largely self-contained overview of the most relevant varieties of climate change discourse, there is full awareness that a much richer variety can be negotiated in a different number of communicative domains.

2.2 The scientific discourse of climate change

According to climate change scientists, “the climate system evolves in time under the influence of its own internal dynamics and due to changes in external factors, or *forcings* that affect climate. External forcings include natural phenomena such as volcanic eruptions and solar variations, as well as human-induced changes in atmospheric composition” (Le Treut et al. 2007, 96). The exponential growth in climate change science literature reflects the considerable development of knowledge about climate processes and the subsequent proliferation of the scientific discourse of climate change (Stanhill 2001). Imbued with evidence-based facts, statistical findings and technical jargon, this specialised discourse essentially treats climate change as a physical phenomenon that can be observed, quantified and measured (Hulme 2009). Besides being featured by such clear findings, the scientific discourse of climate change is also permeated by the use of vague language, which particularly includes epistemic markers of uncertainty as an integral part of climate change science and, for that matter, of all scientific research. Fløttum (2010), for instance, found that epistemic modifiers (e.g. *likely*, *very likely*) are used to refer to notions of statistical probability and confidence intervals in the 2007 scientific report issued by the Intergovernmental Panel on Climate Change (IPCC).

As in the case of other scientific discourses, that of climate change also conventionally makes use of vague language. It is generally applied to mark in-group membership and plays a key role in attenuating possible criticisms of the knowledge claims advanced within the scientific community, thereby helping scientists gain acceptance of their speculations (see Plastina and Maglie 2019). Unlike other scientific discourses, however, the complexity of interpreting climate findings has led scholars to focus on the issue of uncertainty itself. In this respect, Mearns (2010, 79) points out that “while there has been substantial progress in characterizing and quantifying

uncertainties about future climate change, we have made much less progress in the arena of reducing uncertainty”, and further underlines how “one of the most important, clearest, and most successful reductions in uncertainty that *has* occurred over the lifetime of the Intergovernmental Panel on Climate Change (IPCC) is that associated with the detection and attribution of climate change in our recent historical period” (p. 80; original emphasis).

Accordingly, the issue of reducing uncertainty has been enacted through the evolution of scientific discourse on climate change over the past two decades or so. This is particularly noticeable, for instance, in the changing degrees of certainty expressed in the five IPCC reports, which have reviewed the latest climate science over this timespan. These changes are highlighted in bold in examples (1) to (4):

- (1) Thus the observed increase [in temperatures] **could** be largely due to this natural variability; alternatively, this variability and other human factors **could** have offset a still larger human-induced greenhouse warming (IPCC 1990, 64);
- (2) It is **likely** that there has been significant anthropogenic warming over the past 50 years averaged over each continent except Antarctica (IPCC 2007, 10);
- (3) It is **extremely likely** that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG [greenhouse gas] concentrations and other anthropogenic forcings together (IPCC 2014, 4);
- (4) It is **virtually certain** that there will be more frequent hot and fewer cold temperature extremes over most land areas on daily and seasonal timescales, as global mean surface temperature increases (IPCC 2014, 10).

Examples (1) to (4) clearly show that a paradigm shift occurs in expressing different degrees of certainty in the scientific discourse of climate change. In (1), the excerpt from the first IPCC report published in 1990 is featured by the concept of epistemic possibility, which is marked by the modal *could* indicating what would be experientially possible based on the objective observation of the time; the 2007 report in (2) shows a higher probability of human-induced climate change through the use of the epistemic adverbial marker *likely*; the more recent 2014 report in (3), instead, not only intensifies this likelihood by means of the adverbial *extremely*, but further reveals scientists’ commitment to the truth value of the proposition of climate change. This is conveyed by a higher degree of certainty (*virtually*

certain), based on the updated research advances made in the field of climate science as shown in (4).

This increasing “calibrated language” approach is based on the verbal paraphrasing of numerical degrees of certainty to improve the communication of scientific uncertainty for a clearer interpretation by the public. As a result, it appears that “this dramatic reduction in uncertainty has been pivotal in putting the potential dangers of climate change on center stage and in galvanizing efforts to reduce and manage the problem” (Mearns 2010, 80). The climate science community has made remarkable efforts in this direction as witnessed by the plethora of studies published in peer-reviewed scientific journals. These clearly indicate that the great majority of active climate scientists now agree that anthropogenic factors are the leading cause affecting recent climate change. It thus seems evident that the functional use of epistemic modality in these scientific discourses has in the long run significantly contributed to expressing increasing certainty, thereby ensuring a certain discourse stability which allows to deal with climate instability on common scientific grounds (see Boykoff et al. 2010).

Despite the current wealth of scientific knowledge and the dramatic reduction in uncertainty about climate knowledge, the scientific community has not, however, managed to gain full consensus about human-induced climate change beyond its community boundaries. As Boykoff (2008,1) rightly notes, “an informational bias” is perpetrated by the media by “significantly diverging from the consensus view in climate science that humans contribute to climate change”. As a result, “troubles in translating this consensus in climate science have led to the appearance of amplified uncertainty and debate, also then permeating public and policy discourse” (*ibid.*).

In this light, scientific consensus has been refuted on the grounds that the highly specialised language deployed by climate scientists is difficult to understand and that a better explanation of available information is therefore strongly needed. The issue of scientific uncertainty poses major challenges as it is not understood in the correct way by the lay community at large (see Hulme 2009). As Van der Bles et al. (2019, 2) note, “epistemic uncertainty is an integral part of every stage of the scientific process: from the assumptions we have, the observations we note, to the extrapolations and the generalizations that we make”. While epistemic uncertainty is therefore a common outcome of scientific research, its communicative use in other social domains is likely to affect the perceived authority of science. It may deliberately be interpreted as a lack of adequate knowledge, especially in the case of climate policy-making since other different interests are at stake. Communicating epistemic uncertainty may lead the lay community to experience a loss of credibility in science, thus making dominant-biased